4112 DEL REY AVENUE PROJECT

Noise and Vibration Technical Report

Prepared for
MDR Investments, LLC
1880 Century Park East
Suite 1017
Los Angeles, CA 90067

December 2022

ESA

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Los Angeles
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted dB scale
FTA	Federal Transit Administration
FHWA	Federal Highway Administration
LAMC	Los Angeles Municipal Code
L_{dn}	Day-night average noise level
L_{eq}	Equivalent Sound Level
L_{max}	Maximum Noise Level
L_{min}	Minimum Noise Level
Metro	Los Angeles County Metropolitan Transportation Authority
MM	Mitigation Measure
Noise Element	City of Los Angeles General Plan Noise Element
PPV	peak particle velocity
RCNM	Roadway Construction Noise Model
TeNS	Caltrans Technical Noise Supplement
TIA	Traffic Impact Assessment
TNM	Traffic Noise Model

EXECUTIVE SUMMARY

MDR Investors, LLC (the Applicant) proposes the development of a residential building (Project) on an approximately 2.83-acre (123,359 square foot) site (Project Site) located at 4112, 4120, 4130, 4132, and 4136 Del Rey Avenue in the City of Los Angeles, California (City). The Project Site is currently improved with creative office and warehouse uses and associated surface parking. The Project would develop a new, six-story (66-foot-tall) building consisting of 210 residential units and 33,793 square feet of open space. The Project would also include a five-story parking structure that would be wrapped by the residential building. The Project would include a total building area of 258,399 gross square feet, including 253,974 square feet of floor area resulting in a floor area ratio (FAR) of 2.06:1.

This Noise and Vibration Technical Report (Technical Report) provides an estimate of noise and vibration levels for the Project in order to determine whether Project construction and operational activities would result in significant impacts on the environment pursuant to the California Environmental Quality Act (CEQA). The analysis describes the existing noise environment in the vicinity of the Project Site, estimates future noise and vibration levels at surrounding land uses resulting from construction and operation of the Project, and identifies the potential for significant noise impacts based on applicable standards and noise and vibration thresholds of significance. Noise worksheets and technical data used in this analysis are provided in Appendices A through D of this Technical Report. The findings of the analyses are as follows:

- Construction activities would be required to comply with City's allowable construction hours of between 7:00 a.m. and 9:00 p.m. Mondays through Friday, 8:00 a.m. and 6:00 p.m. Saturdays, no construction on Sundays, and would be temporary in nature. The approach to construction of the Project includes adherence to the City's regulations.

- The addition of haul truck trips to roadways during construction would be less than the current traffic volumes on access roads and would result in a less than 3 dBA barely perceptible noise level increase, and would not increase noise levels by a "clearly noticeable" increase of 5 dBA over the ambient condition. Off-site haul truck trip would not substantially increase noise levels over the ambient condition. In addition, construction activities would occur only during daytime hours within the allowable hours specified in the City's Municipal Code. Therefore, noise impacts from off-site construction traffic would be less than significant and no mitigation measures would be required.

- Project compliance with the City's noise standards as well as Project-related operational noise levels being reduced to below the prevailing ambient noise-based thresholds (ambient noise level + 5 dBA) at off-site sensitive receivers would ensure that operational noise impacts are less than significant. The Project's noise impacts on existing offsite development from on-site operational stationary noise sources and traffic would not exceed established

thresholds of significance. Operational related noise impacts would be less than significant and no mitigation measures would be required.

- Construction activities would generate noise that would exceed the threshold of significance. The Project would be required to implement mitigation measures to reduce construction noise levels. With implementation of mitigation measures, construction noise levels would be reduced to below the significance thresholds at all off-site sensitive receiver locations in the Project vicinity. Therefore, construction noise impacts would be mitigated to a less-than-significant level.

SECTION 1
Introduction

ESA has conducted an acoustical study with respect to potential noise and vibration impacts associated with construction activities, surface transportation, and other aspects of Project operations that are noise and vibration intensive and have the potential to impact noise sensitive land uses. The objectives of this noise study are to:

a. Quantify the existing ambient noise environment at the Project Site;

b. Evaluate construction and operational noise and vibration in order to determine whether sensitive receptors (i.e., residential uses) would be subject to significant impacts based on applicable City standards and thresholds;

c. Provide, if needed, noise mitigation measures to meet applicable noise regulations and standards as specified by the City of Los Angeles.

The Applicant proposes the development of a residential building (Project) on an approximately 2.83-acre (123,359 square foot) site (Project Site) located at 4112, 4120, 4130, 4132, and 4136 Del Rey Avenue in the City of Los Angeles, California (City). **Figure 1**, *Regional Location*, and **Figure 2**, *Aerial Photograph with Surrounding Land Uses*, show the Site and surrounding land uses. The Project Site is currently improved with creative office and warehouse uses and associated surface parking, which would all be demolished and removed to support development of the Project.

1.1 Existing Conditions

The Project Site is located in an urbanized area and the surrounding uses include residential, commercial and retail uses. The nearest sensitive uses include an apartment complex residential development approximately 15 to 40 feet to the north of the Project Site along Del Rey Avenue. The Project Site is bound by a multi-family apartment building to the north, commercial uses to the east, a FedEx Ship Center to the south, and Del Rey Avenue to the west. The Project Site is located within the Palms – Mar Vista – Del Rey Community Plan (Community Plan) area in the City of Los Angeles.

The Project Site is currently occupied by six one-story buildings and associated surface parking. The northernmost parcel on the Project Site is currently developed with two approximately 11,000 square foot buildings, the middle parcel is currently developed with a 10,480 square foot building and a 12,300 square foot building, and the southernmost parcel is currently developed with a 10,200 square foot and a 9,900 square foot building. The existing buildings are currently occupied with creative office and warehouse uses. Vehicle access to the existing surface parking lots is provided via multiple ingress and egress points along Del Rey Avenue.

Figure 1 Regional Location

Figure 2 Aerial Photograph with Surrounding Land Uses

1.2 Project Description

The Project would develop a new, six-story (66-foot-tall) building consisting of 210 residential units and 33,793 square feet of open space. The Project would also include a five-story parking structure that would be wrapped by the residential building. The Project would include 253,974 square feet of floor area resulting in a floor area ratio (FAR) of 2.06:1.

The Project would construct a residential development with leasing and amenity spaces as well as common and private open space. The Project would develop a total of 258,399 gross square feet of residential uses, and 147,182 square feet of parking uses, and 33,793 square feet of open space within the proposed residential building. The residential building would be six stories and approximately 66 feet high. In total, the Project would provide 210 residential units consisting of 33 studio units, 108 one-bedroom units, 53 two-bedroom units, and 16 three-bedroom units. Of these units, 18 units (11 percent of the base density) would be designated as very low income (VLI) units.

Level 1 of the residential building would consist of a co-working area and an outdoor courtyard (Level 1 Courtyard) that provides an entrance to the proposed building along Del Rey Avenue. The uses provided on Level 1 would surround the ground floor of the 5-story parking structure. Access to the parking structure would be provided from a driveway off Dey Rey Avenue at the northwestern corner of the Project Site. Levels 2 through 6 of the residential building would include residential units Level 6 of the residential building would include outdoor amenities such as a pool deck with spa area (Level 6 Sky Deck) as well as indoor amenities including a sky lounge with associated lobby area, fitness center, and residential units.

Construction of the Project would commence as early as September 2024. Construction would be completed as early as August 2026. Construction of the Project would require excavation to a maximum depth of 7 feet below grade for the footings and foundations. Earthwork would require a net export of 30,695 cubic yards (cy) of soil. Construction staging would be entirely internal to the Project Site. Construction hours would occur in accordance with LAMC requirements, which prohibit 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. The Project Site would be fenced during construction for security purposes with gate-controlled access. Construction trucks would exit the Project Site to the SR-90 via Del Rey Avenue, Maxella Avenue, and Lincoln Boulevard.

1.3 Noise and Vibration Descriptors

Noise

Noise Principals and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as unwanted sound (i.e., loud, unexpected, or annoying sound). Acoustics is defined as the physics of sound. In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and

the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. Acoustics addresses primarily the propagation and control of sound.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of feeling and pain, respectively. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude, with audible frequencies of the sound spectrum ranging from 20 to 20,000 Hz. The typical human ear is not equally sensitive to this frequency range. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted decibels (dBA), which is typically applied to community noise measurements. Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in **Figure 3**, *Decibel Scale and Common Noise Sources*.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time; a noise level is a measure of noise at a given instant in time, as presented in Figure 3. However, noise levels rarely persist at that level over a long period of time. Rather, community noise varies continuously over a period of time with respect to the sound sources contributing to the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with many of the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume.

Figure 3 Decibel Scale and Common Noise Sources

What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual. These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the noise exposure to be measured over periods of time to characterize an existing community noise environment. The following noise descriptors are used to characterize environmental noise levels over time, which are applicable to the Project.

L_{eq}: The equivalent sound level over a specified period of time, typically, 1 hour (L_{eq}). The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_x: The noise level exceeded a percentage of a specified time period. For instance, L_{50} and L_{90} represent the noise levels that are exceeded 50 percent and 90 percent of the time, respectively.

L_{dn}: The average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dB to measured noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account nighttime noise sensitivity. The L_{dn} is also termed the day-night average noise level (DNL).

CNEL: The Community Noise Equivalent Level (CNEL) is the average A-weighted noise level during a 24-hour day that includes an addition of 5 dB to measured noise levels between the hours of 7:00 p.m. to 10:00 p.m. and an addition of 10 dB to noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance)
- Interference effects (e.g., communication, sleep, and learning interference)
- Physiological effects (e.g., startle response)
- Physical effects (e.g., hearing loss)

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects interrupt daily activities and include interference with human communication activities, such as normal

conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep.[1]

With regard to the subjective effects, the responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity. Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:[2]

- Except in carefully controlled laboratory experiments, a change of 1 dBA in ambient noise levels cannot be perceived;
- Outside of the laboratory, a 3 dBA change in ambient noise levels is considered to be a barely perceivable difference;
- A change in ambient noise levels of 5 dBA is considered to be a readily perceivable difference; and
- A change in ambient noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel scale. The human ear perceives sound in a non-linear fashion; therefore, the dBA scale was developed. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. Under the dBA scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and ten sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.[3]

1 California Department of Transportation, Technical Noise Supplement, Section 2.2.1, September 2013. https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf. Accessed September 2022.

2 California Department of Transportation, Technical Noise Supplement, Section 2.2.1, September 2013.

3 California Department of Transportation, Technical Noise Supplement, Section 2.2.1.1, September 2013.

Noise Attenuation

When noise propagates over a distance, the noise level reduces with distance at a rate that depends on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between 6 dBA for acoustically "hard" sites and 7.5 dBA for "soft" sites for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface (e.g., for hard surfaces, 80 dBA at 50 feet attenuates to 74 at 100 feet, 68 dBA at 200 feet, etc.).[4] Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water.[5] No excess ground attenuation is assumed for hard sites and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source.[6] Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance).[7]

Roadways and highways consist of several localized noise sources on a defined path, and hence are treated as "line" sources, which approximate the effect of several point sources.[8] Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading."[9] Line sources (e.g., traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement.[10] Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Additionally, receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels.[11] Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances (e.g., more than 500 feet). Other factors such as air temperature, humidity, and turbulence can also have significant effects on noise levels.[12]

Vibration

Foundations of Vibration

Groundborne vibration can be interpreted as energy transmitted in waves through the ground or man-made structures, which generally dissipate with distance from the vibration source. Because

4 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.2, September 2013.
5 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.2, September 2013.
6 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.2, September 2013.
7 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.2, September 2013.
8 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.1, September 2013.
9 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.1, September 2013.
10 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.1, September 2013.
11 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.3, September 2013.
12 California Department of Transportation, Technical Noise Supplement, Section 2.1.4.3, September 2013.

energy is lost during the transfer of energy from one particle to another, groundborne vibration becomes less perceptible with increasing distance from the source.

As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual*, groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard.[13] In contrast to airborne noise, groundborne vibration is not a common environmental problem, as it is unusual for groundborne vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, heavy trucks traveling on rough roads, and construction activities, such as blasting, pile-driving, and operation of heavy earth-moving equipment.

Several different methods are used to quantify groundborne vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the groundborne vibration signal in inches per second (in/sec), and is most frequently used to describe groundborne vibration impacts to buildings.[14] The root mean square (RMS) amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of groundborne vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS.[15] The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. The PPV crest factor is typically a factor of 1.7 to 6 times greater than RMS vibration velocity.[16] The vibration decibel metric, VdB, acts to compress the range of numbers required to describe groundborne vibration in a logarithmic scale. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for groundborne vibration include buildings where vibration would cause structural damage (especially older masonry structures).

Structural damage can potentially result from vibration events that generate vibration levels of 0.2-inch per second PPV for non-engineered timber and masonry buildings and 0.5-inch per second PPV for reinforced-concrete, steel, or timber (no plaster) buildings. Vibration events that generate a vibration level of 0.04-inch per second PPV is considered barely perceptible by a human.[17] In general, manmade earthborne vibrations attenuate rapidly with distance from the source. For instance, vibration of truck pass by is characterized by peaks that are considerably higher than those generated by automobiles.[18] These peaks last no more than a few seconds and often only a fraction of a second, including a rapid drop-off with distance.[19] Truck vibration levels at 50 feet from the centerline of the nearest lane would be about half of vibration levels

13 Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, Section 7, 2018.

14 Ibid., Section 5.1.

15 Ibid., Section 5.1.

16 Ibid., Section 5.1.

17 Federal Transit Administration (FTA), Noise and Vibration Manual, 2018, Page 109, https://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. Accessed September 2022.

18 California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020, Appendix A, page 13.

19 California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020, Appendix A, page 13.

measured at 15 feet from the centerline of the near lane.[20] At 100 feet, vibration levels from trucks are about one fourth, at 200 feet about one tenth, and at 300 feet less than one twentieth.[21] Because vibration drops off rapidly with distance, there is rarely a cumulative increase in groundborne vibration from the presence of multiple trucks.[22]

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hangings on walls, and rumbling sounds. In extreme cases, the groundborne vibration can cause damage to buildings.[23] Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction.[24] The Project would not use nor require the use of blasting or pile driving.

Groundborne noise is a result of groundborne vibration and specifically refers to the rumbling noise emanating from the motion of building room surfaces due to the vibration of floors and walls; it is perceptible only inside buildings.[25] The relationship between groundborne vibration and groundborne noise depends on the frequency content of the vibration and the acoustical absorption characteristics of the receiving room. For typical buildings, groundborne vibration that causes low frequency noise (i.e., the vibration spectrum peak is less than 30 Hz) results in a groundborne noise level that is approximately 50 decibels lower than the velocity level. For groundborne vibration that causes mid-frequency noise (i.e., the vibration spectrum peak is 30 to 60 Hz), the groundborne noise level will be approximately 35 to 37 decibels lower than the velocity level.[26] Therefore, for typical buildings, the groundborne noise decibel level is lower than the groundborne vibration velocity level.

1.4 Existing Noise Environment

Noise-Sensitive Receptor Locations

Some land uses are considered more sensitive to noise than others due to the types of activities typically involved at the receptor locations and the effect that noise can have on those activities and the persons engaged in them. Noise sensitive receptors are defined as those specific land uses that have associated indoor and/or outdoor human activities that may be subject to stress and/or significant interference from noise produced by community sound sources. Typically, residences, hospitals and schools are considered noise sensitive, as their land uses of sleeping, recuperation, and concentration, can be adversely affected by noise.

The nearest noise-sensitive uses include Tribeca Urban Apartments (25 feet) multifamily residential development to the north of the Project Site and Belle Fontaine Apartments (250 feet)

20 California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020, Appendix A, page 13.

21 California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020, page 10.

22 California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020, Appendix A, page 13.

23 Ibid., Section 5.5.

24 Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, Section 5.5, 2018.

25 Ibid., Section 5.4.

26 Ibid., Table 6-3 and Table 6-14, pages 126 and 146.

to the east beyond commercial/industrial buildings. Other noise-sensitive uses include residential uses (430 feet) to the west of the Project Site, west of Lincoln Boulevard; and a church (Joy of All Who Sorrow Orthodox Church, 300 feet) to the south of the Project Site along Lincoln Boulevard.

Existing noise-sensitive uses within 1,000 feet of the Project Site include the following as shown in **Figure 4**, *Noise Measurements and Existing Noise Sensitive Locations*. All other noise-sensitive uses are located at greater distances from the Project Site and would experience lower noise levels from potential sources of noise on the Project Site. Therefore, noise levels at additional sensitive receptors beyond those identified above are not evaluated.

Ambient Noise Levels

The predominant existing noise source surrounding the Project Site is traffic noise from Lincoln Boulevard, Del Rey Avenue, and other local streets. Secondary noise sources include general commercial-related activities, such as loading dock/delivery truck activities, trash compaction, and refuse service activities, from the surrounding commercial land uses.

Ambient noise measurements were taken at five locations, representing the nearby sensitive land uses in the vicinity of the Project Site to establish conservative ambient noise levels. The measurement locations, along with existing development, are shown on **Figure 4**. Short-term (15-minute) noise measurements were taken at locations R1 through R8 on September 27th, 2022. **Appendix C** includes the details about the ambient noise monitoring.

The ambient noise measurements were conducted using the Larson-Davis 820 Precision Integrated Sound Level Meter ("SLM"). The Larson-Davis 820 SLM is a Type 1 standard instrument as defined in the American National Standard Institute S1.4. All instruments were calibrated and operated according to the applicable manufacturer specification. The microphone was placed at a height of 5 feet above the local grade, at the following locations as shown in Figure 4:

- Measurement Location R1: This measurement location represents the existing noise environment of the area to the northwest (975 feet), along Carter Avenue residential uses, behind commercial uses (Jet Nails and Spa, Marina Bay Watch Company, etc.) along Lincoln Boulevard. The sound level meter was placed adjacent to these sensitive receiver sites.
- Measurement Location R2: This measurement location represents residential uses to the northwest of the Project Site (540 feet), along Carter Avenue, behind Felipes' Carwash.
- Measurement Location R3: This measurement location represents the existing noise environment of the residential uses along Berkeley Drive west of the Project Site (430 feet), at the corner of Carter Avenue and Berkeley Drive.
- Measurement Location R4: This measurement location represents the existing noise environment of an apartment complex along Lincoln Boulevard, south of the Project Site (415 feet).

Figure 4 Noise Measurements and Existing Noise Sensitive Locations

- Measurement Location R5: This measurement location represents the existing noise environment of an apartment complex south/southeast of the Project Site along Del Rey (215 feet).
- Measurement Location R6: This measurement location represents the existing noise environment of Tribeca Urban Apartments, north of the Project Site (25 feet).
- Measurement Location R7: This measurement location represents the existing noise environment of multi-family residential uses at Belle Fontaine Apartments to the north/northeast of the Project Site (430 feet) along Glencoe Avenue.
- Measurement Location R8: This measurement location represents the existing noise environment of X67 Loft multi-family residential uses to the east of the Project Site (200 feet) along Glencoe Avenue.

A summary of noise measurement data is provided in **Table 1,** *Summary of Ambient Noise Measurements*. Daytime noise levels ranged from 53.6 dBA to 74.1 dBA L_{eq}.

TABLE 1
SUMMARY OF AMBIENT NOISE MEASUREMENTS

	Measured Ambient Noise Levels (dBA) [a]		
Location and Existing Land Uses	**L_{eq}**	**Lmax**	**Lmin**
R1, Residential	59.6	74.5	52.4
R2, Residential	60.3	81.1	49.6
R3, Residential	57.4	68.3	45.9
R4, Residential	74.1	92.5	54.4
R5, Residential	60.4	72.5	52.5
R6, Residential	53.6	62.3	49.9
R7, Residential	66.0	76.9	49.4
R8, Residential	66.9	76.7	50.1

[a] Detailed measured noise data is included in Appendix C.

SOURCE: ESA, 2022.

Existing Roadway Noise Levels

Existing roadway CNEL noise levels were calculated for 15 roadway segments located in the vicinity of the Project Site. The roadway segments selected for analysis are considered to be those that are expected to be the most directly impacted by Project-related traffic, which, for the purpose of this analysis, includes the roadways that are located near and immediately adjacent to the Project Site. These roadways, when compared to roadways located farther away from the Project Site, would experience the greatest percentage increase in traffic generated by the Project (as distances are increased from the Project Site, traffic is spread out over a greater geographic area and its effects are reduced).

Existing roadway CNEL noise levels were calculated using the Federal Highway Administration's (FHWA's) Highway Traffic Noise Model (FHWA-TNM) and traffic volumes at the study intersections reported in the Project's Transportation Study (TS) prepared by Gibson Transportation Consulting.[27] The model calculates the average noise level at specific locations based on traffic volumes, average speeds, and site environmental conditions.

The noise levels along these roadway segments are presented in **Table 2**, *Predicted Existing Vehicular Traffic Noise Levels*. As shown in Table 2, the ambient noise environment of the Project vicinity can be characterized by 24-hour CNEL levels attributable to existing traffic on local roadways. The calculated CNEL (at a distance of between 40 and 50 feet from the roadway right-of-way) from actual existing traffic volumes on the analyzed roadway segments ranged from 60.9 to 74.9 dBA CNEL for commercial areas.

Vibration-Sensitive Receptor Locations

Typically, groundborne vibration generated by man-made activities (i.e., rail and roadway traffic, operation of mechanical equipment and typical construction equipment) diminishes rapidly with distance from the vibration source.[28] The FTA Transit Noise and Vibration Impact Assessment provides vibration structure damage criteria for: (1) reinforced-concrete, steel, or timber (no plaster); (2) engineered concrete and masonry (no plaster); (3) non-engineered timber and masonry buildings; (3) and buildings extremely susceptible to vibration damage.[29]

The nearest off-site buildings to the Project Site that could be subjected to Project-related vibration structural damage impacts include the multi-family apartment building to the north, commercial uses to the east, and a FedEx Ship Center to the south. An identified cultural resource, 4144 S. Lincoln Boulevard/Schwartzkopf Exclusive Customs (4140 and 4144 S. Lincoln Boulevard), is oriented facing Lincoln Boulevard and is located approximately 213 feet (0.04 miles) southwest of the Project Site.

27 Gibson Transportation Consulting. Transportation Assessment for the 4112 Del Rey Avenue Residential Project, October 2022.

28 California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020, https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf. Accessed September 2022.

29 FTA, Transit Noise and Vibration Impact Assessment. September, 2018.

TABLE 2
PREDICTED EXISTING VEHICULAR TRAFFIC NOISE LEVELS

Roadway Segment	Existing CNEL (dBA) at Referenced Distances from Roadway Right-of-Way [a]
Del Rey Avenue	
Between Washington Blvd and Maxella Ave	72.7
n/o Washington Blvd	60.9
Glencoe Avenue	
Between Washington Blvd and Maxella Ave	70.2
s/o Maxella Ave	71.0
Lincoln Boulevard	
Between Washington Blvd and Maxella Ave	72.1
n/o Washington Blvd	74.9
s/o Maxella Ave	72.1
Maxella Avenue	
Between Del Rey Ave and Glencoe Ave	67.3
Between Lincoln Blvd and Del Rey Ave	67.8
e/o Glencoe Ave	66.0
w/o Lincoln Blvd	68.0
Washington Boulevard	
Between Del Rey Ave and Glencoe Ave	71.1
Between Lincoln Blvd and Del Rey Ave	71.3
e/o Glencoe Ave	71.7
w/o Lincoln Blvd	71.7

SOURCE: ESA 2022; Gibson Transportation Consulting 2022.

Existing Groundborne Vibration Levels

Aside from periodic construction work occurring throughout the City, field observations noted that other sources of groundborne vibration in the Project Site vicinity are limited to heavy-duty vehicular travel (buses, etc.) on local roadways. Rubber-tired vehicles traveling at a distance of 50 feet typically generates groundborne vibration velocity levels of approximately 0.006 in/sec PPV (approximately 63 VdB).[30] As stated earlier, groundborne noise impacts would generally be 25 to 40 dB lower than the velocity level depending on the frequency level of the source.[31]

30 FTA, Transit Noise and Vibration Impact Assessment, Figure 6-4, September 2018.

31 California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020, page 38.

SECTION 2
Regulatory Framework

2.1 Federal

Federal Noise Standards

Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (USEPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations (CFR) that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, the USEPA issued guidance levels for the protection of public health and welfare in residential land use areas of an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA. These guidance levels are not considered as standards or regulations and were developed without consideration of technical or economic feasibility.[32] There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Project.

Federal Vibration Standards

There are no federal vibration standards or regulations adopted by an agency that are applicable to evaluating vibration impacts from land use development projects such as the Project. However, the Federal Transit Administration (FTA) has adopted vibration criteria. The vibration damage criteria adopted by the FTA are shown in **Table 3,** *Construction Vibration Damage Criteria***.**

TABLE 3
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)	Approximate Vibration Level (VdB)[a]
I. Reinforced-concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

[a] RMS velocity in decibels, VdB re 1 micro-in/sec

SOURCE: FTA, Transit Noise and Vibration Impact Assessment Manual, 2018.

[32] United States Environmental Protection Agency, EPA Identifies Noise Levels Affecting Health and Welfare. April 1974.

2.2 State of California

California Noise Standards

The State of California has established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dBA CNEL in any habitable room. The standards require an acoustical analysis demonstrating that dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to exterior noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

Groundborne Vibration and Noise

The State of California has not adopted statewide standards or regulations for evaluating groundborne vibration or groundborne noise impacts from land use development projects such as the Project.

2.3 City of Los Angeles

Noise Element

The Noise Element of the City's General Plan establishes CNEL guidelines for land use compatibility, which are also provided in the City's 2006 L.A. CEQA Thresholds Guide and as shown in **Table 4**, *City of Los Angeles Land Use Compatibility for Community Noise*. The Noise Element includes a number of goals, objectives, and policies for land use planning purposes. The overall purpose of the Noise Element of the City's General Plan is to guide policymakers in making land use determinations and in preparing noise ordinances that would limit exposure of citizens to excessive noise levels. The following goals, policies, and objectives from the Noise Element of the General Plan are applicable to the Project.[33]

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

Objective 2 (Non-airport): Reduce or eliminate non-airport 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 (Land Use Development): Reduce or eliminate noise impact associated with proposed development of land and changes in land use.

[33] City of Los Angeles, *Noise Element of the General Plan*, adopted February 3, 1999.

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

TABLE 4
CITY OF LOS ANGELES LAND USE COMPATIBILITY FOR COMMUNITY NOISE

	Community Noise Exposure CNEL (dBA)			
Land Use	**Normally Acceptable**	**Conditionally Acceptable**	**Normally Unacceptable**	**Clearly Unacceptable**
Single-Family, Duplex, Mobile Homes	50 to 60	55 to 70	70 to 75	Above 70
Multi-Family Homes	50 to 65	60 to 70	70 to 75	Above 70
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 to 70	60 to 70	70 to 80	Above 80
Transient Lodging—Motels, Hotels	50 to 65	60 to 70	70 to 80	Above 80
Auditoriums, Concert Halls, Amphitheaters	—	50 to 70	—	Above 65
Sports Arena, Outdoor Spectator Sports	—	50 to 75	—	Above 70
Playgrounds, Neighborhood Parks	50 to 70	—	67 to 75	Above 72
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 to 75	—	70 to 80	Above 80
Office Buildings, Business and Professional Commercial	50 to 70	67 to 77	Above 75	—
Industrial, Manufacturing, Utilities, Agriculture	50 to 75	70 to 80	Above 75	—

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable: New construction or development should generally not be undertaken.
SOURCE: City of Los Angeles, 2006 L.A. CEQA Thresholds Guide, 2006.

Los Angeles Municipal Code

The City also has regulations to control unnecessary, excessive, and annoying noise, as set forth in Chapter XI, Noise Regulation, of the Los Angeles Municipal Code (LAMC). The City's Noise Regulation 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.

LAMC Sections 111.01 and 111.03 define the ambient noise as the actual measured ambient noise level or the City's presumed ambient noise level, whichever is greater. The actual ambient noise level is the measured noise level averaged over a period of at least 15 minutes L_{eq}.

LAMC Section 111.02 provides procedures and criteria for the measurement of the sound level of "offending" noise sources. In accordance with 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. To account for people's increased tolerance for short-duration noise events, the Noise Regulation provides a 5 dBA allowance for noise occurring more than five but less than fifteen minutes in any one-hour period and an additional 5 dBA allowance (total of 10 dBA) for noise occurring five minutes or less in any one-hour period.[34]

LAMC Section 112.01 prohibits 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.

LAMC Section 112.02 limits increases in noise levels from 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.

LAMC Section 112.05 sets a maximum noise level for construction equipment of 75 dBA Leq 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."[35]

LAMC Section 41.40 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.). In general, the City's Department of Building and Safety enforces noise ordinance provisions relative to equipment and the Los Angeles Police Department enforces provisions relative to noise generated by people.

LAMC Section 113.01 prohibits collecting or disposing of rubbish or garbage, operating any refuse disposal truck, or collecting, loading, picking up, transferring, unloading, dumping, discarding, or disposing of any rubbish or garbage, as such terms are defined in LAMC Section 66.00, within 200 feet of any residential building between the hours of 9:00 P.M. and 6:00 A.M. of the following day, unless a permit therefore has been duly obtained beforehand from the Board of Police Commissioners.

34 LAMC, Chapter XI, Article I, Section 111.02(b).

35 In accordance with the City's Noise Ordinances, "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.

Guidelines for Noise-Compatible Land Uses

The 2006 L.A. CEQA Thresholds Guide provides thresholds for determining significant noise impacts of a project. These standards are described further below. The City has adopted local guidelines based, in part, on the community noise compatibility guidelines established by OPR for use in assessing the compatibility of various land use types with a range of noise levels. These guidelines are set forth in the 2006 City of L.A. Thresholds Guide in terms of the CNEL. CNEL guidelines for specific land uses are classified into four categories: (1) "normally acceptable," (2) "conditionally acceptable," (3) "normally unacceptable," and (4) "clearly unacceptable." As shown in **Table 4**, a CNEL value of 70 dBA is the limit of what is considered a "conditionally acceptable" noise environment for multi-family residential uses, although the limit of what is considered "normally acceptable" for multi-family residential uses is set at 65 dBA CNEL.[36] The limit of what is considered "normally acceptable" for playgrounds and neighborhood parks is 70 dBA.[37] New development should generally be discouraged within the "normally unacceptable" or "clearly unacceptable" categories. However, if new development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Groundborne Vibration

The City of Los Angeles has not adopted standards or regulations addressing groundborne vibration or groundborne noise impacts from land use development projects, such as the Project. Instead, the FTA *Transit Noise and Vibration Impact Assessment* (2018) guidance documents provide screening level thresholds for vibration impacts for potential building structural damage.

36 City of Los Angeles, *2006 L.A. CEQA Thresholds Guide*, 2006, Section I.2.

37 City of Los Angeles, *2006 L.A. CEQA Thresholds Guide*, 2006, Section I.2.

SECTION 3
Thresholds of Significance

In accordance with the State CEQA Guidelines Appendix G, the Project would have a significant impact related to noise and vibration if it would result in:

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

b) **Generation of excessive groundborne vibration or groundborne noise levels.**

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

In assessing the Project's potential impacts related to noise and groundborne vibration and noise in this section, the City has determined to use Appendix G of the State CEQA Guidelines as its thresholds of significance. The factors below from the City's Noise Ordinance and the FTA's groundborne vibration and noise criteria for assessing potential impacts relating to building damage will be used where applicable and relevant to assist in analyzing the Appendix G questions.

The Project Site is not located within an airport land use plan area or within two miles of a public airport or public use airport. The Project Site is not located within the vicinity of a private airstrip, or heliport or helistop. Airport and airfields in proximity to the Project Site include Los Angeles International Airport approximately 2.75 miles to the south, and the Santa Monica Airport approximately 1.63 miles to the north. Therefore, construction or operation of the Project would not expose people to excessive airport related noise levels. No impact would occur in this regard, and these issues are not assessed further in the report.

3.1 Noise Levels

Construction

This noise analysis considers the temporary increase in construction noise above ambient noise levels. The 2006 L.A. CEQA Thresholds Guide identifies the following criteria to evaluate construction noise:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA L_{eq} or more at a noise-sensitive use;

- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA L_{eq} or more at a noise-sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA L_{eq} at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.

Construction of the Project is anticipated to commence in 2024 and last for approximately two years. In accordance with the above, the criteria used in the construction noise analysis presented in this technical report is and construction noise exceeding the existing ambient exterior noise level by 5 dBA L_{eq} or more at a noise-sensitive use.

Operation

The following criteria are applied to the Project, as set forth in the Thresholds Guide and the City's Noise Regulations, with the more restrictive provisions applied, to evaluate operational noise. The Project would have a significant impact from operations if:

- The Project causes the ambient noise levels measured at the property line of affected uses to increase by 3 dBA CNEL to or within the "normally unacceptable" or "clearly unacceptable" categories; or
- The Project causes the ambient noise levels measured at the property line of affected uses to increase by 5 dBA CNEL or more increase in noise level; or
- Project-related operational on-site (i.e., non-roadway) noise sources such as outdoor building mechanical/electrical equipment, outdoor activities, or parking facilities increase the ambient noise level (L_{eq}) at noise sensitive uses by 5 dBA L_{eq}.

In summary, for operational noise, the criteria for off-site operational noise is an increase in the ambient noise level of 3 dBA or 5 dBA CNEL, depending on the existing noise conditions at the affected noise-sensitive land use category. On-site operational noise is an increase in the ambient noise level of 5 dBA L_{eq} at an adjacent property line, in accordance with the LAMC.[38]

3.2 Groundborne Vibration and Groundborne Noise

The City has not adopted criteria to assess vibration impacts during construction. Thus, for this Project, the City has determined to use the FTA's criteria for structural damage, as described in **Table 3**, above, to evaluate potential impacts related to Project construction and operation.

- Potential Building Damage – Project construction activities that cause groundborne vibration levels to exceed the potential structural damage threshold of 0.5-in/sec PPV at

[38] Since the noise levels are measured at exterior locations at property lines, the noise levels inside buildings would be less than the values used for determining impacts. With windows closed, the minimum exterior-to-interior noise attenuation for typical structures in California is approximately 25 to 30 dBA or potentially more with improved noise abatement materials or techniques. See: Gordon, C.G., W.J. Galloway, B.A. Kugler, and D.L. Nelson. NCHRP Report 117: Highway Noise: A Design Guide for Highway Engineers. Washington, D.C.: Transportation Research Board, National Research Council, 1971.

the nearest off-site buildings or structures of Building Category I, Reinforced-concrete, steel, or timber (no plaster).

- Potential Building Damage – Project construction activities that cause groundborne vibration levels to exceed the potential structural damage threshold of 0.3-in/sec PPV at the nearest off-site buildings of Building Category II, Engineered concrete and masonry (no plaster).
- Potential Building Damage – Project construction activities that cause groundborne vibration levels to exceed the potential structural damage threshold of 0.2-in/sec PPV at the nearest off-site buildings of Building Category III, Non-engineered timber and masonry buildings.
- Potential Building Damage – Project construction activities that cause groundborne vibration levels to exceed the potential structural damage threshold of 0.12-in/sec PPV at the nearest off-site buildings of Building Category IV, Buildings extremely susceptible to building damage.

The nearest off-site buildings to the Project Site that could be subjected to Project-related vibration structural damage impacts include the multi-family apartment building to the north, commercial uses to the east, and a FedEx Ship Center to the south. The threshold of significance applied to these off-site buildings is 0.2-in/sec PPV (Building Category III, Non-engineered timber and masonry buildings). In addition to these adjacent buildings, an identified historical building is located approximately 213 feet away from Project site at 4140 Lincoln Boulevard. The threshold of significance applied to this historic off-site building is 0.12-in/sec PPV (Building Category IV, Buildings extremely susceptible to building damage).

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SECTION 4
Methodology

4.1 On-Site Construction Noise

On-site construction noise impacts were projected by determining the noise levels expected to be generated by the different types of construction activities anticipated, calculating the construction-related noise levels produced by the construction equipment assumed at sensitive receptors. More, specifically, the following steps were undertaken to assess construction-period noise impacts.

1. Typical noise levels for each type of construction equipment expected to be used based on information provided by the Applicant were obtained from the Federal Highway Administration (FHWA) roadway construction noise model (RCNM);
2. Distances between construction site locations (noise sources) within the Project Site and surrounding sensitive receptors were measured using Project architectural drawing, Google Earth, and site plans;
3. The construction noise levels were then calculated for each construction phase using the FHWA RCNM, conservatively, in terms of hourly L_{eq}, for sensitive receptor locations based on the standard point source noise-distance attenuation factor of 6 dBA for each doubling of distance, assuming that all of the equipment for each construction phase would be in use concurrently and that the loudest equipment would be located at the edge of the Project Site closest to the sensitive receptor locations; and
4. Construction noise levels were then compared to the construction noise significance thresholds identified above in Section 3, *Thresholds of Significance*.

4.2 Off-Site Roadway Noise (Construction and Operations)

Roadway CNEL noise levels were calculated using the methodology based on the Federal Highway Administration's (FHWA's) Highway Traffic Noise Model (TNM) and traffic volumes at the study intersections reported in the Project's Memorandum of Understanding for Transportation Study (TS) prepared by Gibson Transportation Consulting.[39] The modeling analysis calculates the average noise level at specific locations based on traffic volumes, average speeds, and site environmental conditions.

[39] Gibson Transportation Consulting. Transportation Assessment for the 4112 Del Rey Avenue Residential Project, October 2022.

This method allows for the definition of roadway configurations, barrier information (if any), and receiver locations. Roadway noise attributable to Project development was calculated and compared to baseline noise levels that would occur under the "without Project" condition.

4.3 Stationary Point-Source Noise (Operations)

Stationary point-source noise levels were evaluated by identifying the noise levels generated by outdoor stationary noise sources such as rooftop mechanical equipment, parking structure, automobile operations, and loading/refuse collection area activity, calculating the hourly L_{eq} noise level from each noise source at sensitive receiver property lines, and comparing such noise levels to existing ambient noise levels. More specifically, the following steps were undertaken to calculate outdoor stationary point-source noise impacts:

1. Ambient noise levels at surrounding sensitive receptor locations were estimated based on field measurement data (see **Table 1**);
2. Typical noise levels generated by each type of stationary point-source noise generator including mechanical equipment, open spaces, loading dock, and parking structure operations were obtained from measured noise levels for similar equipment/activities, noise levels published in environmental noise assessment documents for land use development projects or scientific journals, or noise levels from equipment manufacturer specifications
3. Distances between stationary point-source noise generators and surrounding sensitive receptor locations were measured using Project architectural drawings, Google Earth, and site plans;
4. Stationary point-source noise levels were then calculated for each sensitive receptor location based on the standard point source noise-distance attenuation factor of 6 dBA for each doubling of distance;
5. Noise level increases, if any, were compared to the stationary point-source noise significance thresholds identified above in Section 3, *Thresholds of Significance*; and
6. Outdoor mechanical equipment is assessed based on the LAMC requirements and measured data, and their impacts on the nearby offsite receptors are determined based on their distance from these receptors. The noise levels determined at the offsite, noise-sensitive receptors are then compared to the stationary source noise significance thresholds identified in the LAMC.

4.4 Groundborne Vibration and Noise (Construction and Operations)

Groundborne vibration and noise impacts were evaluated for potential building damage impacts by identifying the Project's potential vibration sources, estimating the distance between the Project's vibration sources and the nearest structure receptor locations, and making a significance determination based on the significance thresholds described above in Section 3, *Thresholds of Significance*.

Construction activities may generate groundborne vibration and noise from transient sources due to the temporary and sporadic use of vibration-generating equipment. Operation of the Project has no potential to cause structure damage to the Project's own buildings or to off-site buildings that

are farther away because the Project would not include any equipment that would generate substantial vibration or noise levels. Construction and operational activities may generate groundborne vibration and noise levels that could be felt by people as a result of trucks and vehicles driving to and from the Project Site, or from the operation of typical commercial-grade stationary mechanical and electrical equipment used for residential and commercial land uses, such as air handling units, condenser units, and exhaust fans, which could produce groundborne vibration and noise.

SECTION 5
Environmental Impacts

Threshold a) Would the Project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact Statement: The Project would not result in the generation of a temporary or permanent increases in ambient noise levels in excess of the standards. Impacts would be less than significant.

5.1 Temporary Increase in Ambient Noise Levels

On-Site Construction Noise

Noise impacts from construction activities are generally a function of the noise generated by construction equipment, equipment locations, the sensitivity of nearby land uses, and the timing and duration of the noise-generating activities. Construction would be completed in eight stages, and include the use of the following equipment, based upon information provided by the Project applicant:

(1) demolition; 1 front-end loader, 1 tractor/loader/backhoe, 1 excavator

(2) grading/excavation; 1 excavator, 1 grader, 1 front-end loader, 1 tractor/loader/backhoe

(3) mat foundation/concrete pour; 1 excavator, 1 pump, 1 forklift, 1 front-end loader, 1 tractor/loader/backhoe, 1 other equipment

(4) building construction; 1 crane, 1 forklift, 1 generator set, 1 man lift, 1 compressor, 1 paver, 1 pavement scarafier, 1 roller, 1 tractor/loader/backhoe

(5) paving; 1 paver, 1 pavement scarafier, 1 roller, and

(6) architectural coating; 2 man-lifts, 2 compressors, 1 forklift, 1 generator

The Project would be constructed using typical construction techniques; no blasting or impact pile driving would be used. As discussed in Chapter II, *Project Description*, construction is anticipated to begin in 2024 with full build out in late 2026.

Project construction would require the use of mobile heavy equipment with high noise-level characteristics. Individual pieces of construction equipment expected to be used during Project construction could produce maximum noise levels of 75 dBA to 85 dBA L_{max} at a reference distance of 50 feet from the noise source, as shown in **Table 5**, *Construction Equipment Noise Levels*. These maximum noise levels would occur when equipment is operating under full power conditions. The estimated usage factor for the equipment is also shown in **Table 5**. The usage factors are based on the FHWA's Roadway Construction Noise Model User's Guide.[40] To more accurately characterize construction-period noise levels, the average (Hourly L_{eq}) noise level associated with each construction stage has been calculated based on the quantity, type, and usage factors for each type of equipment expected to be used during each construction stage assuming that multiple pieces of equipment are operating, simultaneously. Additionally, overlapping construction phase (building construction, paving, and architectural coating) noise levels were combined to estimate the maximum construction noise level during a worst-case scenario.

A summary of construction noise impacts at existing nearby sensitive receptors is provided in **Table 6,** *Estimated Unmitigated Construction Noise Levels at Existing Off-Site Sensitive Receptors*. As shown, unmitigated construction noise levels would exceed the threshold of significance at noise-sensitive receptor location R6, as the unmitigated construction noise level would exceed 5 dBA Leq over the existing ambient noise level. Therefore, mitigation measures would be required. A summary of mitigated construction noise impacts at existing nearby sensitive receptors is provided in **Table 7,** *Estimated Mitigated Construction Noise Levels at Existing Off-Site Sensitive Receptors.* Supporting calculations are provided in **Appendix A** of this Technical Report. The mitigated noise levels presented in **Table 7** account for noise attenuation associated with mufflers attached to the equipment, and reductions due to the noise barriers (16 to 20 feet high) described as part of the construction activities, with sufficient height to block the line-of-sight between the off-site sensitive receivers at noise-sensitive receptor location R6 and active construction area on the Project Site. Some of the off-site receivers, such as single-family residential uses to the west, the Belle Fontaine Apartments to the northeast, the Westly on Lincoln multifamily residences to the south, and Jefferson at Marina Del Rey to the west, and X67 Lofts multifamily residential uses to the east, would be shielded by intervening buildings (-15 dBA) between the Project Site and these off-site receivers. Those off-site receivers that would be shielded from the Project's construction noise by intervening buildings account for the noise reductions in both the unmitigated and mitigated analyses.

Mitigation Measure MM-NOISE-1 requires noise to be reduced by 25.5 dBA at the noise-sensitive receptors located directly to the north of the Project Site (e.g., Tribeca Urban Apartments at location R6) by requiring temporary noise barriers, which may be equipped with sound blankets or sound curtains that are capable of achieving the reduction, or a combination of temporary noise barriers and other noise-reducing strategies as specified in the mitigation measure. As shown in **Table 7**, mitigated construction noise levels are estimated to remain at or below the significance thresholds at all off-site sensitive receiver locations in the Project vicinity. Therefore, construction noise impacts would be mitigated to a less-than-significant level.

[40] Federal Highway Administration, Roadway Construction Noise Model User's Guide, 2006. https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf

Project construction activities would also not occur between the hours of 8:00 P.M. and 8:00 A.M. Monday through Friday; 7:00 P.M. and 9:00 A.M. on Saturdays; 7:00 P.M. and 10:00 A.M. on Sundays in accordance with the City's Municipal Code. Therefore, on-site construction noise impacts would not exceed standards established in the local general plan or noise ordinance and would be less than significant.

TABLE 5
CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Estimated Usage Factor, %	Maximum Noise Level at 50 feet from Equipment, dBA (Lmax)
All Other Equipment > 5 HP	50	85
Air Compressor	50	78
Compactor	20	83
Concrete pump truck	20	81
Crane	40	81
Dump/Haul Truck	20	76
Excavator	40	81
Front-end Loader	40	80
Generator	50	81
Grader	40	85
Forklift	10	75
Man Lift	20	85
Paver	50	77
Pavement Scarafier	20	85
Pump	50	81
Roller	20	80
Rubber Tired Dozer	40	82
Tractor/Loader/Backhoe	25	80

SOURCE: FHWA Roadway Construction Noise Model User's Guide, 2006.

TABLE 6
ESTIMATED UNMITIGATED CONSTRUCTION NOISE LEVELS AT EXISTING OFF-SITE SENSITIVE RECEPTORS

Noise Sensitive Receptor	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Existing Ambient Noise Level (dBA Leq)	Significance Threshold (dBA Leq)	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase, [a,b] Hourly L_{eq} (dBA)		Exceeds Significance Threshold?
					Attenuation	Noise Level	
R1	Demolition					38	
Represents the residential uses to the northwest of the Project Site, along Carter Avenue, behind commercial uses (Jet Nails and Spa, Marina Bay Watch Company, etc.) along Lincoln Boulevard.	Grading/Excavation					41	
	Mat Foundation/ Concrete Pour				-15	43	
	Building Construction	975 to 1,450 feet	59.6	64.6	(Intervening building attenuation)	41	No
	Paving					39	
	Architectural Coating					40	
	Maximum Noise Level					**43**	
R2	Demolition					43	
Represents the residential uses to the northwest of the Project Site, along Carter Avenue, behind Felipes's Carwash.	Grading/Excavation					45	
	Mat Foundation/ Concrete Pour				-15	47	
	Building Construction	540 to 1,050 feet	60.3	65.3	(Intervening building attenuation)	44	No
	Paving					42	
	Architectural Coating					44	
	Maximum Noise Level					**47**	
R3	Demolition					45	
Represents the residential uses along Berkeley Drive west of the Project Site, at the corner of Carter Avenue and Berkeley Drive.	Grading/Excavation					47	
	Mat Foundation/ Concrete Pour				-15	48	
	Building Construction	430 to 815 feet	57.4	62.4	(Intervening building attenuation)	47	No
	Paving					44	
	Architectural					46	
	Maximum Noise Level					**48**	

Noise Sensitive Receptor	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Existing Ambient Noise Level (dBA Leq)	Significance Threshold (dBA Leq)	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase, [a,b] Hourly L_{eq} (dBA)		Exceeds Significance Threshold?
					Attenuation	Noise Level	
R4 Represents the residential uses and church along Lincoln Boulevard, south of the Project Site.	Demolition	415 to 915 feet	74.1	79.1	-15 (Intervening building attenuation)	45	No
	Grading/Excavation					47	
	Mat Foundation/ Concrete Pour					48	
	Building Construction					46	
	Paving					44	
	Architectural Coating					46	
	Maximum Noise Level					**48**	
R5 Represents the residential uses to the south/southeast of the Project Site along Del Rey.	Demolition	215 to 525 feet	60.4	65.4	-15 (Intervening building attenuation)	50	No
	Grading/Excavation					53	
	Mat Foundation/ Concrete Pour					54	
	Building Construction					51	
	Paving					49	
	Architectural Coating					51	
	Maximum Noise Level					**54**	
R6 Represents the residential uses (e.g., Tribeca Urban Apartments) to the north of the Project Site.	Demolition	25 to 315 feet	53.6	58.6	0	83	**Yes**
	Grading/Excavation					83	
	Mat Foundation/ Concrete Pour					84	
	Building Construction					76	
	Paving					78	
	Architectural Coating					81	
	Maximum Noise Level					**84**	
R7 Represents the residential uses (e.g., Belle Fontaine Apartments) to the north/northeast of the Project Site along Glencoe Avenue.	Demolition	430 to 885 feet	66.0	71.0	-15 (Intervening building attenuation)	45	No
	Grading/Excavation					47	
	Mat Foundation/ Concrete Pour					48	
	Building Construction					46	
	Paving					44	
	Architectural Coating					46	
	Maximum Noise Level					**48**	

Noise Sensitive Receptor	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Existing Ambient Noise Level (dBA Leq)	Significance Threshold (dBA Leq)	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase, [a,b] Hourly L_{eq} (dBA)		Exceeds Significance Threshold?
					Attenuation	Noise Level	
R8 Represents the residential uses to the east of the Project Site along Glencoe Avenue.	Demolition	200 to 500 feet	66.9	71.9	-15 (Intervening building attenuation)	45	No
	Grading/Excavation					48	
	Mat Foundation/ Concrete Pour					49	
	Building Construction					47	
	Paving					45	
	Architectural Coating					47	
	Maximum Noise Level					**49**	

[a] Estimated construction noise levels represent the worst-case condition when noise generators are located closest to the receptors and are expected to last the entire duration of each construction phase.
[b] Noise levels include a 15 dBA reduction from acoustic shielding from intervening buildings between the Project Site and off-site sensitive receivers analyzed.

Source: ESA, 2022.

TABLE 7
ESTIMATED MITIGATED CONSTRUCTION NOISE LEVELS AT EXISTING OFF-SITE SENSITIVE RECEPTORS

Noise Sensitive Receptor	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Existing Ambient Noise Level (dBA Leq)	Significance Threshold (dBA Leq)	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase, [a,b] Hourly L_{eq} (dBA)		Exceeds Significance Threshold?
					Attenuation	Noise Level	
R1	Demolition	975 to 1,450 feet	59.6	64.6	-15 (Intervening building attenuation)	38	No
Represents the residential uses to the northwest of the Project Site, along Carter Avenue, behind commercial uses (Jet Nails and Spa, Marina Bay Watch Company, etc.) along Lincoln Boulevard.	Grading/Excavation					41	
	Mat Foundation/ Concrete Pour					43	
	Building Construction					41	
	Paving					39	
	Architectural Coating					40	
	Maximum Noise Level					**43**	
R2	Demolition	540 to 1,050 feet	60.3	65.3	-15 (Intervening building attenuation)	43	No
Represents the residential uses to the northwest of the Project Site, along Carter Avenue, behind Felipes's Carwash.	Grading/Excavation					45	
	Mat Foundation/ Concrete Pour					47	
	Building Construction					44	
	Paving					42	
	Architectural Coating					44	
	Maximum Noise Level					**47**	
R3	Demolition	430 to 815 feet	57.4	62.4	-15 (Intervening building attenuation)	45	No
Represents the residential uses along Berkeley Drive west of the Project Site, at the corner of Carter Avenue and Berkeley Drive.	Grading/Excavation					47	
	Mat Foundation/ Concrete Pour					48	
	Building Construction					47	
	Paving					44	
	Architectural					46	
	Maximum Noise Level					**48**	

Noise Sensitive Receptor	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Existing Ambient Noise Level (dBA Leq)	Significance Threshold (dBA Leq)	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase, [a,b] Hourly L_{eq} (dBA)		Exceeds Significance Threshold?
					Attenuation	Noise Level	
R4 Represents the residential uses and church along Lincoln Boulevard, south of the Project Site.	Demolition	415 to 915 feet	74.1	79.1	-15 (Intervening building attenuation)	45	No
	Grading/Excavation					47	
	Mat Foundation/ Concrete Pour					48	
	Building Construction					46	
	Paving					44	
	Architectural Coating					46	
	Maximum Noise Level					**48**	
R5 Represents the residential uses to the south/southeast of the Project Site along Del Rey.	Demolition	215 to 525 feet	60.4	65.4	-15 (Intervening building attenuation)	50	No
	Grading/Excavation					53	
	Mat Foundation/ Concrete Pour					54	
	Building Construction					51	
	Paving					49	
	Architectural Coating					51	
	Maximum Noise Level					**54**	
R6 Represents the residential uses (e.g., Tribeca Urban Apartments) to the north of the Project Site.	Demolition	25 to 315 feet	53.6	58.6	-25.5 (MM-NOISE-1)	57.5	No
	Grading/Excavation					57.5	
	Mat Foundation/ Concrete Pour					58.5	
	Building Construction					50.5	
	Paving					52.5	
	Architectural Coating					55.5	
	Maximum Noise Level					**58.5**	
R7 Represents the residential uses (e.g., Belle Fontaine Apartments) to the north/northeast of the Project Site along Glencoe Avenue.	Demolition	430 to 885 feet	66.0	71.0	-15 (Intervening building attenuation)	45	No
	Grading/Excavation					47	
	Mat Foundation/ Concrete Pour					48	
	Building Construction					46	
	Paving					44	
	Architectural Coating					46	
	Maximum Noise Level					**48**	

Noise Sensitive Receptor	Construction Phases	Distance between Nearest Receptor and Construction Site, feet	Existing Ambient Noise Level (dBA Leq)	Significance Threshold (dBA Leq)	Estimated Construction Noise Levels at Noise Sensitive Receptor by Construction Phase, [a,b] Hourly L_{eq} (dBA)		Exceeds Significance Threshold?
					Attenuation	Noise Level	
R8 Represents the residential uses to the east of the Project Site along Glencoe Avenue.	Demolition	200 to 500 feet	66.9	71.9	-15 (Intervening building attenuation)	45	No
	Grading/Excavation					48	
	Mat Foundation/ Concrete Pour					49	
	Building Construction					47	
	Paving					45	
	Architectural Coating					47	
	Maximum Noise Level					**49**	

[a] Estimated construction noise levels represent the worst-case condition when noise generators are located closest to the receptors and are expected to last the entire duration of each construction phase.

[b] Noise levels include a 15 dBA reduction from acoustic shielding from intervening buildings between the Project Site and off-site sensitive receivers analyzed.

Source: ESA, 2022.

Off-Site Construction Traffic Noise

Delivery and haul truck trips would occur throughout the construction period, although no truck trips would occur between 8:00 PM and 8:00 AM Monday Through Friday, before 9:00 AM or after 7:00 PM on Saturday, or before 10:00 AM and 7:00 PM on Sunday.

The grading/excavation and foundations pour phases have the highest volume of haul trucks and therefore has the highest potential to cause a noise impact. The addition of 143 haul truck trips per day during the grading/excavation phases would result in a less than perceptible 3 dBA noise level increase and would not increase noise levels by a "clearly noticeable" increase of 5 dBA over the ambient condition. Based on the Project's Transportation Assessment,[41] under Existing Conditions, existing traffic volumes along Del Rey Avenue between Washington and Maxella Avenue are approximately 24,040 average daily trips (ADT).[42] Even when applying a passenger car equivalent (PCE) ratio of 3.0 to the Project's construction trucks, which would result in 429 PCE-adjusted haul truck trips (e.g., 143 x 3.0 = 429), traffic volumes would not double, which is necessary to result in a 3 dBA increase in traffic noise levels. During the remainder of the construction activities the maximum number of trucks accessing the site would be less than 110 per day. Therefore, based on this additional supporting evidence, noise impacts from off-site construction traffic would be less than significant and no mitigation measures are required.

Mitigation Measures

The following mitigation measure shall be implemented during construction:

MM NOISE-1: The Project applicant shall ensure that noise levels are reduced by 25.5 dBA Leq at the noise-sensitive receptors located directly to the north of the Project Site (e.g., Tribeca Urban Apartments). Noise reduction measures shall consist of one or more of the following measures or other similar measure or measures of equivalent noise reduction effectiveness:

- Temporary abatement techniques shall include the use of temporary and/or movable shielding for both specific and nonspecific operations. Temporary noise barriers shall be installed along the north side of the Project boundary to shield the nearest residences from construction noise, with a minimum height of 16 feet and a maximum height of 20 feet (above finished grade). Temporary noise barriers shall be made of plywood or other similar solid material. Temporary noise barriers shall be equipped with sound blankets or sound curtains rated at a sound transmission class (STC) capable of absorbing or attenuating noise attributable to construction equipment by 25.5 dBA. Optionally, a reduction of less than 25.5 dBA from the temporary noise barriers shall be allowed and sound blankets or sound curtains not required, as long as the barrier achieves a minimum reduction of 20 dBA and additional noise reduction measures are implemented (such as those below or other similar measure of equivalent noise reduction effectiveness) such that the total noise reduction at

41 Gibson Transportation Consulting, Inc., Transportation Assessment for the 4112 Del Rey Avenue Residential Project, October 2022. Refer to Appendix K of the SCEA.

42 The traffic volume of approximately 24,040 ADT was estimated based on the peak hour intersection volumes under Existing Conditions and the general assumption that peak hour trips represent approximately 10 percent of daily trip volumes (the Federal Highway Administration considers 10 percent to be a standard assumption; see Travel Model Improvement Program Time-of-Day Modeling Procedures: State-of-the-Practice, State-of-the-Art (2.0 Standard Approaches, http://www.fhwa.dot.gov/planning/tmip/publications/other_reports/tod_modeling_procedures/ch02.cfm).

the noise-sensitive receptors located directly to the north of the Project Site (e.g., Tribeca Urban Apartments) sums to 25.5 dBA.

- Use construction equipment, fixed or mobile, that individually generates less noise than presumed in the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM). Examples of such equipment are medium, compact, small, or mini model versions of backhoes, cranes, excavators, loaders, or tractors; or newer model equipment; or other applicable equipment that are equipped with reduced noise-generating engines. Construction equipment noise levels shall be documented based on manufacturer's specifications. The construction contractor shall keep construction equipment noise level documentation on-site for the duration of Project construction.

- Noise-generating equipment operated at the Project Site shall be equipped with California industry standard noise control devices to effectively reduce noise levels, i.e., mufflers, lagging, and/or motor enclosures. All noise-generating equipment will be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated. The reduction in noise level from noise shielding and muffling devices shall be documented based on manufacturer's specifications. The construction contractor shall keep noise shielding and muffling device documentation on-site and documentation demonstrating that the equipment has been maintained in accordance with the manufacturers' specifications on-site for the duration of Project construction.

- Impact tools used for Project construction shall be hydraulically or electrically powered wherever practicable to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where pneumatic tools are employed, quieter procedures shall be used such as an exhaust muffler on the compressed air exhaust and external jackets to minimize noise impacts.

- Buffer distances of noise and ground-borne vibration construction activities whose specific location on the Project Site may be flexible (e.g., operation of compressors and generators, cement mixing, general truck idling) shall be implemented to minimize noise impacts.

- Construction and demolition activities shall be scheduled to avoid operating more than one piece of motorized equipment simultaneously within 15 feet of the adjacent sensitive receptor's property line.

- The effectiveness of the above strategies to achieve the required noise reduction levels shall be documented by on-site noise monitoring conducted by a qualified acoustical analyst using a Type 1 instrument in accordance with the American National Standards Institute (ANSI) S1.4. Noise monitoring shall be conducted during early Project construction activities when the use of heavy equipment is prevalent so long as it can be demonstrated to the City's satisfaction that later construction activities would achieve the requisite noise reductions.

5.2 Permanent Increase in Ambient Noise Levels

Impacts from On-site Stationary Noise Sources

Open Space Event Noise

Any activities within the onsite open space may generate audible noise levels. However, the ground floor open space is located internally on the west side of the proposed building and completely shielded from receivers to the north that would provide a minimum of 25.5 dBA noise reduction. As such, ground floor open space noise would be lower than the ambient noise that is currently present.

Similarly, the sky deck, including the pool deck, located on Level 6 of the residential building would generate noise. However, the area would be shielded by the perimeter wall and building edge to ground floor receptors adjacent to the Project Site. **Table 8**, *On-Site Open Space Noise Levels*, lists the potential on-site open space noise level that would be experienced at offsite sensitive receptor locations. The sky deck, including the pool deck, would have a capacity of 435 people on the 6th floor based on occupancy levels provided by the Project applicant. It is further assumed that there would be 109 male adults, 108 female adults, and 218 children present as a worst-case scenario. Half of the population would be talking and the other half would be listening. With the adult population talking using a raised voice level of 65 dBA at 3 feet, and the children using a loud voice level of 76 dBA at 3 feet, the combined noise level would be equal to 96.7 dBA[43] at a distance of 3 feet. As shown in **Table 8**, incorporating distance attenuation measured from the approximate center of the sky deck and pool deck area to the receptor, and accounting for a 25 dBA noise attenuation from shielding by the Project building itself for those off-site receptors where the line-of-sight would be blocked, the crowd noise would not exceed the thresholds at adjacent offsite sensitive receptor locations. Therefore, open space noise impacts would be less than significant.

[43] 10 Log [30x10$^{7.6}$ + 224x10$^{6.5}$] = 93 dBA at a distance of 3.3 feet.

TABLE 8
ON-SITE OPEN SPACE NOISE LEVELS

Off-site Receiver	Noise Levels (dBA Leq) Sky Deck and Pool Deck[a]	Existing Ambient	Ambient + Project	Threshold	Significant Increase?[b]
R1	46	59.6	59.8	62.6	No
R2	50	60.3	60.7	63.3	No
R3	50	57.4	58.2	60.4	No
R4	25[c]	74.1	74.1	77.1	No
R5	30[c]	60.4	60.4	63.4	No
R6	38[c]	53.6	53.7	56.6	No
R7	55	66.0	66.3	69.0	No
R8	50	66.9	67.0	69.9	No

NOTES:

[a] Estimated pool deck noise assumes there are a total number of 435 people, with 218 children, 109 male adults, and 108 female adults with half of the population talking (adults using a raised voice level of 65 dBA at 3 feet and children using a loud voice level of 76 dBA at 3 feet).

[b] Threshold used for significant increase is 3 dBA for operational noise sources.

[c] Included 25 dBA from enclosure/shielding by the building itself.

SOURCE: ESA 2022

Fixed Mechanical Equipment

The operation of mechanical equipment such as air conditioning equipment may generate audible noise levels. However, mechanical equipment would be shielded from nearby noise sensitive uses to attenuate noise and avoid conflicts with adjacent uses. It is not anticipated that the mechanical equipment would be significantly different than the mechanical equipment that is currently present in the project area. In addition, the Project's mechanical equipment would need to comply with the LAMC noise standards, which establish maximum permitted noise levels from mechanical equipment and prohibit any increase in ambient noise levels at neighboring properties by more than 5 dBA. Project compliance with the City's noise standards would ensure that operational noise impacts associated with the Project's mechanical equipment are less than significant.

Parking Structure

Using FTA's calculation for noise generated by parking lot traffic, the entering vehicles would create noise levels up to 46.5 dBA[44] at a distance of 50 feet from the entrance of the parking structure. This value would be less than the measured ambient noise levels, 53.6 dBA to 74.1 dBA, at sensitive receivers in the Project vicinity. Table 9 lists the estimated noise levels at the off-site receivers from the parking structure operations. The Project's parking areas would be centrally located, and the Project buildings would generally block the line-of-sight to off-site receivers. The noise calculations do not account for the noise reduction from the Project buildings

[44] FTA, Transit Noise and Vibration Impact Assessment. September 2018, Tables 4-13 and 4-14.

at all of the off-site receiver locations and noise levels would be lower than shown in Table 9. Therefore, based on this analysis, the noise impacts from the parking structure would be less than significant.

TABLE 9
ON-SITE PARKING STRUCTURE NOISE LEVELS

Off-site Receiver	Noise Levels (dBA Leq)				Significant Increase?[b]
	Existing Estimated[a]	Existing Ambient	Ambient + Project	Threshold	
R1	26.5	59.6	59.6	62.6	No
R2	25.5	60.3	60.3	63.3	No
R3	27.5	57.4	57.4	60.4	No
R4	28.5	74.1	74.1	77.1	No
R5	33.3	60.4	60.4	63.4	No
R6	27.5 [c]	53.6	53.6	56.6	No
R7	27.5	66.0	66.0	69.0	No
R8	34.5	66.9	66.9	69.9	No

NOTES:

[a] Estimated parking structure noise based on Tables 4-13 and 4-14 in FTA Transit Noise and Vibration Impact Assessment, September 2018.

[b] Threshold used for significant increase is 3 dBA for operational noise sources.

[c] Included 25 dBA from enclosure/shielding by the building itself.

SOURCE: ESA 2022

Loading Area Noise and Refuse Collection

The loading activity and refuse collection area for the Project would be shielded from sensitive uses in the project vicinity. Based on a noise survey that was conducted at a loading dock and trash collection facilities by ESA, loading activity (namely idling semi-trucks and backup alarm beeps) and trash compactors could generate noise levels of approximately 70 dBA L_{eq} and 66 dBA L_{eq}, respectively, at a reference distance of 50 feet.[45] Loading activity/trash collection noise levels have been calculated at each sensitive receptor accounting for a 15 to 25 dBA reduction in noise level provided by the shielding from intervening buildings.[46] Loading activity and trash compaction would be reduced to 55 dBA L_{eq} or lower at the closest noise sensitive receptors. Table 10 lists the estimated noise levels at the off-site receivers from the loading operations. Therefore, the noise levels from the Project's loading dock and refuse collection area would be

[45] The loading dock facility noise measurements were conducted at a loading dock facility at a Wal-Mart store using the Larson-Davis 820 Precision Integrated Sound Level Meter ("SLM") in May 2003. The Larson-Davis 820 SLM is a Type 1 standard instrument as defined in the American National Standard Institute S1.4. All instruments were calibrated and operated according to the applicable manufacturer specification. The microphone was placed at a height of approximately 5 feet above the local grade.

[46] Federal Highway Administration. Noise Barrier Design Handbook, Section 3.4.2.

below the ambient noise levels captured at sensitive receptors in the Project vicinity and impacts would be less than significant.

TABLE 10
ON-SITE LOADING AND REFUSE COLLECTION AREA NOISE LEVELS

Off-site Receiver	Noise Levels (dBA Leq)				
	Existing Estimated[a]	Existing Ambient	Ambient + Project	Threshold	Significant Increase?[b]
R1	44	59.6	59.7	62.6	No
R2	49	60.3	60.6	63.3	No
R3	51	57.4	58.3	60.4	No
R4	52	74.1	74.1	77.1	No
R5	57	60.4	62.0	63.4	No
R6	26 [c]	53.6	53.6	56.6	No
R7	51	66.0	66.1	69.0	No
R8	58	66.9	67.4	69.9	No

NOTES:

[a] Estimated loading operations noise based on ESA past project experience.

[b] Threshold used for significant increase is 3 dBA for operational noise sources.

[c] Included 25 dBA from enclosure/shielding by the building itself.

SOURCE: ESA 2022

Composite Noise From On-site Stationary Operational Sources

Although it is not expected that all on-site stationary sources would occur at the same time, as a worst-case scenario, all on-site stationary operational noise levels are combined at off-site receiver locations, as shown below in Table 11.

TABLE 11
ON-SITE STATIONARY SOURCES COMPOSITE NOISE LEVELS

Off-site Receiver	Noise Levels (dBA Leq) Existing Estimated[a]	Existing Ambient	Ambient + Project	Threshold	Significant Increase?[b]
R1	48.2	59.6	59.9	62.6	No
R2	52.5	60.3	61.0	63.3	No
R3	53.5	57.4	58.9	60.4	No
R4	52.0	74.1	74.1	77.1	No
R5	57.0	60.4	62.0	63.4	No
R6	43.2	53.6	54.0	56.6	No
R7	56.5	66.0	66.5	69.0	No
R8	58.7	66.9	67.5	69.9	No

NOTES:

[a] Estimated loading operations noise based on ESA past project experience.

[b] Threshold used for significant increase is 3 dBA for operational noise sources.

SOURCE: ESA 2022

Offsite Project Traffic

Impacts Under Existing Traffic Baseline Conditions

Existing roadway noise levels were calculated along various roadway segments near to the Project Site. Roadway noise attributable to Project development was calculated using the traffic noise model previously described and was compared to baseline noise levels that would occur under the "No Project" condition.

Project impacts are shown in **Table 12**, *Off-Site Traffic Noise Impacts – Existing Conditions* with supporting calculation files provided in **Appendix B** of this Technical Report.

As indicated, the maximum increase in Project-related traffic noise levels over existing traffic noise levels would be 0.1 dBA CNEL, which would occur along 5 roadway segments. This increase in noise level would be below the barely perceptible threshold of 3 dBA and well below a "clearly noticeable" increase of 5.0 dBA CNEL in an area characterized by normally acceptable noise levels, and the increase in sound level would be substantially lower at the remaining roadway segments analyzed. Therefore, Project-related noise increases compared to existing conditions would be less than the applicable threshold and therefore less than significant, and no mitigation measures would be required.

TABLE 12
OFF-SITE TRAFFIC NOISE IMPACTS- EXISTING CONDITIONS

Roadway Segment	Existing CNEL (dBA) at Referenced Distances from Roadway Right-of-Way [a]		
	Existing	Existing + Project	Difference
Del Rey Avenue			
Between Washington Blvd and Maxella Ave	72.7	72.7	0.0
n/o Washington Blvd	60.9	61.0	0.1
Glencoe Avenue			
Between Washington Blvd and Maxella Ave	70.2	70.2	0.0
s/o Maxella Ave	71.0	71.1	0.1
Lincoln Boulevard			
Between Washington Blvd and Maxella Ave	72.1	72.1	0.0
n/o Washington Blvd	74.9	74.9	0.0
s/o Maxella Ave	72.1	72.1	0.0
Maxella Avenue			
Between Del Rey Ave and Glencoe Ave	67.3	67.4	0.1
Between Lincoln Blvd and Del Rey Ave	67.8	67.9	0.1
e/o Glencoe Ave	66.0	66.1	0.1
w/o Lincoln Blvd	68.0	68.0	0.0
Washington Boulevard			
Between Del Rey Ave and Glencoe Ave	71.1	71.1	0.0
Between Lincoln Blvd and Del Rey Ave	71.3	71.3	0.0
e/o Glencoe Ave	71.7	71.7	0.0
w/o Lincoln Blvd	71.7	71.7	0.0

SOURCE: ESA 2022; Gibson Transportation Consulting, 2022.

Impacts Under Future Cumulative Traffic Conditions

Future cumulative roadway noise levels were also calculated along various roadway segments near the Project to establish future baseline traffic noise levels that would occur with implementation of the related projects in the Project's vicinity, to which the Project's offsite traffic noise during operations could be added. Project impacts are shown in **Table 13**, *Off-Site Traffic Noise Impacts – Future Cumulative Conditions.* As indicated, the maximum increase in Project-related traffic noise levels over the future traffic noise levels would be 0.1 dBA CNEL, along Maxella Avenue between Lincoln Boulevard and Del Rey Avenue. This increase in noise level would be less than a "clearly noticeable" increase of 5.0 dBA CNEL in an area characterized by normally acceptable noise levels, and the increase in noise would be substantially lower at the remaining roadway segments analyzed. Therefore, Project-related noise increases, when measured against the future cumulative conditions, would be less than the applicable threshold and therefore less than significant.

TABLE 13
OFF-SITE TRAFFIC NOISE IMPACTS- FUTURE CUMULATIVE CONDITIONS

Roadway Segment	Cumulative CNEL (dBA) at Referenced Distances from Roadway Right-of-Way [a]		
	Cumulative	Cumulative + Project	Difference
Del Rey Avenue			
Between Washington Blvd and Maxella Ave	73.2	73.2	0.0
n/o Washington Blvd	56.9	56.9	0.0
Glencoe Avenue			
Between Washington Blvd and Maxella Ave	70.8	70.8	0.0
s/o Maxella Ave	71.6	71.6	0.0
Lincoln Boulevard			
Between Washington Blvd and Maxella Ave	72.4	72.4	0.0
n/o Washington Blvd	74.6	74.6	0.0
s/o Maxella Ave	73.0	73.0	0.0
Maxella Avenue			
Between Del Rey Ave and Glencoe Ave	68.3	68.3	0.0
Between Lincoln Blvd and Del Rey Ave	68.7	68.8	0.1
e/o Glencoe Ave	65.6	65.6	0.0
w/o Lincoln Blvd	65.7	65.7	0.0
Washington Boulevard			
Between Del Rey Ave and Glencoe Ave	71.6	71.6	0.0
Between Lincoln Blvd and Del Rey Ave	71.8	71.8	0.0
e/o Glencoe Ave	72.9	72.9	0.0
w/o Lincoln Blvd	72.2	72.2	0.0

SOURCE: ESA 2022; Gibson Transportation Consulting, 2022.

Comparison between Existing and Cumulative Traffic Conditions

Future cumulative roadway noise levels were compared to the existing traffic noise levels along various roadway segments near the Project to show the future traffic noise level increases with growth in the Project area with implementation of the related projects in the Project's vicinity, to which the Project's offsite traffic noise during operations could be added. Project impacts are shown in **Table 14**, *Off-Site Traffic Noise Impacts – Comparison between Existing and Cumulative Conditions.* Along some roadway segments, traffic noise levels under the cumulative conditions would be lower than under the existing conditions. As indicated, the maximum increase in growth-related traffic noise levels over the existing traffic noise levels would be 1.2 dBA CNEL, along Washington Boulevard east of Glencoe Avenue. This increase in noise level would be less than a "clearly noticeable" increase of 5.0 dBA CNEL in an area characterized by normally acceptable noise levels, and the increase in noise would be substantially lower at the

remaining roadway segments analyzed. Therefore, Project-related noise increases, when measured against the future cumulative conditions, would be less than the applicable threshold and therefore less than significant.

TABLE 14
OFF-SITE TRAFFIC NOISE IMPACTS- COMPARISON BETWEEN EXISTING AND CUMULATIVE CONDITIONS

Roadway Segment	CNEL (dBA) at Referenced Distances from Roadway Right-of-Way [a]		
	Existing	Cumulative	Difference
Del Rey Avenue			
Between Washington Blvd and Maxella Ave	72.7	73.2	0.5
n/o Washington Blvd	60.9	56.9	-4.0
Glencoe Avenue			
Between Washington Blvd and Maxella Ave	70.2	70.8	0.6
s/o Maxella Ave	71.0	71.6	0.6
Lincoln Boulevard			
Between Washington Blvd and Maxella Ave	72.1	72.4	0.3
n/o Washington Blvd	74.9	74.6	-0.3
s/o Maxella Ave	72.1	73.0	0.9
Maxella Avenue			
Between Del Rey Ave and Glencoe Ave	67.3	68.3	1.0
Between Lincoln Blvd and Del Rey Ave	67.8	68.8	1.0
e/o Glencoe Ave	66.0	65.6	-0.4
w/o Lincoln Blvd	68.0	65.7	-2.3
Washington Boulevard			
Between Del Rey Ave and Glencoe Ave	71.1	71.6	0.5
Between Lincoln Blvd and Del Rey Ave	71.3	71.8	0.5
e/o Glencoe Ave	71.7	72.9	1.2
w/o Lincoln Blvd	71.7	72.2	0.4

SOURCE: ESA 2022; Gibson Transportation Consulting, 2022.

Threshold b) Generation of excessive groundborne vibration or groundborne noise levels?

Impact Statement: The Project would not generate excessive groundborne vibration during construction or operations. Groundborne noise impact would also be less than significant.

5.3 Groundborne Vibration

Structural Impacts

Construction

Construction activities can generate varying degrees of groundborne vibration, depending on the construction procedures and the construction equipment used. The operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site varies depending on soil type, ground strata, and construction characteristics of the receptor buildings. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibration from construction activities rarely reaches levels that damage structures. The FTA provides reference PPV levels for various types of construction equipment, as shown in **Table 15**, *Typical Vibration Velocities for Potential Project Construction Equipment*.

TABLE 15
TYPICAL VIBRATION VELOCITIES FOR THE PROJECT CONSTRUCTION EQUIPMENT

	Approximate PPV (in/sec)				
Equipment	**25 Feet**	**50 Feet**	**60 Feet**	**75 Feet**	**100 Feet**
Large Bulldozer	0.089	0.031	0.024	0.017	0.011
Loaded Trucks	0.076	0.027	0.020	0.015	0.010
Jackhammer	0.035	0.012	0.009	0.007	0.004
Small Bulldozer	0.003	0.001	0.0008	0.0006	0.0004

Source: FTA, Transit Noise and Vibration Impact Assessment, September 2018; ESA, 2022.

Construction of the Project would generate groundborne construction vibration during site clearing, grading and shoring activities. Based on the vibration data provided in **Table 15**, vibration velocities from operation of construction equipment would range from approximately 0.001 to 0.031 in/sec PPV at 50 feet from the source of activity. Off-site sensitive receivers or buildings located at least 25 feet from the project construction area would be exposed to vibration levels below 0.089 in/sec PPV (highest vibration level measured at 25 feet from the equipment listed in Table 15 above) from onsite construction activity. Because construction vibration levels would be below 0.089 in/sec PPV at off-site buildings, construction of the Project would not result in vibration levels that would exceed the thresholds of either 0.2 in/sec PPV for the adjacent residential buildings or 0.12 in/sec PPV for the nearby historic building. Impacts would be less than significant.

Operation

The Project's operations would include typical commercial-grade stationary mechanical and electrical equipment, such as air handling units, condenser units, and exhaust fans, which would produce vibration. In addition, the primary sources of transient vibration would include passenger vehicle circulation within the proposed ground-level parking areas. Groundborne vibration generated by each of the above-mentioned activities would generate approximately up to 0.005 in/sec PPV adjacent to the Project Site.[47] The potential vibration levels from all Project operational sources at the closest existing sensitive receptor locations would be less than the significance threshold of 0.2 inch per second PPV significance threshold for potential residential building damage. As such, vibration impacts associated with operation of the Project would be below the significance threshold and impacts would be less than significant.

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

Impact Statement: The Project is not located within the vicinity of a private airstrip or airport land use plan. Therefore, the Project would have no impact.

5.4 Airport Vicinity

The Project Site is not located within an airport land use plan area or within two miles of a public airport or public use airport. The Project Site is not located within the vicinity of a private airstrip, or heliport or helistop. Airport and airfields in proximity to the Project Site include Los Angeles International Airport approximately 2.75 miles to the south, and the Santa Monica Airport approximately 1.63 miles to the north. Therefore, construction or operation of the Project would not expose people to excessive airport related noise levels. No impact would occur in this regard, and these issues are not assessed further in the report.

[47] This vibration estimate is based on data presented in the USDOT Federal Transit Administration, 2018.

SECTION 6
Summary of Results

Construction Noise and Vibration

With implementation of mitigation measure MM NOISE-1, which would require implementation of construction noise reduction measures, construction noise levels would be reduced to below the applicable thresholds of significance and the Project would result in less than significant construction impacts related to noise.

Off-site haul truck trip would not substantially increase noise levels over the ambient conditions. In addition, construction activities would occur only during daytime hours within the allowable hours specified in the City's Municipal Code. Therefore, noise impacts from off-site construction traffic would be less than significant and no mitigation measures are required.

Project construction would not generate excessive vibration levels at nearby sensitive receptor locations. Thus, vibration impacts would be less than significant and no mitigation is required.

Operational Noise and Vibration

The Project would result in less than significant operational impacts related to noise and vibration and no mitigation is required. The Project's noise impacts on existing development from operational on-site stationary noise sources and traffic would not exceed the established thresholds. Operational related noise impacts would be less than significant and no mitigation is required.

Project operation would not generate excessive vibration levels at nearby sensitive receptor locations. Thus, vibration impacts would be less than significant and no mitigation is required.

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4112 Del Rey Ave Project

Noise Technical Appendix

A. Construction Noise Modeling
B. Traffic Noise Modeling
C. Noise Monitoring Measurements

4112 Del Rey Ave Project

A. Construction Noise Modeling - Unmitigated

Project: 4112 Del Rey

Construction Noise Impact on Sensitive Receptors

Parameters

Leq to L10 factor	3

				R1					R2					R3				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***42***	***38***				***47***	***43***		**0**		***49***	***45***		**0**
Excavator	1	81	40%	975	40	36	39	15	540	45	41	44	15	430	47	43	46	15
Front End Loader	1	79	40%	1200	36	32	35	15	830	40	36	39	15	675	41	37	40	15
Tractor/Loader/Backhoe	1	78	40%	1450	34	30	33	15	1050	37	33	36	15	815	39	35	38	15
Grading/Excavation					***45***	***41***				***49***	***45***				***51***	***47***		
Excavator	1	81	40%	975	40	36	39	15	540	45	41	44	15	430	47	43	46	15
Grader	1	85	40%	1200	42	38	41	15	830	46	42	45	15	675	47	43	46	15
Front End Loader	1	79	40%	1450	35	31	34	15	1050	38	34	37	15	815	40	36	39	15
Tractor/Loader/Backhoe	1	78	40%	1200	35	31	34	15	830	39	35	38	15	675	40	36	39	15
Mat Foundation/Concrete Pour					***46***	***43***				***50***	***47***				***52***	***48***		
Excavator	1	81	40%	975	40	36	39	15	540	45	41	44	15	430	47	43	46	15
Pumps	1	81	50%	1200	38	35	38	15	830	42	39	42	15	675	43	40	43	15
Forklift	1	75	10%	1450	31	21	24	15	1050	34	24	27	15	815	36	26	29	15
Front End Loader	1	79	40%	1200	36	32	35	15	830	40	36	39	15	675	41	37	40	15
Tractor/Loader/Backhoe	1	78	40%	1450	34	30	33	15	1050	37	33	36	15	815	39	35	38	15
Other Equipment	1	85	50%	1200	42	39	42	15	830	46	43	46	15	675	47	44	47	15
Building Construction					***45***	***41***				***49***	***44***				***51***	***47***		
Man Lift	1	75	20%	975	34	27	30	15	540	39	32	35	15	430	41	34	37	15
Compressor (air)	1	78	40%	1200	35	31	34	15	830	39	35	38	15	675	40	36	39	15
Crane	1	81	16%	1450	37	29	32	15	1050	40	32	35	15	815	42	34	37	15
Forklift	1	75	10%	1200	32	22	25	15	830	36	26	29	15	675	37	27	30	15
Generator	1	81	50%	1450	37	34	37	15	1050	40	37	40	15	815	42	39	42	15
Paver	1	77	50%	1200	34	31	34	15	830	38	35	38	15	675	39	36	39	15
Other Equipment	1	85	50%	1450	41	38	41	15	1050	44	41	44	15	815	46	43	46	15
Tractor/Loader/Backhoe	1	78	40%	1200	35	31	34	15	830	39	35	38	15	675	40	36	39	15
Architectural Coating					***43***	***39***				***47***	***42***				***49***	***44***		
Man Lift	2	75	20%	975	37	30	33	15	540	42	35	38	15	430	44	37	40	15
Compressor (air)	2	78	40%	1200	38	34	37	15	830	42	38	41	15	675	43	39	42	15
Forklift	1	75	10%	1450	31	21	24	15	1050	34	24	27	15	815	36	26	29	15
Generator	1	81	50%	1200	38	35	38	15	830	42	39	42	15	675	43	40	43	15
Paving					***43***	***40***				***47***	***44***				***49***	***46***		
Paver	1	77	50%	975	36	33	36	15	540	41	38	41	15	430	43	40	43	15
Other Equipment	1	85	50%	1200	42	39	42	15	830	46	43	46	15	675	47	44	47	15
Maximum Noise Levels						**43**					**47**					**48**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: 4112 Del Rey

Construction Noise Impact on Sensitive Receptors

Parameters

Leq to L10 factor	3

				R4					R5					R6				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L12**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***49***	***45***		**0**		***54***	***50***		**0**		***87***	***83***		**0**
Excavator	1	81	40%	415	48	44	47	15	215	53	49	52	15	25	87	83	86	0
Front End Loader	1	79	40%	675	41	37	40	15	375	46	43	46	15	150	69	65	68	0
Tractor/Loader/Backhoe	1	78	40%	915	38	34	37	15	525	43	39	42	15	315	62	58	61	0
Grading/Excavation					***51***	***47***				***57***	***53***				***87***	***83***		
Excavator	1	81	40%	415	48	44	47	15	215	53	49	52	15	25	87	83	86	0
Grader	1	85	40%	675	47	43	46	15	375	52	49	52	15	150	75	71	74	0
Front End Loader	1	79	40%	915	39	35	38	15	525	44	40	43	15	315	63	59	62	0
Tractor/Loader/Backhoe	1	78	40%	675	40	36	39	15	375	45	42	45	15	150	68	64	67	0
Mat Foundation/Concrete Pour					***52***	***48***				***57***	***54***				***88***	***84***		
Excavator	1	81	40%	415	48	44	47	15	215	53	49	52	15	25	87	83	86	0
Pumps	1	81	50%	675	43	40	43	15	375	48	45	48	15	150	71	68	71	0
Forklift	1	75	10%	915	35	25	28	15	525	40	30	33	15	315	59	49	52	0
Front End Loader	1	79	40%	675	41	37	40	15	375	46	43	46	15	150	69	65	68	0
Tractor/Loader/Backhoe	1	78	40%	915	38	34	37	15	525	43	39	42	15	315	62	58	61	0
Other Equipment	1	85	50%	675	47	44	47	15	375	52	49	52	15	150	75	72	75	0
Building Construction					***50***	***46***				***55***	***51***				***82***	***76***		
Man Lift	1	75	20%	415	42	35	38	15	215	47	40	43	15	25	81	74	77	0
Compressor (air)	1	78	40%	675	40	36	39	15	375	45	42	45	15	150	68	64	67	0
Crane	1	81	16%	915	41	33	36	15	525	46	38	41	15	315	65	57	60	0
Forklift	1	75	10%	675	37	27	30	15	375	42	32	35	15	150	65	55	58	0
Generator	1	81	50%	915	41	38	41	15	525	46	43	46	15	315	65	62	65	0
Paver	1	77	50%	675	39	36	39	15	375	44	41	44	15	150	67	64	67	0
Other Equipment	1	85	50%	915	45	42	45	15	525	50	47	50	15	315	69	66	69	0
Tractor/Loader/Backhoe	1	78	40%	675	40	36	39	15	375	45	42	45	15	150	68	64	67	0
Architectural Coating					***49***	***44***				***54***	***49***				***84***	***78***		
Man Lift	2	75	20%	415	45	38	41	15	215	50	43	46	15	25	84	77	80	0
Compressor (air)	2	78	40%	675	43	39	42	15	375	49	45	48	15	150	71	67	70	0
Forklift	1	75	10%	915	35	25	28	15	525	40	30	33	15	315	59	49	52	0
Generator	1	81	50%	675	43	40	43	15	375	48	45	48	15	150	71	68	71	0
Paving					***49***	***46***				***54***	***51***				***84***	***81***		
Paver	1	77	50%	415	44	41	44	15	215	49	46	49	15	25	83	80	83	0
Other Equipment	1	85	50%	675	47	44	47	15	375	52	49	52	15	150	75	72	75	0
Maximum Noise Levels						**48**					**54**					**84**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: 4112 Del Rey

Construction Noise Impact on Sensitive Receptors

Parameters

Leq to L10 factor	3

				R7					R8				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L12**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***49***	***45***		**0**		***49***	***45***		
Excavator	1	81	40%	430	47	43	46	15	400	48	44	47	15
Front End Loader	1	79	40%	680	41	37	40	15	615	42	38	41	15
Tractor/Loader/Backhoe	1	78	40%	885	38	34	37	15	820	39	35	38	15
Grading/Excavation					***51***	***47***				***52***	***48***		
Excavator	1	81	40%	430	47	43	46	15	400	48	44	47	15
Grader	1	85	40%	680	47	43	46	15	615	48	44	47	15
Front End Loader	1	79	40%	885	39	35	38	15	820	40	36	39	15
Tractor/Loader/Backhoe	1	78	40%	680	40	36	39	15	615	41	37	40	15
Mat Foundation/Concrete Pour					***52***	***48***				***53***	***49***		
Excavator	1	81	40%	430	47	43	46	15	400	48	44	47	15
Pumps	1	81	50%	680	43	40	43	15	615	44	41	44	15
Forklift	1	75	10%	885	35	25	28	15	820	36	26	29	15
Front End Loader	1	79	40%	680	41	37	40	15	615	42	38	41	15
Tractor/Loader/Backhoe	1	78	40%	885	38	34	37	15	820	39	35	38	15
Other Equipment	1	85	50%	680	47	44	47	15	615	48	45	48	15
Building Construction					***50***	***46***				***51***	***47***		
Man Lift	1	75	20%	430	41	34	37	15	400	42	35	38	15
Compressor (air)	1	78	40%	680	40	36	39	15	615	41	37	40	15
Crane	1	81	16%	885	41	33	36	15	820	42	34	37	15
Forklift	1	75	10%	680	37	27	30	15	615	38	28	31	15
Generator	1	81	50%	885	41	38	41	15	820	42	39	42	15
Paver	1	77	50%	680	39	36	39	15	615	40	37	40	15
Other Equipment	1	85	50%	885	45	42	45	15	820	46	43	46	15
Tractor/Loader/Backhoe	1	78	40%	680	40	36	39	15	615	41	37	40	15
Architectural Coating					***49***	***44***				***49***	***45***		
Man Lift	2	75	20%	430	44	37	40	15	400	45	38	41	15
Compressor (air)	2	78	40%	680	43	39	42	15	615	44	40	43	15
Forklift	1	75	10%	885	35	25	28	15	820	36	26	29	15
Generator	1	81	50%	680	43	40	43	15	615	44	41	44	15
Paving					***49***	***46***				***50***	***47***		
Paver	1	77	50%	430	43	40	43	15	400	44	41	44	15
Other Equipment	1	85	50%	680	47	44	47	15	615	48	45	48	15
Maximum Noise Levels						**48**					**49**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Table 1. CA/T equipment noise emissions and acoustical usage factors database.

CA/T Noise Emission Reference Levels and Usage Factors						
filename: EQUIPLST.xls						
revised: 7/26/05		Acoustical	Spec 721.560	Actual Measured	No. of Actual	Actual Combined
	Impact	Use Factor	Lmax @ 50ft	Lmax @ 50ft	Data Samples	Lmax @ 50ft
Equipment Description	Device ?	(%)	(dBA, slow)	(dBA, slow)	(Count)	(dBA, slow)
				(samples averaged)		
Other Equipment	No	50%	85	-- N/A --	0	85
Auger Drill Rig	No	20%	85	84	36	84
Tractor/Loader/Backhoe	No	40%	80	78	372	78
Bar Bender	No	20%	80	-- N/A --	0	80
Blasting	Yes	#VALUE!	94	-- N/A --	0	94
Boring Jack Power Unit	No	50%	80	83	1	83
Chain Saw	No	20%	85	84	46	84
Clam Shovel (dropping)	Yes	20%	93	87	4	87
Compactor (ground)	No	20%	80	83	57	83
Compressor (air)	No	40%	80	78	18	78
Concrete Batch Plant	No	15%	83	-- N/A --	0	83
Concrete Mixer Truck	No	40%	85	79	40	79
Concrete Pump Truck	No	20%	82	81	30	81
Concrete Saw	No	20%	90	90	55	90
Crane	No	16%	85	81	405	81
Dozer	No	40%	85	82	55	82
Drill Rig Truck	No	20%	84	79	22	79
Drum Mixer	No	50%	80	80	1	80
Dump Truck	No	40%	84	76	31	76
Excavator	No	40%	85	81	170	81
Flat Bed Truck	No	40%	84	74	4	74
Forklift	No	10%	75			75
Front End Loader	No	40%	80	79	96	79
Generator	No	50%	82	81	19	81
Generator (<25KVA, VMS signs)	No	50%	70	73	74	73
Gradall	No	40%	85	83	70	83
Grader	No	40%	85	-- N/A --	0	85
Grapple (on backhoe)	No	40%	85	87	1	87
Horizontal Boring Hydr. Jack	No	25%	80	82	6	82
Hydra Break Ram	Yes	10%	90	-- N/A --	0	90
Impact Pile Driver	Yes	20%	95	101	11	101
Jackhammer	Yes	20%	85	89	133	89
Man Lift	No	20%	85	75	23	75
Mounted Impact Hammer (hoe ram)	Yes	20%	90	90	212	90
Pavement Scarafier	No	20%	85	90	2	90
Paver	No	50%	85	77	9	77
Pickup Truck	No	40%	55	75	1	75
Pneumatic Tools	No	50%	85	85	90	85
Pumps	No	50%	77	81	17	81
Refrigerator Unit	No	100%	82	73	3	73
Rivit Buster/chipping gun	Yes	20%	85	79	19	79
Rock Drill	No	20%	85	81	3	81
Roller	No	20%	85	80	16	80
Sand Blasting (Single Nozzle)	No	20%	85	96	9	96
Scraper	No	40%	85	84	12	84
Shears (on backhoe)	No	40%	85	96	5	96
Slurry Plant	No	100%	78	78	1	78
Slurry Trenching Machine	No	50%	82	80	75	80
Soil Mix Drill Rig	No	50%	80	-- N/A --	0	80
Tractor	No	40%	84	-- N/A --	0	84
Vacuum Excavator (Vac-truck)	No	40%	85	85	149	85
Vacuum Street Sweeper	No	10%	80	82	19	82
Ventilation Fan	No	100%	85	79	13	79
Vibrating Hopper	No	50%	85	87	1	87
Vibratory Concrete Mixer	No	20%	80	80	1	80
Vibratory Pile Driver	No	20%	95	101	44	101
Warning Horn	No	5%	85	83	12	83
Welder	No	40%	73	74	5	74

4112 Del Rey Ave Project

A. Construction Noise Modeling - Mitigated

Project: 4112 Del Rey

Construction Noise Impact on Sensitive Receptors

Parameters

Leq to L10 factor	3

				R1					R2					R3				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***42***	***38***				***47***	***43***		**0**		***49***	***45***		**0**
Excavator	1	81	40%	975	40	36	39	15	540	45	41	44	15	430	47	43	46	15
Front End Loader	1	79	40%	1200	36	32	35	15	830	40	36	39	15	675	41	37	40	15
Tractor/Loader/Backhoe	1	78	40%	1450	34	30	33	15	1050	37	33	36	15	815	39	35	38	15
Grading/Excavation					***45***	***41***				***49***	***45***				***51***	***47***		
Excavator	1	81	40%	975	40	36	39	15	540	45	41	44	15	430	47	43	46	15
Grader	1	85	40%	1200	42	38	41	15	830	46	42	45	15	675	47	43	46	15
Front End Loader	1	79	40%	1450	35	31	34	15	1050	38	34	37	15	815	40	36	39	15
Tractor/Loader/Backhoe	1	78	40%	1200	35	31	34	15	830	39	35	38	15	675	40	36	39	15
Mat Foundation/Concrete Pour					***46***	***43***				***50***	***47***				***52***	***48***		
Excavator	1	81	40%	975	40	36	39	15	540	45	41	44	15	430	47	43	46	15
Pumps	1	81	50%	1200	38	35	38	15	830	42	39	42	15	675	43	40	43	15
Forklift	1	75	10%	1450	31	21	24	15	1050	34	24	27	15	815	36	26	29	15
Front End Loader	1	79	40%	1200	36	32	35	15	830	40	36	39	15	675	41	37	40	15
Tractor/Loader/Backhoe	1	78	40%	1450	34	30	33	15	1050	37	33	36	15	815	39	35	38	15
Other Equipment	1	85	50%	1200	42	39	42	15	830	46	43	46	15	675	47	44	47	15
Building Construction					***45***	***41***				***49***	***44***				***51***	***47***		
Man Lift	1	75	20%	975	34	27	30	15	540	39	32	35	15	430	41	34	37	15
Compressor (air)	1	78	40%	1200	35	31	34	15	830	39	35	38	15	675	40	36	39	15
Crane	1	81	16%	1450	37	29	32	15	1050	40	32	35	15	815	42	34	37	15
Forklift	1	75	10%	1200	32	22	25	15	830	36	26	29	15	675	37	27	30	15
Generator	1	81	50%	1450	37	34	37	15	1050	40	37	40	15	815	42	39	42	15
Paver	1	77	50%	1200	34	31	34	15	830	38	35	38	15	675	39	36	39	15
Other Equipment	1	85	50%	1450	41	38	41	15	1050	44	41	44	15	815	46	43	46	15
Tractor/Loader/Backhoe	1	78	40%	1200	35	31	34	15	830	39	35	38	15	675	40	36	39	15
Architectural Coating					***43***	***39***				***47***	***42***				***49***	***44***		
Man Lift	2	75	20%	975	37	30	33	15	540	42	35	38	15	430	44	37	40	15
Compressor (air)	2	78	40%	1200	38	34	37	15	830	42	38	41	15	675	43	39	42	15
Forklift	1	75	10%	1450	31	21	24	15	1050	34	24	27	15	815	36	26	29	15
Generator	1	81	50%	1200	38	35	38	15	830	42	39	42	15	675	43	40	43	15
Paving					***43***	***40***				***47***	***44***				***49***	***46***		
Paver	1	77	50%	975	36	33	36	15	540	41	38	41	15	430	43	40	43	15
Other Equipment	1	85	50%	1200	42	39	42	15	830	46	43	46	15	675	47	44	47	15
Maximum Noise Levels						**43**					**47**					**48**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: 4112 Del Rey

Construction Noise Impact on Sensitive Receptors

Parameters

Leq to L10 factor	3

				R4					R5					R6				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L12**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***49***	***45***		**0**		***54***	***50***		**0**		***62***	***58***		**0**
Excavator	1	81	40%	415	48	44	47	15	215	53	49	52	15	25	62	58	61	25.5
Front End Loader	1	79	40%	675	41	37	40	15	375	46	43	46	15	150	44	40	43	25.5
Tractor/Loader/Backhoe	1	78	40%	915	38	34	37	15	525	43	39	42	15	315	37	33	36	25.5
Grading/Excavation					***51***	***47***				***57***	***53***				***62***	***58***		
Excavator	1	81	40%	415	48	44	47	15	215	53	49	52	15	25	62	58	61	25.5
Grader	1	85	40%	675	47	43	46	15	375	52	49	52	15	150	50	46	49	25.5
Front End Loader	1	79	40%	915	39	35	38	15	525	44	40	43	15	315	38	34	37	25.5
Tractor/Loader/Backhoe	1	78	40%	675	40	36	39	15	375	45	42	45	15	150	43	39	42	25.5
Mat Foundation/Concrete Pour					***52***	***48***				***57***	***54***				***62***	***58***		
Excavator	1	81	40%	415	48	44	47	15	215	53	49	52	15	25	62	58	61	25.5
Pumps	1	81	50%	675	43	40	43	15	375	48	45	48	15	150	46	43	46	25.5
Forklift	1	75	10%	915	35	25	28	15	525	40	30	33	15	315	34	24	27	25.5
Front End Loader	1	79	40%	675	41	37	40	15	375	46	43	46	15	150	44	40	43	25.5
Tractor/Loader/Backhoe	1	78	40%	915	38	34	37	15	525	43	39	42	15	315	37	33	36	25.5
Other Equipment	1	85	50%	675	47	44	47	15	375	52	49	52	15	150	50	47	50	25.5
Building Construction					***50***	***46***				***55***	***51***				***57***	***51***		
Man Lift	1	75	20%	415	42	35	38	15	215	47	40	43	15	25	56	49	52	25.5
Compressor (air)	1	78	40%	675	40	36	39	15	375	45	42	45	15	150	43	39	42	25.5
Crane	1	81	16%	915	41	33	36	15	525	46	38	41	15	315	40	32	35	25.5
Forklift	1	75	10%	675	37	27	30	15	375	42	32	35	15	150	40	30	33	25.5
Generator	1	81	50%	915	41	38	41	15	525	46	43	46	15	315	40	37	40	25.5
Paver	1	77	50%	675	39	36	39	15	375	44	41	44	15	150	42	39	42	25.5
Other Equipment	1	85	50%	915	45	42	45	15	525	50	47	50	15	315	44	41	44	25.5
Tractor/Loader/Backhoe	1	78	40%	675	40	36	39	15	375	45	42	45	15	150	43	39	42	25.5
Architectural Coating					***49***	***44***				***54***	***49***				***59***	***53***		
Man Lift	2	75	20%	415	45	38	41	15	215	50	43	46	15	25	59	52	55	25.5
Compressor (air)	2	78	40%	675	43	39	42	15	375	49	45	48	15	150	46	42	45	25.5
Forklift	1	75	10%	915	35	25	28	15	525	40	30	33	15	315	34	24	27	25.5
Generator	1	81	50%	675	43	40	43	15	375	48	45	48	15	150	46	43	46	25.5
Paving					***49***	***46***				***54***	***51***				***58***	***55***		
Paver	1	77	50%	415	44	41	44	15	215	49	46	49	15	25	58	55	58	25.5
Other Equipment	1	85	50%	675	47	44	47	15	375	52	49	52	15	150	50	47	50	25.5
Maximum Noise Levels						**48**					**54**					**58**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: 4112 Del Rey

Construction Noise Impact on Sensitive Receptors

Parameters

Leq to L10 factor	3

				R7					R8				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L12**	**Estimated Noise Shielding, dBA**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Demolition					***49***	***45***		**0**		***49***	***45***		
Excavator	1	81	40%	430	47	43	46	15	400	48	44	47	15
Front End Loader	1	79	40%	680	41	37	40	15	615	42	38	41	15
Tractor/Loader/Backhoe	1	78	40%	885	38	34	37	15	820	39	35	38	15
Grading/Excavation					***51***	***47***				***52***	***48***		
Excavator	1	81	40%	430	47	43	46	15	400	48	44	47	15
Grader	1	85	40%	680	47	43	46	15	615	48	44	47	15
Front End Loader	1	79	40%	885	39	35	38	15	820	40	36	39	15
Tractor/Loader/Backhoe	1	78	40%	680	40	36	39	15	615	41	37	40	15
Mat Foundation/Concrete Pour					***52***	***48***				***53***	***49***		
Excavator	1	81	40%	430	47	43	46	15	400	48	44	47	15
Pumps	1	81	50%	680	43	40	43	15	615	44	41	44	15
Forklift	1	75	10%	885	35	25	28	15	820	36	26	29	15
Front End Loader	1	79	40%	680	41	37	40	15	615	42	38	41	15
Tractor/Loader/Backhoe	1	78	40%	885	38	34	37	15	820	39	35	38	15
Other Equipment	1	85	50%	680	47	44	47	15	615	48	45	48	15
Building Construction					***50***	***46***				***51***	***47***		
Man Lift	1	75	20%	430	41	34	37	15	400	42	35	38	15
Compressor (air)	1	78	40%	680	40	36	39	15	615	41	37	40	15
Crane	1	81	16%	885	41	33	36	15	820	42	34	37	15
Forklift	1	75	10%	680	37	27	30	15	615	38	28	31	15
Generator	1	81	50%	885	41	38	41	15	820	42	39	42	15
Paver	1	77	50%	680	39	36	39	15	615	40	37	40	15
Other Equipment	1	85	50%	885	45	42	45	15	820	46	43	46	15
Tractor/Loader/Backhoe	1	78	40%	680	40	36	39	15	615	41	37	40	15
Architectural Coating					***49***	***44***				***49***	***45***		
Man Lift	2	75	20%	430	44	37	40	15	400	45	38	41	15
Compressor (air)	2	78	40%	680	43	39	42	15	615	44	40	43	15
Forklift	1	75	10%	885	35	25	28	15	820	36	26	29	15
Generator	1	81	50%	680	43	40	43	15	615	44	41	44	15
Paving					***49***	***46***				***50***	***47***		
Paver	1	77	50%	430	43	40	43	15	400	44	41	44	15
Other Equipment	1	85	50%	680	47	44	47	15	615	48	45	48	15
Maximum Noise Levels						**48**					**49**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Table 1. CA/T equipment noise emissions and acoustical usage factors database.

CA/T Noise Emission Reference Levels and Usage Factors						
filename: EQUIPLST.xls						
revised: 7/26/05		Acoustical	Spec 721.560	Actual Measured	No. of Actual	Actual Combined
	Impact	Use Factor	Lmax @ 50ft	Lmax @ 50ft	Data Samples	Lmax @ 50ft
Equipment Description	Device ?	(%)	(dBA, slow)	(dBA, slow)	(Count)	(dBA, slow)
				(samples averaged)		
Other Equipment	No	50%	85	-- N/A --	0	85
Auger Drill Rig	No	20%	85	84	36	84
Tractor/Loader/Backhoe	No	40%	80	78	372	78
Bar Bender	No	20%	80	-- N/A --	0	80
Blasting	Yes	#VALUE!	94	-- N/A --	0	94
Boring Jack Power Unit	No	50%	80	83	1	83
Chain Saw	No	20%	85	84	46	84
Clam Shovel (dropping)	Yes	20%	93	87	4	87
Compactor (ground)	No	20%	80	83	57	83
Compressor (air)	No	40%	80	78	18	78
Concrete Batch Plant	No	15%	83	-- N/A --	0	83
Concrete Mixer Truck	No	40%	85	79	40	79
Concrete Pump Truck	No	20%	82	81	30	81
Concrete Saw	No	20%	90	90	55	90
Crane	No	16%	85	81	405	81
Dozer	No	40%	85	82	55	82
Drill Rig Truck	No	20%	84	79	22	79
Drum Mixer	No	50%	80	80	1	80
Dump Truck	No	40%	84	76	31	76
Excavator	No	40%	85	81	170	81
Flat Bed Truck	No	40%	84	74	4	74
Forklift	No	10%	75			75
Front End Loader	No	40%	80	79	96	79
Generator	No	50%	82	81	19	81
Generator (<25KVA, VMS signs)	No	50%	70	73	74	73
Gradall	No	40%	85	83	70	83
Grader	No	40%	85	-- N/A --	0	85
Grapple (on backhoe)	No	40%	85	87	1	87
Horizontal Boring Hydr. Jack	No	25%	80	82	6	82
Hydra Break Ram	Yes	10%	90	-- N/A --	0	90
Impact Pile Driver	Yes	20%	95	101	11	101
Jackhammer	Yes	20%	85	89	133	89
Man Lift	No	20%	85	75	23	75
Mounted Impact Hammer (hoe ram)	Yes	20%	90	90	212	90
Pavement Scarafier	No	20%	85	90	2	90
Paver	No	50%	85	77	9	77
Pickup Truck	No	40%	55	75	1	75
Pneumatic Tools	No	50%	85	85	90	85
Pumps	No	50%	77	81	17	81
Refrigerator Unit	No	100%	82	73	3	73
Rivit Buster/chipping gun	Yes	20%	85	79	19	79
Rock Drill	No	20%	85	81	3	81
Roller	No	20%	85	80	16	80
Sand Blasting (Single Nozzle)	No	20%	85	96	9	96
Scraper	No	40%	85	84	12	84
Shears (on backhoe)	No	40%	85	96	5	96
Slurry Plant	No	100%	78	78	1	78
Slurry Trenching Machine	No	50%	82	80	75	80
Soil Mix Drill Rig	No	50%	80	-- N/A --	0	80
Tractor	No	40%	84	-- N/A --	0	84
Vacuum Excavator (Vac-truck)	No	40%	85	85	149	85
Vacuum Street Sweeper	No	10%	80	82	19	82
Ventilation Fan	No	100%	85	79	13	79
Vibrating Hopper	No	50%	85	87	1	87
Vibratory Concrete Mixer	No	20%	80	80	1	80
Vibratory Pile Driver	No	20%	95	101	44	101
Warning Horn	No	5%	85	83	12	83
Welder	No	40%	73	74	5	74

4112 Del Rey Ave Project

B. Traffic Noise Modeling

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL)			
		Existing	Existing with Project	Increase over Existing	Significant Impact?
Del Rey Avenue between Washington Boulevard and Maxella Avenue	Commercial/Residential	72.7	72.7	0.0	No
Del Rey Avenue n/o Washington Boulevard	Commercial/Residential	60.9	61.0	0.1	No
Glencoe Avenue between Washington Boulevard and Maxella Avenue	Commercial/Industrial	70.2	70.2	0.0	No
Glencoe Avenue s/o Maxella Avenue	Commercial/Industrial	71.0	71.1	0.0	No
Lincoln Boulevard between Washington Boulevard and Maxella Avenue	Commercial	72.1	72.1	0.0	No
Lincoln Boulevard n/o Washington Boulevard	Commercial	74.9	74.9	0.0	No
Lincoln Boulevard s/o Maxella Avenue	Commercial	72.1	72.1	0.0	No
Maxella Avenue between Del Rey Avenue and Glencoe Avenue	Commercial	67.3	67.4	0.1	No
Maxella Avenue between Lincoln Boulevard and Del Rey Avenue	Commercial	67.8	67.9	0.1	No
Maxella Avenue e/o Glencoe Avenue	Commercial	66.0	66.1	0.1	No
Maxella Avenue w/o Lincoln Boulevard	Commercial	68.0	68.0	0.1	No
Washington Boulevard between Del Rey Avenue and Glencoe Avenue	Commercial	71.1	71.1	0.0	No
Washington Boulevard between Lincoln Boulevard and Del Rey Avenue	Commercial	71.3	71.3	0.0	No
Washington Boulevard e/o Glencoe Avenue	Commercial	71.7	71.7	0.0	No
Washington Boulevard w/o Lincoln Boulevard	Commercial	71.7	71.7	0.0	No

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL)			
		Cumulative Year	Cumulative Year with Project	Increase over Existing	Significant Impact?
Del Rey Avenue between Washington Boulevard and Maxella Avenue	Commercial/Residential	73.2	73.2	0.0	No
Del Rey Avenue n/o Washington Boulevard	Commercial/Residential	56.9	56.9	0.0	No
Glencoe Avenue between Washington Boulevard and Maxella Avenue	Commercial/Industrial	70.8	70.8	0.0	No
Glencoe Avenue s/o Maxella Avenue	Commercial/Industrial	71.6	71.6	0.0	No
Lincoln Boulevard between Washington Boulevard and Maxella Avenue	Commercial	72.4	72.4	0.0	No
Lincoln Boulevard n/o Washington Boulevard	Commercial	74.6	74.6	0.0	No
Lincoln Boulevard s/o Maxella Avenue	Commercial	73.0	73.0	0.0	No
Maxella Avenue between Del Rey Avenue and Glencoe Avenue	Commercial	68.3	68.3	0.0	No
Maxella Avenue between Lincoln Boulevard and Del Rey Avenue	Commercial	68.7	68.7	0.0	No
Maxella Avenue e/o Glencoe Avenue	Commercial	65.6	65.6	0.0	No
Maxella Avenue w/o Lincoln Boulevard	Commercial	65.7	65.7	0.0	No
Washington Boulevard between Del Rey Avenue and Glencoe Avenue	Commercial	71.6	71.6	0.0	No
Washington Boulevard between Lincoln Boulevard and Del Rey Avenue	Commercial	71.8	71.8	0.0	No
Washington Boulevard e/o Glencoe Avenue	Commercial	72.9	72.9	0.0	No
Washington Boulevard w/o Lincoln Boulevard	Commercial	72.2	72.2	0.0	No

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Traffic Noise Levels (dBA CNEL)				
		Existing	Cumulative Year with Project	Increase over Existing	Significant Impact?	Project Increment
Del Rey Avenue between Washington Boulevard and Maxella Avenue	Commercial/Residential	72.7	73.2	0.5	No	0.0
Del Rey Avenue n/o Washington Boulevard	Commercial/Residential	60.9	56.9	-4.0	No	0.1
Glencoe Avenue between Washington Boulevard and Maxella Avenue	Commercial/Industrial	70.2	70.8	0.6	No	0.0
Glencoe Avenue s/o Maxella Avenue	Commercial/Industrial	71.0	71.6	0.6	No	0.0
Lincoln Boulevard between Washington Boulevard and Maxella Avenue	Commercial	72.1	72.4	0.3	No	0.0
Lincoln Boulevard n/o Washington Boulevard	Commercial	74.9	74.6	-0.3	No	0.0
Lincoln Boulevard s/o Maxella Avenue	Commercial	72.1	73.0	0.8	No	0.0
Maxella Avenue between Del Rey Avenue and Glencoe Avenue	Commercial	67.3	68.3	1.0	No	0.1
Maxella Avenue between Lincoln Boulevard and Del Rey Avenue	Commercial	67.8	68.7	0.9	No	0.1
Maxella Avenue e/o Glencoe Avenue	Commercial	66.0	65.6	-0.4	No	0.1
Maxella Avenue w/o Lincoln Boulevard	Commercial	68.0	65.7	-2.3	No	0.1
Washington Boulevard between Del Rey Avenue and Glencoe Avenue	Commercial	71.1	71.6	0.5	No	0.0
Washington Boulevard between Lincoln Boulevard and Del Rey Avenue	Commercial	71.3	71.8	0.5	No	0.0
Washington Boulevard e/o Glencoe Avenue	Commercial	71.7	72.9	1.2	No	0.0
Washington Boulevard w/o Lincoln Boulevard	Commercial	71.7	72.2	0.4	No	0.0

4112 Del Rey Ave Project

C. Noise Monitoring Measurements

Summary

File Name on Meter	LxT_Data.009
File Name on PC	SLM_0007058_LxT_Data_009.00.ldbin
Serial Number	0007058
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-27 10:08:12
Stop	2022-09-27 10:23:12
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2022-09-27 08:46:29
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Exponential			
Overload	144.5 dB			
	A	**C**	**Z**	
Under Range Peak	**100.4**	97.4	102.4	dB
Under Range Limit	**37.6**	37.3	44.3	dB
Noise Floor	28.5	28.2	35.2	dB

Results

L_{Aeq}	59.6	dB	
LASE	89.1	dB	
EAS	90.923	µPa²h	
EAS8	2.910	mPa²h	
EAS40	14.548	mPa²h	
$L_{Apeak\ (max)}$	2022-09-27 10:13:07	89.8	dB
L_{ASmax}	2022-09-27 10:14:32	74.5	dB
L_{ASmin}	2022-09-27 10:19:00	52.4	dB
SEA	-99.9	dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0	s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0	s
L_{Apeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
L_{Apeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
L_{Apeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s
L_{CSeq}	72.7	dB	
L_{ASeq}	59.6	dB	
L_{CSeq} - L_{ASeq}	13.1	dB	
L_{AIeq}	61.5	dB	
L_{Aeq}	59.6	dB	
L_{AIeq} - L_{Aeq}	1.9	dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	59.6					
$L_{S(max)}$	74.5	2022/09/27 10:14:32				
$L_{S(min)}$	52.4	2022/09/27 10:19:00				
$L_{Peak(max)}$	89.8	2022/09/27 10:13:07				

# Overloads	0	
Overload Duration	0.0	s

Dose Settings		
Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results		
Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	44.5	44.5 dB

Statistics	
LAS5.00	64.2 dB
LAS10.00	61.0 dB
LAS33.30	57.4 dB
LAS50.00	56.4 dB
LAS66.60	55.7 dB
LAS90.00	54.3 dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
PRMLxT1	2022-09-27 08:46:29	-50.7	62.0	69.3	60.1	63.0	52.7	54.0	58.6	55.7	57.0	56.3	57.2	49.9	53.1	54.2	58.5	55.6	51.3	55.3	48.7	50.1	44.1	34.6	114.0	48.9	28.9	63.1	30.6	60.1	32.5	36.2	35.0	36.0	37.5	38.4	39.4	41.2
PRMLxT1	2022-09-27 08:46:12	-50.7	66.3	55.9	65.0	53.9	56.6	54.3	55.7	54.7	54.4	57.3	59.3	57.0	53.1	54.9	60.1	49.4	50.9	52.8	46.9	51.3	45.8	42.0	112.8	47.7	28.6	62.0	30.0	58.8	32.0	34.9	34.1	34.9	36.1	37.3	38.4	40.4
PRMLxT1	2022-08-23 09:56:30	-49.6	65.8	66.8	64.5	64.7	57.4	58.3	54.2	63.3	60.7	59.1	61.2	61.3	51.2	54.6	45.0	48.5	45.1	45.3	46.1	49.6	35.6	30.9	114.0	48.8	28.1	64.0	29.3	59.7	31.6	33.7	34.2	34.9	36.5	37.5	38.2	40.1
PRMLxT1	2022-08-23 09:56:14	-49.6	46.6	61.6	59.8	56.0	52.5	54.7	55.3	59.8	58.7	59.2	58.3	64.5	57.7	54.4	48.0	46.6	49.4	47.2	47.6	48.9	34.4	31.9	115.0	50.0	28.6	65.0	30.2	60.7	33.1	34.8	35.4	36.1	37.2	38.4	39.2	41.3
PRMLxT1	2007-01-01 03:18:29	-50.6	62.5	53.1	55.1	51.4	53.2	60.3	42.1	48.8	47.8	49.5	48.7	48.8	45.6	48.6	47.2	46.0	51.6	53.9	64.5	66.3	43.2	32.9	114.0	49.1	30.3	65.8	30.4	59.4	34.7	35.7	34.7	36.2	37.4	38.6	39.2	41.1
PRMLxT1	2007-01-01 03:18:05	-50.6	64.2	51.7	58.2	56.4	56.3	52.7	46.7	53.2	55.8	52.7	46.8	44.9	44.9	50.1	48.3	58.3	56.1	50.3	44.5	41.5	35.5	29.8	113.4	48.4	28.4	65.2	30.1	58.9	34.3	35.0	34.1	35.5	36.6	37.8	38.8	40.6
PRMLxT1	2022-04-14 04:14:56	-50.0	48.6	41.8	54.1	57.4	60.2	57.5	52.7	53.0	51.4	53.8	42.8	43.9	42.9	40.6	39.6	36.3	35.8	35.2	31.1	33.8	27.8	31.4	113.9	48.9	28.4	65.3	30.0	56.0	33.1	34.0	34.6	35.4	36.5	37.6	38.5	40.4
PRMLxT1	2022-04-13 07:51:08	-50.0	24.3	41.2	39.0	39.3	41.4	50.5	47.2	45.7	49.5	59.2	57.5	55.8	47.7	60.9	45.0	50.3	53.3	48.9	49.3	33.1	28.3	30.4	113.2	48.1	26.7	63.0	27.3	53.8	30.6	31.3	31.4	32.1	31.5	31.0	30.0	29.4
PRMLxT1	2022-04-12 13:51:04	-49.1	31.5	48.7	135.5	70.2	19.7	66.6	24.3	43.6	29.9	28.6	29.0	27.9	29.5	26.4	29.7	27.4	27.8	31.3	31.1	31.2	31.3	34.4	33.2	34.3	35.4	35.7	38.2	38.8	40.9	41.0	43.2	42.6	45.1	47.3	49.3	52.0
PRMLxT1	2022-04-12 13:14:14	-49.0	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞

Summary

File Name on Meter	LxT_Data.008
File Name on PC	SLM_0007058_LxT_Data_008.00.ldbin
Serial Number	0007058
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-27 09:50:29
Stop	2022-09-27 10:05:29
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2022-09-27 08:46:29
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
Overload	144.5 dB

	A	**C**	**Z**
Under Range Peak	**100.4**	97.4	102.4 dB
Under Range Limit	**37.6**	37.3	44.3 dB
Noise Floor	28.5	28.2	35.2 dB

Results

L_{ASeq}	60.3 dB	
LASE	89.9 dB	
EAS	108.370 µPa²h	
EAS8	3.468 mPa²h	
EAS40	17.339 mPa²h	
$L_{Apeak\ (max)}$	2022-09-27 10:04:22	94.6 dB
L_{ASmax}	2022-09-27 10:04:22	81.1 dB
L_{ASmin}	2022-09-27 10:00:52	49.6 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{CSeq}	71.2 dB	
L_{ASeq}	60.3 dB	
L_{CSeq} - L_{ASeq}	10.9 dB	
L_{AIeq}	62.2 dB	
L_{Aeq}	60.3 dB	
L_{AIeq} - L_{Aeq}	1.9 dB	

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	60.3					
$L_{S(max)}$	81.1	2022/09/27 10:04:22				
$L_{S(min)}$	49.6	2022/09/27 10:00:52				
$L_{Peak(max)}$	94.6	2022/09/27 10:04:22				

# Overloads	0
Overload Duration	0.0 s

Dose Settings		
Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results		
Dose	-99.9	0.00 %
Projected Dose	-99.9	0.04 %
TWA (Projected)	-99.9	32.9 dB
TWA (t)	-99.9	7.9 dB
Lep (t)	45.3	45.3 dB

Statistics	
LAS5.00	62.7 dB
LAS10.00	61.2 dB
LAS33.30	58.2 dB
LAS50.00	56.7 dB
LAS66.60	55.3 dB
LAS90.00	53.0 dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
PRMLxT1	2022-09-27 08:46:29	-50.7	62.0	69.3	60.1	63.0	52.7	54.0	58.6	55.7	57.0	56.3	57.2	49.9	53.1	54.2	58.5	55.6	51.3	55.3	48.7	50.1	44.1	34.6	114.0	48.9	28.9	63.1	30.6	60.1	32.5	36.2	35.0	36.0	37.5	38.4	39.4	41.2
PRMLxT1	2022-09-27 08:46:12	-50.7	66.3	55.9	65.0	53.9	56.6	54.3	55.7	54.7	54.4	57.3	59.3	57.0	53.1	54.9	60.1	49.4	50.9	52.8	46.9	51.3	45.8	42.0	112.8	47.7	28.6	62.0	30.0	58.8	32.0	34.9	34.1	34.9	36.1	37.3	38.4	40.4
PRMLxT1	2022-08-23 09:56:30	-49.6	65.8	66.8	64.5	64.7	57.4	58.3	54.2	63.3	60.7	59.1	61.2	61.3	51.2	54.6	45.0	48.5	45.1	45.3	46.1	49.6	35.6	30.9	114.0	48.8	28.1	64.0	29.3	59.7	31.6	33.7	34.2	34.9	36.5	37.5	38.2	40.1
PRMLxT1	2022-08-23 09:56:14	-49.6	46.6	61.6	59.8	56.0	52.5	54.7	55.3	59.8	58.7	59.2	58.3	64.5	57.7	54.4	48.0	46.6	49.4	47.2	47.6	48.9	34.4	31.9	115.0	50.0	28.6	65.0	30.2	60.7	33.1	34.8	35.4	36.1	37.2	38.4	39.2	41.3
PRMLxT1	2007-01-01 03:18:29	-50.6	62.5	53.1	55.1	51.4	53.2	60.3	42.1	48.8	47.8	49.5	48.7	48.8	45.6	48.6	47.2	46.0	51.6	53.9	64.5	66.3	43.2	32.9	114.0	49.1	30.3	65.8	30.4	59.4	34.7	35.7	34.7	36.2	37.4	38.6	39.2	41.1
PRMLxT1	2007-01-01 03:18:05	-50.6	64.2	51.7	58.2	56.4	56.3	52.7	46.7	53.2	55.8	52.7	46.8	44.9	44.9	50.1	48.3	58.3	56.1	50.3	44.5	41.5	35.5	29.8	113.4	48.4	28.4	65.2	30.1	58.9	34.3	35.0	34.1	35.5	36.6	37.8	38.8	40.6
PRMLxT1	2022-04-14 04:14:56	-50.0	48.6	41.8	54.1	57.4	60.2	57.5	52.7	53.0	51.4	53.8	42.8	43.9	42.9	40.6	39.6	36.3	35.8	35.2	31.1	33.8	27.8	31.4	113.9	48.9	28.4	65.3	30.0	56.0	33.1	34.0	34.6	35.4	36.5	37.6	38.5	40.4
PRMLxT1	2022-04-13 07:51:08	-50.0	24.3	41.2	39.0	39.3	41.4	50.5	47.2	45.7	49.5	59.2	57.5	55.8	47.7	60.9	45.0	50.3	53.3	48.9	49.3	33.1	28.3	30.4	113.2	48.1	26.7	63.0	27.3	53.8	30.6	31.3	31.4	32.1	31.5	31.0	30.0	29.4
PRMLxT1	2022-04-12 13:51:04	-49.1	31.5	48.7	135.5	70.2	19.7	66.6	24.3	43.6	29.9	28.6	29.0	27.9	29.5	26.4	29.7	27.4	27.8	31.3	31.1	31.2	31.3	34.4	33.2	34.3	35.4	35.7	38.2	38.8	40.9	41.0	43.2	42.6	45.1	47.3	49.3	52.0
PRMLxT1	2022-04-12 13:14:14	-49.0	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞

Summary

File Name on Meter	LxT_Data.006
File Name on PC	SLM_0007058_LxT_Data_006.00.ldbin
Serial Number	0007058
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-27 09:02:10
Stop	2022-09-27 09:17:10
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2022-09-27 08:46:29
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamp	PRMLxT1			
Microphone Correction	Off			
Integration Method	Exponential			
Overload	144.5 dB			
	A	**C**	**Z**	
Under Range Peak	**100.4**	97.4	102.4	dB
Under Range Limit	**37.6**	37.3	44.3	dB
Noise Floor	28.5	28.2	35.2	dB

Results

LA_{Seq}	57.4	dB	
LASE	87.0	dB	
EAS	55.214	µPa²h	
EAS8	1.767	mPa²h	
EAS40	8.834	mPa²h	
$LA_{peak\ (max)}$	2022-09-27 09:02:33	85.9	dB
LAS_{max}	2022-09-27 09:02:33	68.3	dB
LAS_{min}	2022-09-27 09:16:42	45.9	dB
SEA	-99.9	dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

LC_{Seq}	69.4	dB
LA_{Seq}	57.4	dB
LC_{Seq} - LA_{Seq}	12.0	dB
LAI_{eq}	58.9	dB
LA_{eq}	57.4	dB
LAI_{eq} - LA_{eq}	1.5	dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	57.4					
$L_{S(max)}$	68.3	2022/09/27 9:02:33				
$L_{S(min)}$	45.9	2022/09/27 9:16:42				
$L_{Peak(max)}$	85.9	2022/09/27 9:02:33				

# Overloads	0	
Overload Duration	0.0	s

Dose Settings			
Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results			
Dose	-99.9	-99.9	%
Projected Dose	-99.9	-99.9	%
TWA (Projected)	-99.9	-99.9	dB
TWA (t)	-99.9	-99.9	dB
Lep (t)	42.4	42.4	dB

Statistics		
LAS5.00	61.3	dB
LAS10.00	60.1	dB
LAS33.30	57.6	dB
LAS50.00	56.1	dB
LAS66.60	54.4	dB
LAS90.00	50.4	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
PRMLxT1	2022-09-27 08:46:29	-50.7	62.0	69.3	60.1	63.0	52.7	54.0	58.6	55.7	57.0	56.3	57.2	49.9	53.1	54.2	58.5	55.6	51.3	55.3	48.7	50.1	44.1	34.6	114.0	48.9	28.9	63.1	30.6	60.1	32.5	36.2	35.0	36.0	37.5	38.4	39.4	41.2
PRMLxT1	2022-09-27 08:46:12	-50.7	66.3	55.9	65.0	53.9	56.6	54.3	55.7	54.7	54.4	57.3	59.3	57.0	53.1	54.9	60.1	49.4	50.9	52.8	46.9	51.3	45.8	42.0	112.8	47.7	28.6	62.0	30.0	58.8	32.0	34.9	34.1	34.9	36.1	37.3	38.4	40.4
PRMLxT1	2022-08-23 09:56:30	-49.6	65.8	66.8	64.5	64.7	57.4	58.3	54.2	63.3	60.7	59.1	61.2	61.3	51.2	54.6	45.0	48.5	45.1	45.3	46.1	49.6	35.6	30.9	114.0	48.8	28.1	64.0	29.3	59.7	31.6	33.7	34.2	34.9	36.5	37.5	38.2	40.1
PRMLxT1	2022-08-23 09:56:14	-49.6	46.6	61.6	59.8	56.0	52.5	54.7	55.3	59.8	58.7	59.2	58.3	64.5	57.7	54.4	48.0	46.6	49.4	47.2	47.6	48.9	34.4	31.9	115.0	50.0	28.6	65.0	30.2	60.7	33.1	34.8	35.4	36.1	37.2	38.4	39.2	41.3
PRMLxT1	2007-01-01 03:18:29	-50.6	62.5	53.1	55.1	51.4	53.2	60.3	42.1	48.8	47.8	49.5	48.7	48.8	45.6	48.6	47.2	46.0	51.6	53.9	64.5	66.3	43.2	32.9	114.0	49.1	30.3	65.8	30.4	59.4	34.7	35.7	34.7	36.2	37.4	38.6	39.2	41.1
PRMLxT1	2007-01-01 03:18:05	-50.6	64.2	51.7	58.2	56.4	56.3	52.7	46.7	53.2	55.8	52.7	46.8	44.9	44.9	50.1	48.3	58.3	56.1	50.3	44.5	41.5	35.5	29.8	113.4	48.4	28.4	65.2	30.1	58.9	34.3	35.0	34.1	35.5	36.6	37.8	38.8	40.6
PRMLxT1	2022-04-14 04:14:56	-50.0	48.6	41.8	54.1	57.4	60.2	57.5	52.7	53.0	51.4	53.8	42.8	43.9	42.9	40.6	39.6	36.3	35.8	35.2	31.1	33.8	27.8	31.4	113.9	48.9	28.4	65.3	30.0	56.0	33.1	34.0	34.6	35.4	36.5	37.6	38.5	40.4
PRMLxT1	2022-04-13 07:51:08	-50.0	24.3	41.2	39.0	39.3	41.4	50.5	47.2	45.7	49.5	59.2	57.5	55.8	47.7	60.9	45.0	50.3	53.3	48.9	49.3	33.1	28.3	30.4	113.2	48.1	26.7	63.0	27.3	53.8	30.6	31.3	31.4	32.1	31.5	31.0	30.0	29.4
PRMLxT1	2022-04-12 13:51:04	-49.1	31.5	48.7	135.5	70.2	19.7	66.6	24.3	43.6	29.9	28.6	29.0	27.9	29.5	26.4	29.7	27.4	27.8	31.3	31.1	31.2	31.3	34.4	33.2	34.3	35.4	35.7	38.2	38.8	40.9	41.0	43.2	42.6	45.1	47.3	49.3	52.0
PRMLxT1	2022-04-12 13:14:14	-49.0	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞

Summary

File Name on Meter	LxT_Data.007
File Name on PC	SLM_0007058_LxT_Data_007.00.ldbin
Serial Number	0007058
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-27 09:29:41
Stop	2022-09-27 09:44:41
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2022-09-27 08:46:29
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
Overload	144.5 dB

	A	C	Z
Under Range Peak	**100.4**	97.4	102.4 dB
Under Range Limit	**37.6**	37.3	44.3 dB
Noise Floor	28.5	28.2	35.2 dB

Results

LA_{eq}	74.1 dB	
LASE	103.7 dB	
EAS	2.594 mPa^2h	
EAS8	83.013 mPa^2h	
EAS40	415.066 mPa^2h	
$LA_{peak\ (max)}$	2022-09-27 09:39:34	109.0 dB
LAS_{max}	2022-09-27 09:39:35	92.5 dB
LAS_{min}	2022-09-27 09:34:10	54.4 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	1	4.7 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LC_{eq}	80.6 dB	
LA_{eq}	74.1 dB	
LC_{eq} - LA_{eq}	6.4 dB	
LAI_{eq}	75.4 dB	
LA_{eq}	74.1 dB	
LAI_{eq} - LA_{eq}	1.3 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	74.1					
$L_{S(max)}$	92.5	2022/09/27 9:39:35				
$L_{S(min)}$	54.4	2022/09/27 9:34:10				
$L_{Peak(max)}$	109.0	2022/09/27 9:39:34				

# Overloads	0
Overload Duration	0.0 s

Dose Settings		
Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results		
Dose	0.01	0.02 %
Projected Dose	0.29	0.68 %
TWA (Projected)	47.9	54.0 dB
TWA (t)	22.9	29.0 dB
Lep (t)	59.1	59.1 dB

Statistics	
LAS5.00	77.4 dB
LAS10.00	76.3 dB
LAS33.30	74.1 dB
LAS50.00	72.4 dB
LAS66.60	70.0 dB
LAS90.00	63.4 dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
PRMLxT1	2022-09-27 08:46:29	-50.7	62.0	69.3	60.1	63.0	52.7	54.0	58.6	55.7	57.0	56.3	57.2	49.9	53.1	54.2	58.5	55.6	51.3	55.3	48.7	50.1	44.1	34.6	114.0	48.9	28.9	63.1	30.6	60.1	32.5	36.2	35.0	36.0	37.5	38.4	39.4	41.2
PRMLxT1	2022-09-27 08:46:12	-50.7	66.3	55.9	65.0	53.9	56.6	54.3	55.7	54.7	54.4	57.3	59.3	57.0	53.1	54.9	60.1	49.4	50.9	52.8	46.9	51.3	45.8	42.0	112.8	47.7	28.6	62.0	30.0	58.8	32.0	34.9	34.1	34.9	36.1	37.3	38.4	40.4
PRMLxT1	2022-08-23 09:56:30	-49.6	65.8	66.8	64.5	64.7	57.4	58.3	54.2	63.3	60.7	59.1	61.2	61.3	51.2	54.6	45.0	48.5	45.1	45.3	46.1	49.6	35.6	30.9	114.0	48.8	28.1	64.0	29.3	59.7	31.6	33.7	34.2	34.9	36.5	37.5	38.2	40.1
PRMLxT1	2022-08-23 09:56:14	-49.6	46.6	61.6	59.8	56.0	52.5	54.7	55.3	59.8	58.7	59.2	58.3	64.5	57.7	54.4	48.0	46.6	49.4	47.2	47.6	48.9	34.4	31.9	115.0	50.0	28.6	65.0	30.2	60.7	33.1	34.8	35.4	36.1	37.2	38.4	39.2	41.3
PRMLxT1	2007-01-01 03:18:29	-50.6	62.5	53.1	55.1	51.4	53.2	60.3	42.1	48.8	47.8	49.5	48.7	48.8	45.6	48.6	47.2	46.0	51.6	53.9	64.5	66.3	43.2	32.9	114.0	49.1	30.3	65.8	30.4	59.4	34.7	35.7	34.7	36.2	37.4	38.6	39.2	41.1
PRMLxT1	2007-01-01 03:18:05	-50.6	64.2	51.7	58.2	56.4	56.3	52.7	46.7	53.2	55.8	52.7	46.8	44.9	44.9	50.1	48.3	58.3	56.1	50.3	44.5	41.5	35.5	29.8	113.4	48.4	28.4	65.2	30.1	58.9	34.3	35.0	34.1	35.5	36.6	37.8	38.8	40.6
PRMLxT1	2022-04-14 04:14:56	-50.0	48.6	41.8	54.1	57.4	60.2	57.5	52.7	53.0	51.4	53.8	42.8	43.9	42.9	40.6	39.6	36.3	35.8	35.2	31.1	33.8	27.8	31.4	113.9	48.9	28.4	65.3	30.0	56.0	33.1	34.0	34.6	35.4	36.5	37.6	38.5	40.4
PRMLxT1	2022-04-13 07:51:08	-50.0	24.3	41.2	39.0	39.3	41.4	50.5	47.2	45.7	49.5	59.2	57.5	55.8	47.7	60.9	45.0	50.3	53.3	48.9	49.3	33.1	28.3	30.4	113.2	48.1	26.7	63.0	27.3	53.8	30.6	31.3	31.4	32.1	31.5	31.0	30.0	29.4
PRMLxT1	2022-04-12 13:51:04	-49.1	31.5	48.7	135.5	70.2	19.7	66.6	24.3	43.6	29.9	28.6	29.0	27.9	29.5	26.4	29.7	27.4	27.8	31.3	31.1	31.2	31.3	34.4	33.2	34.3	35.4	35.7	38.2	38.8	40.9	41.0	43.2	42.6	45.1	47.3	49.3	52.0
PRMLxT1	2022-04-12 13:14:14	-49.0	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞

Summary

File Name on Meter	LxT_Data.013
File Name on PC	SLM_0007057_LxT_Data_013.00.ldbin
Serial Number	0007057
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-27 09:29:14
Stop	2022-09-27 09:44:14
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2022-09-27 08:48:30
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
Overload	143.3 dB

	A	**C**	**Z**
Under Range Peak	**99.3**	96.3	101.3 dB
Under Range Limit	**36.5**	36.2	43.2 dB
Noise Floor	27.4	27.0	34.1 dB

Results

LA_{Seq}	60.4 dB	
LASE	89.9 dB	
EAS	109.313 µPa²h	
EAS8	3.498 mPa²h	
EAS40	17.490 mPa²h	
$LA_{peak\ (max)}$	2022-09-27 09:33:08	91.9 dB
LAS_{max}	2022-09-27 09:33:10	72.5 dB
LAS_{min}	2022-09-27 09:38:39	52.5 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LA_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
LC_{Seq}	71.4 dB	
LA_{Seq}	60.4 dB	
LC_{Seq} - LA_{Seq}	11.0 dB	
LAI_{eq}	62.0 dB	
LA_{eq}	60.4 dB	
LAI_{eq} - LA_{eq}	1.6 dB	

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	60.4					
$L_{S(max)}$	72.5	2022/09/27 9:33:10				
$L_{S(min)}$	52.5	2022/09/27 9:38:39				
$L_{Peak(max)}$	91.9	2022/09/27 9:33:08				

# Overloads	0
Overload Duration	0.0 s

Dose Settings		
Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results		
Dose	-99.9	-99.9 %
Projected Dose	-99.9	-99.9 %
TWA (Projected)	-99.9	-99.9 dB
TWA (t)	-99.9	-99.9 dB
Lep (t)	45.3	45.3 dB

Statistics	
LAS5.00	64.6 dB
LAS10.00	62.7 dB
LAS33.30	59.3 dB
LAS50.00	58.3 dB
LAS66.60	56.8 dB
LAS90.00	54.9 dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
PRMLxT1	2022-09-27 08:48:30	-49.6	55.1	64.8	57.1	54.9	54.5	53.8	58.0	55.4	61.0	54.4	56.9	57.9	51.6	50.9	48.1	50.7	45.0	41.4	38.1	33.7	29.4	30.6	114.0	48.9	28.3	64.0	29.9	59.7	31.8	34.0	34.9	35.1	36.4	37.4	38.5	40.1
PRMLxT1	2022-09-27 08:48:15	-49.6	52.8	56.2	52.9	57.4	57.0	55.1	55.4	51.7	60.8	62.7	61.4	51.8	54.0	49.9	50.7	52.8	45.9	43.1	41.5	38.2	31.3	31.7	115.1	50.0	29.5	65.2	31.1	60.8	33.2	35.3	36.1	36.6	37.5	38.6	39.6	41.3
PRMLxT1	2022-08-23 09:56:28	-50.7	52.6	48.5	54.8	59.1	54.6	55.4	54.5	64.4	58.1	58.0	55.0	57.5	55.1	56.6	48.3	50.3	53.1	48.6	50.5	51.8	45.4	43.8	114.0	49.0	37.8	63.1	32.6	60.0	33.0	36.4	35.2	36.6	37.5	38.7	39.7	41.1
PRMLxT1	2022-08-23 09:56:11	-50.7	48.8	46.5	50.8	50.9	53.8	58.0	60.0	59.0	60.7	55.9	55.3	60.6	52.1	52.7	47.8	52.6	50.2	46.9	53.9	49.2	41.0	33.6	112.7	47.7	28.1	61.8	29.9	58.7	32.7	34.9	33.7	35.4	36.0	37.5	38.3	40.0
PRMLxT1	2020-09-11 01:01:04	-49.5	55.2	49.5	51.4	50.2	52.1	59.0	47.6	49.3	63.1	60.7	56.7	44.8	54.7	58.7	49.6	53.7	50.0	54.4	57.1	52.7	38.2	32.1	114.0	48.9	28.7	66.4	29.2	59.1	33.2	33.9	34.4	35.1	36.0	37.3	38.7	40.1
PRMLxT1	2020-09-11 01:00:45	-49.5	64.0	47.8	56.1	51.2	57.6	56.9	48.7	49.0	49.3	50.9	46.3	47.9	48.4	51.4	50.1	44.5	41.7	36.0	38.8	41.8	34.7	31.2	115.0	49.9	28.5	67.3	31.5	60.1	34.6	34.5	34.7	36.4	37.6	38.2	39.3	41.0
PRMLxT1	2022-04-14 03:56:53	-50.4	46.4	48.7	47.8	44.4	43.1	49.5	45.4	50.0	46.9	51.8	43.4	45.5	38.9	39.3	40.1	54.8	55.2	50.3	44.0	36.6	30.3	31.8	114.0	49.1	29.0	65.0	30.1	56.4	34.2	34.3	34.6	36.1	37.2	38.5	39.3	41.2
PRMLxT1	2022-04-13 08:05:10	-50.4																																				
PRMLxT1	2022-04-13 07:27:52	-49.9	29.7	32.0	34.5	31.7	53.1	43.5	50.3	47.0	52.1	60.4	53.7	51.7	48.1	64.0	45.2	44.7	43.2	45.7	46.3	33.0	27.0	30.6	113.2	48.3	27.0	63.1	28.7	53.9	30.3	31.5	31.5	31.9	31.8	31.1	29.4	29.5
PRMLxT1	2022-04-12 13:49:53	-49.1	30.3	48.9	135.8	70.6	25.3	65.6	27.8	43.1	31.8	31.7	18.5	28.9	27.8	28.0	24.7	28.6	29.1	26.8	31.1	32.2	29.6	33.5	35.1	34.1	35.8	38.2	39.7	38.8	39.9	40.7	42.7	43.7	45.2	47.1	49.9	52.2
PRMLxT1	2022-04-12 13:15:57	-49.0	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞

Summary

File Name on Meter	LxT_Data.012
File Name on PC	SLM_0007057_LxT_Data_012.00.ldbin
Serial Number	0007057
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-27 09:10:58
Stop	2022-09-27 09:25:58
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2022-09-27 08:48:33
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1
Microphone Correction	Off
Integration Method	Exponential
Overload	143.3 dB

	A	C	Z
Under Range Peak	**99.3**	96.3	101.3 dB
Under Range Limit	**36.5**	36.2	43.2 dB
Noise Floor	27.4	27.0	34.1 dB

Results

L_{ASeq}	53.6 dB	
LASE	83.1 dB	
EAS	22.895 µPa²h	
EAS8	732.643 µPa²h	
EAS40	3.663 mPa²h	
$L_{Apeak\ (max)}$	2022-09-27 09:12:36	79.2 dB
L_{ASmax}	2022-09-27 09:12:28	62.3 dB
L_{ASmin}	2022-09-27 09:16:22	49.9 dB
SEA	-99.9 dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

L_{CSeq}	65.7 dB
L_{ASeq}	53.6 dB
L_{CSeq} - L_{ASeq}	12.2 dB
L_{AIeq}	54.6 dB
L_{Aeq}	53.6 dB
L_{AIeq} - L_{Aeq}	1.0 dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	53.6					
$L_{S(max)}$	62.3	2022/09/27 9:12:28				
$L_{S(min)}$	49.9	2022/09/27 9:16:22				
$L_{Peak(max)}$	79.2	2022/09/27 9:12:36				

# Overloads	0
Overload Duration	0.0 s

Dose Settings			
Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results			
Dose	-99.9	-99.9	%
Projected Dose	-99.9	-99.9	%
TWA (Projected)	-99.9	-99.9	dB
TWA (t)	-99.9	-99.9	dB
Lep (t)	38.5	38.5	dB

Statistics		
LAS5.00	55.6	dB
LAS10.00	55.0	dB
LAS33.30	53.7	dB
LAS50.00	53.3	dB
LAS66.60	52.8	dB
LAS90.00	51.5	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
PRMLxT1	2022-09-27 08:48:30	-49.6	55.1	64.8	57.1	54.9	54.5	53.8	58.0	55.4	61.0	54.4	56.9	57.9	51.6	50.9	48.1	50.7	45.0	41.4	38.1	33.7	29.4	30.6	114.0	48.9	28.3	64.0	29.9	59.7	31.8	34.0	34.9	35.1	36.4	37.4	38.5	40.1
PRMLxT1	2022-09-27 08:48:15	-49.6	52.8	56.2	52.9	57.4	57.0	55.1	55.4	51.7	60.8	62.7	61.4	51.8	54.0	49.9	50.7	52.8	45.9	43.1	41.5	38.2	31.3	31.7	115.1	50.0	29.5	65.2	31.1	60.8	33.2	35.3	36.1	36.6	37.5	38.6	39.6	41.3
PRMLxT1	2022-08-23 09:56:28	-50.7	52.6	48.5	54.8	59.1	54.6	55.4	54.5	64.4	58.1	58.0	55.0	57.5	55.1	56.6	48.3	50.3	53.1	48.6	50.5	51.8	45.4	43.8	114.0	49.0	37.8	63.1	32.6	60.0	33.0	36.4	35.2	36.6	37.5	38.7	39.7	41.1
PRMLxT1	2022-08-23 09:56:11	-50.7	48.8	46.5	50.8	50.9	53.8	58.0	60.0	59.0	60.7	55.9	55.3	60.6	52.1	52.7	47.8	52.6	50.2	46.9	53.9	49.2	41.0	33.6	112.7	47.7	28.1	61.8	29.9	58.7	32.7	34.9	33.7	35.4	36.0	37.5	38.3	40.0
PRMLxT1	2020-09-11 01:01:04	-49.5	55.2	49.5	51.4	50.2	52.1	59.0	47.6	49.3	63.1	60.7	56.7	44.8	54.7	58.7	49.6	53.7	50.0	54.4	57.1	52.7	38.2	32.1	114.0	48.9	28.7	66.4	29.2	59.1	33.2	33.9	34.4	35.1	36.0	37.3	38.7	40.1
PRMLxT1	2020-09-11 01:00:45	-49.5	64.0	47.8	56.1	51.2	57.6	56.9	48.7	49.0	49.3	50.9	46.3	47.9	48.4	51.4	50.1	44.5	41.7	36.0	38.8	41.8	34.7	31.2	115.0	49.9	28.5	67.3	31.5	60.1	34.6	34.5	34.7	36.4	37.6	38.2	39.3	41.0
PRMLxT1	2022-04-14 03:56:53	-50.4	46.4	48.7	47.8	44.4	43.1	49.5	45.4	50.0	46.9	51.8	43.4	45.5	38.9	39.3	40.1	54.8	55.2	50.3	44.0	36.6	30.3	31.8	114.0	49.1	29.0	65.0	30.1	56.4	34.2	34.3	34.6	36.1	37.2	38.5	39.3	41.2
PRMLxT1	2022-04-13 08:05:10	-50.4																																				
PRMLxT1	2022-04-13 07:27:52	-49.9	29.7	32.0	34.5	31.7	53.1	43.5	50.3	47.0	52.1	60.4	53.7	51.7	48.1	64.0	45.2	44.7	43.2	45.7	46.3	33.0	27.0	30.6	113.2	48.3	27.0	63.1	28.7	53.9	30.3	31.5	31.5	31.9	31.8	31.1	29.4	29.5
PRMLxT1	2022-04-12 13:49:53	-49.1	30.3	48.9	135.8	70.6	25.3	65.6	27.8	43.1	31.8	31.7	18.5	28.9	27.8	28.0	24.7	28.6	29.1	26.8	31.1	32.2	29.6	33.5	35.1	34.1	35.8	38.2	39.7	38.8	39.9	40.7	42.7	43.7	45.2	47.1	49.9	52.2
PRMLxT1	2022-04-12 13:15:57	-49.0	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞

Summary

File Name on Meter	LxT_Data.015
File Name on PC	SLM_0007057_LxT_Data_015.00.ldbin
Serial Number	0007057
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-27 10:08:29
Stop	2022-09-27 10:23:29
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2022-09-27 08:48:30
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamp	PRMLxT1		
Microphone Correction	Off		
Integration Method	Exponential		
Overload	143.3 dB		
	A	**C**	**Z**
Under Range Peak	**99.3**	96.3	101.3 dB
Under Range Limit	**36.5**	36.2	43.2 dB
Noise Floor	27.4	27.0	34.1 dB

Results

L_{ASeq}	66.0 dB	
LASE	95.5 dB	
EAS	397.026 µPa²h	
EAS8	12.705 mPa²h	
EAS40	63.524 mPa²h	
$L_{Apeak\ (max)}$	2022-09-27 10:10:17	96.9 dB
L_{ASmax}	2022-09-27 10:10:17	76.9 dB
L_{ASmin}	2022-09-27 10:09:27	49.4 dB
SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{CSeq}	74.8 dB	
L_{ASeq}	66.0 dB	
L_{CSeq} - L_{ASeq}	8.8 dB	
L_{AIeq}	68.0 dB	
L_{Aeq}	66.0 dB	
L_{AIeq} - L_{Aeq}	2.0 dB	

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	66.0					
$L_{S(max)}$	76.9	2022/09/27 10:10:17				
$L_{S(min)}$	49.4	2022/09/27 10:09:27				
$L_{Peak(max)}$	96.9	2022/09/27 10:10:17				

# Overloads	0
Overload Duration	0.0 s

Dose Settings			
Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results			
Dose	-99.9	-99.9	%
Projected Dose	-99.9	-99.9	%
TWA (Projected)	-99.9	-99.9	dB
TWA (t)	-99.9	-99.9	dB
Lep (t)	50.9	50.9	dB

Statistics		
LAS5.00	70.0	dB
LAS10.00	68.8	dB
LAS33.30	66.5	dB
LAS50.00	65.0	dB
LAS66.60	62.9	dB
LAS90.00	57.1	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
PRMLxT1	2022-09-27 08:48:30	-49.6	55.1	64.8	57.1	54.9	54.5	53.8	58.0	55.4	61.0	54.4	56.9	57.9	51.6	50.9	48.1	50.7	45.0	41.4	38.1	33.7	29.4	30.6	114.0	48.9	28.3	64.0	29.9	59.7	31.8	34.0	34.9	35.1	36.4	37.4	38.5	40.1
PRMLxT1	2022-09-27 08:48:15	-49.6	52.8	56.2	52.9	57.4	57.0	55.1	55.4	51.7	60.8	62.7	61.4	51.8	54.0	49.9	50.7	52.8	45.9	43.1	41.5	38.2	31.3	31.7	115.1	50.0	29.5	65.2	31.1	60.8	33.2	35.3	36.1	36.6	37.5	38.6	39.6	41.3
PRMLxT1	2022-08-23 09:56:28	-50.7	52.6	48.5	54.8	59.1	54.6	55.4	54.5	64.4	58.1	58.0	55.0	57.5	55.1	56.6	48.3	50.3	53.1	48.6	50.5	51.8	45.4	43.8	114.0	49.0	37.8	63.1	32.6	60.0	33.0	36.4	35.2	36.6	37.5	38.7	39.7	41.1
PRMLxT1	2022-08-23 09:56:11	-50.7	48.8	46.5	50.8	50.9	53.8	58.0	60.0	59.0	60.7	55.9	55.3	60.6	52.1	52.7	47.8	52.6	50.2	46.9	53.9	49.2	41.0	33.6	112.7	47.7	28.1	61.8	29.9	58.7	32.7	34.9	33.7	35.4	36.0	37.5	38.3	40.0
PRMLxT1	2020-09-11 01:01:04	-49.5	55.2	49.5	51.4	50.2	52.1	59.0	47.6	49.3	63.1	60.7	56.7	44.8	54.7	58.7	49.6	53.7	50.0	54.4	57.1	52.7	38.2	32.1	114.0	48.9	28.7	66.4	29.2	59.1	33.2	33.9	34.4	35.1	36.0	37.3	38.7	40.1
PRMLxT1	2020-09-11 01:00:45	-49.5	64.0	47.8	56.1	51.2	57.6	56.9	48.7	49.0	49.3	50.9	46.3	47.9	48.4	51.4	50.1	44.5	41.7	36.0	38.8	41.8	34.7	31.2	115.0	49.9	28.5	67.3	31.5	60.1	34.6	34.5	34.7	36.4	37.6	38.2	39.3	41.0
PRMLxT1	2022-04-14 03:56:53	-50.4	46.4	48.7	47.8	44.4	43.1	49.5	45.4	50.0	46.9	51.8	43.4	45.5	38.9	39.3	40.1	54.8	55.2	50.3	44.0	36.6	30.3	31.8	114.0	49.1	29.0	65.0	30.1	56.4	34.2	34.3	34.6	36.1	37.2	38.5	39.3	41.2
PRMLxT1	2022-04-13 08:05:10	-50.4																																				
PRMLxT1	2022-04-13 07:27:52	-49.9	29.7	32.0	34.5	31.7	53.1	43.5	50.3	47.0	52.1	60.4	53.7	51.7	48.1	64.0	45.2	44.7	43.2	45.7	46.3	33.0	27.0	30.6	113.2	48.3	27.0	63.1	28.7	53.9	30.3	31.5	31.5	31.9	31.8	31.1	29.4	29.5
PRMLxT1	2022-04-12 13:49:53	-49.1	30.3	48.9	135.8	70.6	25.3	65.6	27.8	43.1	31.8	31.7	18.5	28.9	27.8	28.0	24.7	28.6	29.1	26.8	31.1	32.2	29.6	33.5	35.1	34.1	35.8	38.2	39.7	38.8	39.9	40.7	42.7	43.7	45.2	47.1	49.9	52.2
PRMLxT1	2022-04-12 13:15:57	-49.0	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞

Summary

File Name on Meter	LxT_Data.014
File Name on PC	SLM_0007057_LxT_Data_014.00.ldbin
Serial Number	0007057
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2022-09-27 09:51:43
Stop	2022-09-27 10:06:43
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre Calibration	2022-09-27 08:48:30
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamp	PRMLxT1		
Microphone Correction	Off		
Integration Method	Exponential		
Overload	143.3 dB		
	A	**C**	**Z**
Under Range Peak	**99.3**	96.3	101.3 dB
Under Range Limit	**36.5**	36.2	43.2 dB
Noise Floor	27.4	27.0	34.1 dB

Results

L_{ASeq}	66.9 dB	
LASE	96.5 dB	
EAS	492.485 µPa²h	
EAS8	15.760 mPa²h	
EAS40	78.798 mPa²h	
$L_{Apeak\ (max)}$	2022-09-27 09:53:30	98.2 dB
L_{ASmax}	2022-09-27 09:52:36	76.7 dB
L_{ASmin}	2022-09-27 10:00:06	50.1 dB
SEA	-99.9 dB	

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
L_{Apeak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

L_{CSeq}	73.0 dB
L_{ASeq}	66.9 dB
L_{CSeq} - L_{ASeq}	6.1 dB
L_{AIeq}	68.9 dB
L_{Aeq}	66.9 dB
L_{AIeq} - L_{Aeq}	2.0 dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
L_{eq}	66.9					
$L_{S(max)}$	76.7	2022/09/27 9:52:36				
$L_{S(min)}$	50.1	2022/09/27 10:00:06				
$L_{Peak(max)}$	98.2	2022/09/27 9:53:30				

# Overloads	0
Overload Duration	0.0 s

Dose Settings			
Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results			
Dose	-99.9	-99.9	%
Projected Dose	-99.9	-99.9	%
TWA (Projected)	-99.9	-99.9	dB
TWA (t)	-99.9	-99.9	dB
Lep (t)	51.9	51.9	dB

Statistics		
LAS5.00	71.3	dB
LAS10.00	70.0	dB
LAS33.30	67.5	dB
LAS50.00	65.9	dB
LAS66.60	63.6	dB
LAS90.00	57.8	dB

Calibration History

Preamp	Date	dB re. 1V/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
PRMLxT1	2022-09-27 08:48:30	-49.6	55.1	64.8	57.1	54.9	54.5	53.8	58.0	55.4	61.0	54.4	56.9	57.9	51.6	50.9	48.1	50.7	45.0	41.4	38.1	33.7	29.4	30.6	114.0	48.9	28.3	64.0	29.9	59.7	31.8	34.0	34.9	35.1	36.4	37.4	38.5	40.1
PRMLxT1	2022-09-27 08:48:15	-49.6	52.8	56.2	52.9	57.4	57.0	55.1	55.4	51.7	60.8	62.7	61.4	51.8	54.0	49.9	50.7	52.8	45.9	43.1	41.5	38.2	31.3	31.7	115.1	50.0	29.5	65.2	31.1	60.8	33.2	35.3	36.1	36.6	37.5	38.6	39.6	41.3
PRMLxT1	2022-08-23 09:56:28	-50.7	52.6	48.5	54.8	59.1	54.6	55.4	54.5	64.4	58.1	58.0	55.0	57.5	55.1	56.6	48.3	50.3	53.1	48.6	50.5	51.8	45.4	43.8	114.0	49.0	37.8	63.1	32.6	60.0	33.0	36.4	35.2	36.6	37.5	38.7	39.7	41.1
PRMLxT1	2022-08-23 09:56:11	-50.7	48.8	46.5	50.8	50.9	53.8	58.0	60.0	59.0	60.7	55.9	55.3	60.6	52.1	52.7	47.8	52.6	50.2	46.9	53.9	49.2	41.0	33.6	112.7	47.7	28.1	61.8	29.9	58.7	32.7	34.9	33.7	35.4	36.0	37.5	38.3	40.0
PRMLxT1	2020-09-11 01:01:04	-49.5	55.2	49.5	51.4	50.2	52.1	59.0	47.6	49.3	63.1	60.7	56.7	44.8	54.7	58.7	49.6	53.7	50.0	54.4	57.1	52.7	38.2	32.1	114.0	48.9	28.7	66.4	29.2	59.1	33.2	33.9	34.4	35.1	36.0	37.3	38.7	40.1
PRMLxT1	2020-09-11 01:00:45	-49.5	64.0	47.8	56.1	51.2	57.6	56.9	48.7	49.0	49.3	50.9	46.3	47.9	48.4	51.4	50.1	44.5	41.7	36.0	38.8	41.8	34.7	31.2	115.0	49.9	28.5	67.3	31.5	60.1	34.6	34.5	34.7	36.4	37.6	38.2	39.3	41.0
PRMLxT1	2022-04-14 03:56:53	-50.4	46.4	48.7	47.8	44.4	43.1	49.5	45.4	50.0	46.9	51.8	43.4	45.5	38.9	39.3	40.1	54.8	55.2	50.3	44.0	36.6	30.3	31.8	114.0	49.1	29.0	65.0	30.1	56.4	34.2	34.3	34.6	36.1	37.2	38.5	39.3	41.2
PRMLxT1	2022-04-13 08:05:10	-50.4																																				
PRMLxT1	2022-04-13 07:27:52	-49.9	29.7	32.0	34.5	31.7	53.1	43.5	50.3	47.0	52.1	60.4	53.7	51.7	48.1	64.0	45.2	44.7	43.2	45.7	46.3	33.0	27.0	30.6	113.2	48.3	27.0	63.1	28.7	53.9	30.3	31.5	31.5	31.9	31.8	31.1	29.4	29.5
PRMLxT1	2022-04-12 13:49:53	-49.1	30.3	48.9	135.8	70.6	25.3	65.6	27.8	43.1	31.8	31.7	18.5	28.9	27.8	28.0	24.7	28.6	29.1	26.8	31.1	32.2	29.6	33.5	35.1	34.1	35.8	38.2	39.7	38.8	39.9	40.7	42.7	43.7	45.2	47.1	49.9	52.2
PRMLxT1	2022-04-12 13:15:57	-49.0	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞	-∞