Noise Study

Roxford Street Warehouses Project

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1. Introduction

This report evaluates noise impacts that could result from the construction and operations of the Roxford Street Warehouses Project (Project). Supporting documents – such as noise measurement technical reports, calculation worksheets, modeling outputs, and maps – are included in the appendix to this report.

2. Project Description

Addressed at 15825 Roxford Street in the Sylmar Community Plan Area of the City of Los Angeles, the Project proposes to construct two new industrial buildings containing a total of 589,600 square feet of warehouse uses and 15,000 square feet of ancillary office uses. Building 1 would consist of 430,000 square feet of warehouse space and 10,000 square feet of office space. Building 2 would consist of 159,600 square feet of warehouse space and 5,000 square feet of office space. The 27.93-acre Project site is located in the heart of an existing industrial/manufacturing district and is therefore bounded by a number of similar industrial/manufacturing uses. An eastern portion of the Project site has frontage along Telfair Avenue, and a long driveway also connects the site to Roxford Street. To the west, the Project site borders the Golden State Freeway.

The Project site is currently improved with 182,230 square feet of warehouse uses, as well as surface parking area and driveways in support of these uses. Ancillary uses include four athletic courts for tennis and basketball. Most of these uses would be demolished or extensively modified for the Project.

3. Environmental Setting

3.1 Fundamentals of sound and environmental noise

Sound can be described in terms of its loudness (amplitude) and frequency (pitch). The standard unit of measurement for sound is the decibel, abbreviated dB. Because the human ear is not equally sensitive to sound at all frequencies, the A-weighted scale (dBA) is used to reflect the normal hearing sensitivity range of the human ear. **Table 1** provides examples of A-weighted noise levels from common sources. Although the terms "sound" and "noise" are often used synonymously, noise is commonly defined as sound that is either loud, unpleasant, unexpected, or undesired.[1] Because decibels are logarithmic units, they cannot be simply added or subtracted. For example, two cars each producing 60 dBA of noise would not produce a combined 120 dBA.

[1] California Department of Transportation (Caltrans), Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.

Table 1
A-Weighted Decibel Scale

Common Noise Sources	Sound Level, dBA
Near Jet Engine	130
Rock and Roll Band	110
Jet Flyover at 1,000 feet	100
Power Motor	90
Food Blender	80
Living Room Music	70
Human Voice at 3 feet	60
Residential Air Conditioner at 50 feet	50
Bird Calls	40
Quiet Living Room	30
Average Whisper	20
Rustling Leaves	10
These noise levels are approximations intended for general reference and informational use. They do not meet the standard required for detailed noise analysis but are provided for the reader to gain a rudimentary concept of various noise levels. Source: Cowan, James P., Handbook of Environmental Acoustics, 1993.	

3.1.1 Noise definitions

This noise analysis discusses or references sound levels in terms of equivalent noise level (L_{eq}), maximum noise level (L_{max}), minimum noise level (L_{min}), and Community Noise Equivalent Level (CNEL). Statistical descriptors (L_X) are also utilized.

Equivalent Noise Level (L_{eq})

L_{eq} represents the equivalent steady-state noise level for a given period of time that would contain the same acoustic energy as the fluctuating, time-varying noise level of that same period. For example, the L_{eq} for one hour is the energy average noise level for that hour. L_{eq} can be thought of as a continuous noise level for a certain period that is equivalent in acoustic energy content to a fluctuating noise level of that same period. In this report, L_{eq} is expressed in units of dBA.

Maximum Noise Level (L_{max})

L_{max} represents the highest instantaneous noise level of a specified time period.

Minimum Noise Level (L_{min})

L_{min} represents the lowest instantaneous noise level of a specified time period.

Community Noise Equivalent Level (CNEL)

CNEL is a weighted noise measurement scale of average sound level during a 24-hour period. Due to increased noise sensitivities during evening and night hours, human reaction to sound between 7:00 P.M. and 10:00 P.M. is as if it were actually 5 dBA higher than had it occurred between 7:00 A.M. and 7:00 P.M. From 10:00 P.M. to 7:00 A.M., humans perceive sound as if it were 10 dBA higher. To account for these sensitivities, CNEL penalizes evening noise levels between 7:00 P.M. and 10:00 P.M. by an additional 5 dBA and nighttime noise

levels between 10:00 P.M. and 7:00 A.M. by an additional 10 dBA. Because of this, 24-hour CNEL figures are always higher than their corresponding 24-hour L_{eq}.

Statistical Descriptor (L_x)

L_x is used to represent the noise level exceeded *X*% of a specified time period. For example, L_{90} represents the noise level that is exceeded 90% of a specified time period. L_{90} is commonly used to represent ambient or background steady-state noise levels.[2]

3.1.2 Effects of environmental noise

The degree to which noise can impact an environment ranges from levels that interfere with speech and sleep to levels that can cause adverse health effects. Most human response to noise is subjective. Factors that influence individual responses may include the intensity, frequency, and pattern of noise; the amount of background or existing noise present; and the nature of work or human activity that is exposed to intruding noise.

According to the National Institute of Health (NIH), extended or repeated exposure to sounds at or above 85 dB can cause hearing loss. Sounds of 75 dBA or less, even after continuous and repeated exposure, are unlikely to cause hearing loss.[3] The World Health Organization (WHO) reports that adults should not be exposed to sudden "impulse" noise events of 140 dB or greater. For children, this limit is 120 dB.[4]

Exposure to elevated nighttime noise levels can disrupt sleep, leading to increased levels of fatigue and decreased work or school performance. For the preservation of healthy sleeping environments, the WHO recommends that continuous interior noise levels should not exceed 30 dBA L_{eq} and that individual noise events of 45 dBA or higher be limited.[5]

Some epidemiological studies have shown a weak association between long-term exposure to noise levels of 65 to 70 dBA L_{eq} or greater and cardiovascular effects, including ischemic heart disease and hypertension. However, at this time, the relationship is largely inconclusive.

It is generally accepted that people with normal hearing sensitivity can barely perceive a 3 dBA change in noise levels, though if changes occur to the character of a sound (i.e., changes to the frequency content), then changes less than 3 dBA may be more noticeable.[6] Changes of 5 dBA may be readily perceptible, and changes of 10 dBA are perceived as a doubling in loudness.[7] However, few people are highly annoyed by daytime noise levels below 55 dBA.[8]

Loud noises, such as those from construction activities, can interfere with peoples' ability to effectively communicate via speech or interfere with other activities, resulting in annoyance or inconvenience. The EPA has concluded that a home interior noise level of 45 dBA L_{eq} generally protects speech and communication by providing 100% intelligibility of speech sounds. Other common daily activities that may be disrupted by elevated interior noise levels include watching television, listening to music, or activities requiring concentration (such as reading). The EPA has found that, given the preservation of an indoor noise level associated with 100% speech intelligibility, the average community is

2 Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.
3 National Institute of Health, National Institute on Deafness and Other Communication. www.nidcd.nih.gov/health/noise-induced-hearing-loss.
4 World Health Organization, Guidelines for Community Noise, 1999.
5 World Health Organization, Guidelines for Community Noise, 1999.
6 Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.
7 Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.
8 World Health Organization, Guidelines for Community Noise, 1999.

not evident and "7 dBA below levels associated with significant complaints and threats of level action." Any complaints and annoyance are dependent on "attitude and other non-level related factors."[9]

3.1.3 Noise attenuation

Generally speaking, noise levels decrease, or "attenuate," as distance from noise sources to receivers increases. For each doubling of distance, noise from stationary or small, localized sources – commonly referred to as "point sources" – may attenuate at the rate of 6 dBA for each doubling of distance. This attenuation is referred to as the inverse square law. For example, if a point source emits a noise level of 80 dBA at a reference distance of 50 feet, its noise level would be approximately 74 dBA at a distance of 100 feet, 68 dBA at a distance of 200 feet, etc. Noise emitted by "line" sources such as highways attenuates at a rate of 3 dBA for each doubling of distance.[10]

Factors such as ground absorption and atmospheric effects may also affect the propagation of noise. In particular, ground absorption by non-reflective surfaces such as soft dirt or grass may contribute to increased attenuation rates of up to an additional 8-10 dBA per doubling of distance.[11]

Noise is most audible when traveling by direct line of sight, an unobstructed visual path between a noise source and a receiver. Barriers that break the line of sight between noise sources and receivers, such as walls and buildings, can greatly reduce source noise levels by allowing noise to reach receivers by diffraction only. Barriers can reduce source noise levels by up to 20 dBA, though it is generally infeasible for temporary barriers to reduce source noise levels by more than 15 dBA.[12] In cases where the noise path from source to receiver is direct but grazes the top of a barrier, noise attenuation of up to 5 dBA may still occur.[13]

3.2 Fundamentals of vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, and acceleration.[14] Unlike noise, vibration is not a common environmental issue, as it is unusual for vibration from vehicle sources to be perceptible. Common sources of vibration may include trains, construction activities, and some industrial operations.

3.2.1 Vibration definitions

This analysis discusses vibration in terms of Peak Particle Velocity (PPV):

Peak Particle Velocity (PPV)

PPV is commonly used to describe and quantify vibration impacts to buildings and other structures. PPV levels represent the maximum instantaneous peak of a vibration signal and are generally measured in inches per second (in/sec).[15]

9 EPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, 1974.
10 Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.
11 Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.
12 Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.
13 Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.
14 Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013.
15 Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.

3.2.2 Effects of vibration

High levels of vibration may cause damage to buildings or even cause physical personal injury. However, vibration levels rarely affect human health outside the personal operation of certain construction equipment or industrial tools. Instead, most people consider environmental vibration to be an annoyance that may affect concentration or disturb sleep. Background vibration in residential areas is usually not perceptible, and perceptible indoor vibrations are generally caused by sources within building themselves, such as slamming doors or heavy footsteps. Vibration from traffic on smooth roadways is rarely perceptible, even from larger vehicles such as buses or trucks.[16] The threshold of human perception of vibration is approximately 0.01-0.02 in/sec PPV.[17]

3.3 Regulatory framework

3.3.1 Federal

Currently, no federal noise standards regulate environmental noise associated with temporary construction activities or the long-term operations of development projects. As such, both temporary and long-term noise impacts resultant from the Project would be largely regulated or otherwise evaluated by State and City of Los Angeles standards designed to protect public well-being and health.

3.3.2 State

3.3.2.1 2017 General Plan Guidelines

The State of California's 2017 General Plan Guidelines propose county and city standards for acceptable exterior noise levels based on land use. These standards are incorporated into land use planning processes to prevent or reduce noise and land use incompatibilities. The State's suggested compatibility considerations between various land uses and exterior noise levels are not regulatory in nature, but recommendations intended to aid communities in determining their own noise-acceptability standards.

3.3.3 City of Los Angeles

3.3.3.1 General Plan Noise Element

The City of Los Angeles General Plan Noise Element includes objectives and policies intended to guide the control of noise to protect residents, workers, and visitors. Its primary goal is to manage long-term noise impacts to preserve acceptable noise environments for all types of land uses. The Noise Element contains no quantitative or other thresholds of significance for evaluating a project's noise or vibration impacts. However, the Noise Element does contain a land use and noise compatibility table, which is shown in **Table 2** below. Policy P16 of the Noise Element instructs to use, "as appropriate," this table "or other measures that are acceptable to the city, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses, as defined by this chapter…"[18] "Noise sensitive" uses are defined as "single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodgings and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves, and parks."[19] The Noise Element

16 Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.
17 Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.
18 Noise Element of the Los Angeles City General Plan, February 1999.
19 Noise Element of the Los Angeles City General Plan, February 1999.

further instructs that the table is designed "to help guide determination of appropriate land use and mitigation measures vis-à-vis existing or anticipated ambient noise levels."

Table 2
City of Los Angeles Noise Element – Guidelines for Noise Compatible Land Use

Land Use Category	Day-Night Average Exterior Sound Level (CNEL dB)						
	50	55	60	65	70	75	80
Residential Single Family, Duplex, Mobile Home	A	C	C	C	N	U	U
Residential Multi-Family	A	A	C	C	N	U	U
Transient Lodging, Motel, Hotel	A	A	C	C	N	U	U
School, Library, Church, Hospital, Nursing Home	A	A	C	C	N	N	U
Auditoriums, Concert Halls, Amphitheaters	C	C	C	C/N	U	U	U
Sports Arena, Outdoor Spectator Sports	C	C	C	C	C/U	U	U
Playground, Neighborhood Park	A	A	A	A/N	N	N/U	U
Golf Course, Riding Stable, Water Recreation, Cemetery	A	A	A	A	N	A/N	U
Office Building, Business, Commercial, Professional	A	A	A	A/C	C	C/N	N
Industrial, Manufacturing, Utilities, Agriculture	A	A	A	A	A/C	C/N	N

A = 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.

C = 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 system or air conditioning will normally suffice.

N = 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.

U = Clearly Unacceptable – New construction or development should generally not be undertaken.

Source: Noise Element of the Los Angeles City General Plan – Exhibit I.

3.3.3.2 Los Angeles Municipal Code

The City of Los Angeles Municipal Code (the "LAMC") contains a number of regulations that would apply to the Project's temporary construction activities and long-term operations.

Section 112.03 "Construction Noise" instructs that "Noise due to construction or repair work shall be regulated as provided by Section 41.40 of this Code." Section 41.40(a) would prohibit the Project's construction activities from occurring between the hours of 9:00 P.M. and 7:00 A.M., Monday through Friday. Subdivision (c) would further prohibit such activities from occurring before 8:00 A.M. or after 6:00 P.M. on any Saturday, or on any Sunday or national holiday.

SEC.41.40. NOISE DUE TO CONSTRUCTION, EXCAVATION WORK—WHEN PROHIBITED

(a) No person shall, between the hours of 9:00 P.M. and 7:00 A.M. of the following day, perform any construction or repair work of any kind upon, or any excavating for, any building or structure, where any of the foregoing entails the use of any power drive drill, riveting machine excavator or any other machine, tool, device or equipment which makes loud noises to the disturbance of persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence. In addition, the operation, repair or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited during the hours herein specified. Any person who knowingly and willfully violates the foregoing provision shall be deemed guilty of a misdemeanor punishable as elsewhere provided in this Code.

(c) No person, other than an individual homeowner engaged in the repair or construction of his single-family dwelling shall perform any construction or repair work of any kind upon, or any earth grading for, any building or structure located on land developed with residential buildings under the provisions of Chapter I of this Code, or perform such work within 500 feet of land so occupied, before 8:00 A.M. or after 6:00 P.M. on any Saturday or national holiday nor at any time on any Sunday. In addition, the operation, repair, or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited on Saturdays and on Sundays during the hours herein specific...

Section 112.05 of the LAMC establishes noise limits for powered equipment and hand tools operated within 500 feet of residential zones. Of particular importance is subdivision (a), which institutes a maximum noise limit of 75 dBA at 50 feet for the types of construction vehicles and equipment that would be required for the Project's construction. However, the LAMC notes that these limitations would not necessarily apply if it can be proven that compliance would be technically infeasible despite the use of noise-reducing means or methods.

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

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

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

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

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

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

Section 112.01 of the LAMC would prohibit any amplified noises, especially those from outdoor sources (e.g., outdoor speakers, stereo systems, etc.) from exceeding the ambient noise levels of adjacent properties by more than 5 dBA.

SEC.112.01 RADIOS, TELEVISION SETS, AND SIMILAR DEVICES

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

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

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

Though it concerns the loading and unloading vehicles, Section 114.03 of the LAMC would not apply to the Project because the Project is not within 200 feet of any residential building.

SEC.114.03 VEHICLES – LOADING AND UNLOADING

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

3.3.4 Federal Transit Administration (FTA)

For the evaluation of construction-related vibration impacts, Federal Transit Administration (FTA) guidelines and recommendations are used given the absence of applicable federal, County, or City standards specific to temporary construction activities.

Though they are not regulatory in nature, vibration impact criteria for buildings and other structures have been established by the FTA, because building and structural damages are generally the foremost concern when evaluating the impacts of construction-related vibrations. **Table 3**, below, shows the FTA's vibration guidelines for building and structural damage.

Table 3
FTA Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12
Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.	

3.4 Existing conditions

3.4.1 Project site

The Project site is currently occupied by 182,230 square feet of warehouse uses. Existing tenants include an aerospace/manufacturing company and a trucking school. These existing uses/tenants likely generate noise from on-site sources such as mechanical systems, vehicle usage, industrial/manufacturing activities, etc. Off-site noise from these tenants is likely related to mobile sources, i.e. passenger vehicle and truck travel.

3.4.2 Noise-sensitive receptors

As the Project is located in an industrial/manufacturing district, the Project is mainly surrounded by non-sensitive industrial/manufacturing uses. The main portion of the Project site is located approximately 1,000 feet west of residential uses along El Dorado Avenue, over 800 feet west of residential uses along Telfair Avenue, and over 1,000 feet northwest of residential uses along Roxford Street. However, a small extension of the Project site would extend along an existing driveway to Roxford Street. At the connection with Roxford Street, the Project would improve the existing driveway and construct a small surface parking lot containing less than 75 spaces. This is the only portion of the Project that would be located within 800 feet of noise-sensitive receptors. Residential receptors along Roxford Street would be approximately 140 feet from this location.

A map identifying the location of the Project in relation to surrounding noise-sensitive receptors is included in the appendix to this study. Other noise-sensitive receptors are located farther from the Project than the aforementioned receptors and would experience lesser, if any, noise impacts.

3.4.3 Existing ambient noise levels

On January 11, 2022, noise measurements were obtained at two locations near the Project to aid in the characterization of daytime ambient noise conditions surrounding the Project and noise-sensitive receptors. At both locations, the primary source of noise was vehicular traffic along Roxford Street. Noise from the Golden State Freeway was also audible at the second location. The measured noise levels are shown in **Table 4**, below.

Table 4
Existing Noise Levels

Noise Measurement Location	Sound Level (dBA L_{eq})
1. Roxford Street, near Telfair Avenue	73.0
2. Roxford Street, near Project's Roxford Street Driveway	72.8
Source: NTEC, 2022.	

4. Project Impacts

4.1 Methodology

The following section discusses the methods used to analyze the Project's noise and vibration impacts:

4.1.1 On-site construction activities

The Project's construction noise impact associated with its on-site construction activities was determined by identifying the noise levels of construction equipment with the greatest potential to disrupt nearby sensitive receptors and assessing the noise increases that could result from their operations. Reference equipment noise levels were derived from the Federal Highway Administration's Roadway Construction Noise Model, version 2.0 (FHWA RCNM 2.0).

4.1.2 Off-site construction activities

The Project's off-site construction noise impact from trucks was assessed by estimating the Project's number of construction truck trips and comparing this figure with surrounding traffic levels and existing ambient noise conditions to determine significance.

4.1.3 On-site operational noise sources

The Project's potential to result in significant noise impacts from on-site operational noise sources was assessed by identifying likely on-site noise sources and considering the noise increases they could produce given the nature of the source (i.e., loudness and/or whether noise would be generated during daytime or more-sensitive nighttime hours), distances to noise-sensitive receptors, surrounding ambient noise levels, the presence of similar noise sources in the vicinity, and maximum allowable noise levels permitted by the LAMC.

4.1.4 Off-site operational noise sources

The Project's off-site operational noise impact from its related traffic generation was projected using the FHWA's TNM 2.5 noise model. Project-related traffic noise levels were estimated with TNM 2.5 and then compared with existing ambient noise conditions and traffic levels along nearby roadways to determine significance.

4.1.5 Construction Vibration Sources

The Project's potential to generate damaging levels of groundborne vibration was assessed by identifying construction vibration sources and estimating the maximum vibration levels that they could produce at nearby buildings, all based on the principles and guidelines recommended by the FTA in its 2018 Transit Noise and Vibration Impact Assessment

manual. Vibration levels were then compared with the manual's suggested damage criteria for various building categories (**Table 3**).

4.1.6 Operational Vibration Sources

The Project's potential to generate damaging levels of groundborne vibration from operations was addressed by assessing the Project's distance to surrounding buildings.

4.2 Thresholds of significance

The following thresholds are adopted to aid in the determination of the Project's noise and vibration impacts:

4.2.1 State CEQA Guidelines: Appendix G

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

a) Generation of a substantial temporary of 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 pan 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 area to excessive noise levels?

4.2.2 Construction noise threshold

Based on guidelines from the City of Los Angeles Department of Planning, the Project's construction noise impact would be considered significant its if construction noise levels are in violation of Section 112.05 of the LAMC, which is shown and discussed earlier in this report. LAMC Section 112.05 regulates noise levels for powered construction equipment.

4.2.3 Operational noise threshold

In addition to applicable City standards and guidelines that would regulate or otherwise manage the Project's operational noise impacts, the following criteria are adopted to assess the impacts of the Project's operational noise sources:

- Project operations would cause ambient noise levels at off-site locations to increase by 3 dBA CNEL or more to or within "normally unacceptable" or "clearly unacceptable" noise and land use compatibility categories, as defined by the City's General Plan Noise Element (see **Table 2**).
- Project operations would cause any 5 dBA or greater noise increase to a noise-sensitive receptor.[20]

[20] As a 3 dBA increase represents a barely noticeable change in noise level, this threshold considers any increase in ambient noise levels to or within a land use's "normally unacceptable" or "clearly unacceptable" noise/land use compatibility categories to be significant so long as the noise level increase can be considered barely perceptible. For instances when the noise level increase would not necessarily result in "normally unacceptable" or "clearly unacceptable" noise/land use

4.2.4 Groundborne vibration threshold

As discussed earlier, there are no federal, state, or City standards that would regulate the Project's vibration impacts from temporary construction activities, nor are there quantitative thresholds. As a result, based on guidance from the City of Los Angeles Department of Planning, the criteria identified by the FTA in its 2018 Transit Noise and Vibration Impact Assessment manual (see **Table 3**) are used where applicable and relevant to assist in analyzing the Project's groundborne vibration impacts as they pertain to Appendix G checklist question (b).

5. Analysis of Project Impacts

5.1 Threshold a):

Would the project result in 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?

5.1.1 On-site construction activities

The proposed construction would generate noise during the estimated 22 months of demolition, grading, building construction, paving, and other related construction activities. During all construction phases, noise-generating activities would be permitted to occur at the Project site between the hours of 7:00 A.M. and 9:00 P.M. Monday through Friday, in accordance with Section 41.40(a) of the LAMC. On Saturdays, construction activities would be permitted to occur between 8:00 A.M. and 6:00 P.M., but the Project is anticipated to utilize a five-day work week.

Section 112.05 of the LAMC establishes a noise limit of 75 dBA for powered equipment and hand tools operated within 500 feet of residential zones between the hours of 7:00 A.M. and 10:00 P.M. As noted earlier, the main area of the Project site – where the existing warehouse use(s) would be demolished and Buildings 1 and 2 would be constructed – is located approximately 1,000 feet west of residential uses along El Dorado Avenue, over 800 feet west of residential uses along Telfair Avenue, and over 1,000 feet northwest of residential uses along Roxford Street. On-site construction noise sources operating within the main area of the Project site would be between 800 and 2,200+ feet from these residential uses. This exceeds the 500-foot distance criteria of LAMC Section 112.05. Therefore, LAMC Section 112.05 would not govern the noise levels of powered equipment and hand tools utilized for construction on the main area of the Project site, and construction-related noises originating from this location would not result in violations of LAMC Section 112.05. An additional consideration is the fact that there are numerous large industrial buildings intervening between this main area of the Project and the aforementioned residential uses. These buildings would obstruct line-of-sight noise paths from the main area of the Project to these distant residential uses. Given these factors, the attenuation of on-site construction noises from this area would be substantial and would reasonably preclude construction-related noise levels in excess of LAMC's Section 112.05 75 dBA limit from occurring at far-off noise-sensitive residential uses.

As also mentioned, though, there is a small extension of the Project site that connects the main area to an existing driveway on Roxford Street. At this driveway connection with Roxford Street, the Project would improve the existing driveway and construct a small surface parking lot containing less than 75 spaces. This area is approximately 1-acre in size, and it is the only location where the Project's on-site construction would occur with 500 feet of any noise-sensitive

compatibility, a readily noticeable 5 dBA increase would still be considered significant. Increases less than 3 dBA are unlikely to result in noticeably louder ambient noise conditions and would therefore be considered less than significant.

receptor. Residential receptors along Roxford Street are approximately 140 feet from this location. The following analysis assesses the potential for on-site construction activities occurring at this location – hereafter referred as the "Roxford Parking Lot" – to result in significant noise impacts at nearby Roxford Street residential receptors.

Site preparation (i.e., tree removal and landscape clearing) and grading of the Roxford Parking Lot site would require similar construction equipment, likely a bulldozer and a skid steer loader. Both a bulldozer and a skid steer loader would assist in removing vegetation and other landscape items from the site. After this, they would level the site by spreading soils and grading the area. Bulldozers can produce noise levels of 80.0 dBA L_{eq} at a reference distance of 50 feet during work cycles. A skid steer loader can produce noise levels of 72.4 dBA L_{eq} at the same distance. Both vehicles are mobile by nature. Thus, as they would perform work across the approximately 1-acre Roxford Parking Lot site, their construction noise levels at nearby noise-sensitive residential uses would fluctuate. Despite this understanding of how bulldozer and skid steer loader operate, the noise impact of these vehicles' site preparation and grading activities at the Roxford Parking Lot site has been conservatively modeled by assuming that their entire workday usage would occur at the minimum 140-foot Project-to-receptor distance.

Table 5 shows the estimated noise impact that would result from site preparation and grading activities at the Roxford Parking Lot site. As shown, the construction noise level associated with these activities would be just 67.8 dBA L_{eq} at nearby Roxford Street noise-sensitive residential uses, well-below the 75 dBA LAMC Section 112.05 limit. The resultant noise increase at these residential uses would be 1.2 dBA.

Table 5
Roxford Parking Lot Construction Noise Levels – Site Preparation and Grading (Unmitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Equipment: Bulldozer and Skid Steer Loader				
Roxford Street Noise-Sensitive Residential Uses	67.8	72.8	74.0	1.2
Source: NTEC, 2022.				

After site preparation and grading, the next construction phase with the potential to expose Roxford Street noise-sensitive residential uses to significant noise impacts would be concrete pouring. Any concrete pad for the Roxford Parking Lot would likely be poured by a concrete pump truck that is supplied by concrete mixer trucks. Concrete pump trucks can produce noise levels of 83.5 dBA L_{eq} at a reference distance of 50 feet during work cycles. Concrete mixer trucks can produce noise levels of 81.1 dBA L_{eq} at the same distance. The concrete pump truck would likely be stationed somewhere along the access road connecting to the Project's Roxford Street driveway, at a distance that is beyond the minimum 140-foot Project-to-receptor distance. Concrete mixer trucks would drive up to the pump truck when delivering concrete. Nevertheless, the noise impact of these vehicles' concrete pouring activities at the Roxford Parking Lot site has been conservatively modeled by assuming that they would operate at the minimum 140-foot Project-to-receptor distance.

Table 6 shows the estimated noise impact that would result from concrete pouring activities at the Roxford Parking Lot site. As shown, the construction noise level associated with these activities would be just 70.9 dBA L_{eq} at nearby Roxford Street noise-sensitive residential uses, well-below the 75 dBA LAMC Section 112.05 limit. The resultant noise increase at these residential uses would be 2.2 dBA.

Table 6
Roxford Parking Lot Construction Noise Levels – Concrete Pouring (Unmitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Equipment: Concrete Pump Truck and Concrete Mixer Truck				
Roxford Street Noise-Sensitive Residential Uses	70.9	72.8	75.0	2.2
Source: NTEC, 2022.				

After concrete pouring, the final construction phase with the potential to expose Roxford Street noise-sensitive residential uses to significant noise impacts would be paving. Paving the Roxford Parking Lot could require an asphalt paver, a dump truck to feed it asphalt, and a roller to compact the new asphalt surface. Asphalt pavers working in tandem with dump trucks can produce peak noise levels of 81.8 dBA L_{max} at a reference distance of 50 feet during work cycles. Rollers can produce peak noise levels of 82.4 dBA L_{max} at the same distance. Though these vehicles' time-averaged noise levels in dBA L_{eq} would be lower than these instantaneous maxima, their reference noise levels in dBA L_{max} have nevertheless been conservatively utilized by this analysis. As paving activities are performed across the 1-acre Roxford Parking Lot site, noise associated with these vehicles would fluctuate at nearby Roxford Street noise-sensitive residential uses. Despite this understanding of how paving activities result in fluctuating noise levels at receptors, the noise impact of these vehicles has been conservatively modeled by assuming that their entire workday usage would occur at the minimum 140-foot Project-to-receptor distance.

Table 7 shows the estimated noise impact that would result from paving activities at the Roxford Parking Lot site. As shown, the construction noise level associated with these activities would be just 71.5 dBA L_{eq} at nearby Roxford Street noise-sensitive residential uses, well-below the 75 dBA LAMC Section 112.05 limit. The resultant noise increase at these residential uses would be 2.4 dBA.

Table 7
Roxford Parking Lot Construction Noise Levels – Paving (Unmitigated)

Receptor	Construction Noise Level (dBA L_{eq})	Existing Ambient Noise Level (dBA L_{eq})	New Noise Level (dBA L_{eq})	Increase
Equipment: Paver with Dump Truck and Roller				
Roxford Street Noise-Sensitive Residential Uses	71.5	72.8	75.2	2.4
Source: NTEC, 2022.				

To summarize the preceding analysis: on-site construction activities occurring on the main area of the Project site – where the existing warehouse use(s) would be demolished and Buildings 1 and 2 would be constructed – would not result in violations of LAMC Section 112.05 because residences are located over 800 feet from this area, beyond the 500-foot regulatory distance. Additionally, noise attenuation due to the distances involved and the presence of intervening structures would reasonably preclude this area's construction-related noise from causing substantial construction noise levels and noise level increases at far-off noise-sensitive residential uses. Concerning the Roxford

Parking Lot site, **Tables 5**, **6**, and **7** show that construction activities at this location also would not result in violations of LAMC Section 112.05 at nearby Roxford Street noise-sensitive residential uses. Given these considerations, the Project's impact from on-site construction noise sources would be **less than significant**.

5.1.2 Off-site construction activities

Trucks and other construction-related vehicles would access the Project site over the course of all construction phases. The Project's demolition phase is estimated to result in approximately 20 truck trips per workday to transport demolished materials to regional landfills. This is substantially less than the 89 truck trips per day that are associated with the Project site's existing industrial/warehouses uses. Therefore, the Project's demolition-related truck trips would not be reasonably anticipated to cause substantial noise increases along surrounding roadways accessing the Project site (i.e., Roxford Street, Telfair Avenue, etc.).

It is anticipated that cut and fill for the Project site would be balanced, meaning that no soils would need to be exported from the site during its grading phase. If the Project were to require soil export, it is unlikely that this would result in greater than 100 truck trips per day because the Project would not require mass bulk excavation; most excavated soils would be spread on site as "fill" material. This is not substantially greater than the 89 truck trips per day that are associated with the Project site's existing industrial/warehouse uses and therefore would not contribute to substantial noise increases along surrounding roadways. Typically, a doubling of traffic is required to increase traffic noise levels by approximately 3 dBA, which represents a barely perceptible noise increase. Considering that construction of the Project would eliminate the 89 truck trips per day that are associated with the Project site's existing uses, a subsequent addition of up to 100 truck trips per day during grading would not be capable of doubling truck volumes on surrounding roadways when compared to the existing baseline. Therefore, the Project's noise impact from off-site construction sources (i.e., heavy-duty diesel trucks) would be less than thresholds of perception and **less than significant**.

It should be noted that Section 112.05 of the LAMC does not regulate off-site noise emissions from road legal trucks such as delivery vehicles, concrete mixing trucks, pumping trucks, haul trucks, and worker vehicles.

5.1.3 On-site operational noise

The Project's potential on-site operational noise sources are identified and discussed below:

Mechanical Equipment

Regulatory compliance with LAMC Section 112.02 would ultimately ensure that mechanical noise sources do not increase ambient noise levels at neighboring occupied properties by more than 5 dBA. The nearest noise-sensitive receptors – residential uses along El Dorado Avenue, Telfair Avenue, and Roxford Street – are located over 800 feet from the Project's main campus where buildings and mechanical equipment would be located.[21] Thus, it reasons that the Project's compliance with LAMC Section 112.02, which would prevent any of the Project's mechanical systems from increasing noise levels at closer neighboring properties by 5 dBA, would subsequently ensure that any resultant noise increases at these much-farther noise-sensitive residential receptors are also below 5 dBA. Given the substantial distances (and presence of intervening structures) between the Project and noise-sensitive receptors, it is unlikely that any noise-sensitive receptors would experience audible mechanical noises from the Project at all.

Auto-Related Activities

[21] The Roxford Parking Lot site is located approximately 140 feet from noise-sensitive residential uses along Roxford Street, but the Roxford Parking Lot site would not contain noise-generating mechanical equipment.

The Project would include 410 at-grade parking spaces, most of which would be interspersed throughout the 27.93-acre Project Site. Most parking areas would be located 800 feet or more from the nearest noise-sensitive receptors along El Dorado Avenue, Telfair Avenue, and Roxford Street. Noise from these parking areas (e.g., doors slamming, engines starting, etc.) are unlikely to be audible at these distant receptors. However, the Roxford Parking Lot site, which would contain less than 75 passenger vehicle spaces, would be located approximately 140 feet from residential uses along Roxford Street. According to FTA equations for the prediction of parking facility noise impacts, a facility with an hourly activity of 75 vehicles would be expected to result in a noise level of just 45.2 dBA L_{eq} at a reference distance of 50 feet. At 140 feet, the noise level would be well-below 40 dBA L_{eq}. Considering that noise-sensitive receptors near the Roxford Parking Lot site experience daytime noise levels in excess of 70 dBA L_{eq}, there is no potential for auto-related activities at the Roxford Parking Lot site to cause or materially contribute to significant noise increases of 5 dBA L_{eq} or greater at these receptors.

Loading Bays

The Project would include 95 loading bays. The location of these bays would be between approximately 1,000-2,000 feet from the nearest noise-sensitive residentials receptors along El Dorado Avenue, Telfair Avenue, and Roxford Street. Distance alone would therefore substantially attenuate any noise from the Project's loading bay areas. Attenuation provided from surrounding intervening large buildings would be in addition to this. Given the considerable attenuation that would be provided by distance and shielding, it is unlikely that on-site noise from loading activities would be capable of causing audible noise increases at noise-sensitive residential receptors, let alone substantial increases.

Overall, the Project would be located in a setting with numerous other warehousing, manufacturing, and light industrial uses. An additional consideration is that the Project site's existing uses are also warehouse/light industrial. The Project is consistent with surrounding land use types and land use patterns, and it would not alter the noise environment of its surroundings by a substantial degree or the minimum 3 dBA CNEL increase that would represent a significant impact. As a result, the impact of the Project's on-site operational noise sources would be **less than significant**.

5.1.4 Off-site operational noise

Most the Project's operational noise impacts would be from off-site mobile sources associated with its daily vehicle trip generation. Project traffic would include passenger vehicle trips from employees and other users, as well as truck trips. Most vehicles would immediately access the Project via Golden State Freeway ramps located on Roxford Street. As such, the roadway segment with the greatest potential to experience substantial noise increases as a result of Project-related traffic is Roxford Street, between Telfair Avenue and the Project's southern driveway/entrance. This roadway segment also contains numerous roadside noise-sensitive residential receptors. Other surrounding roadway segments would experience substantially less Project-related traffic and/or do not contain roadside noise-sensitive receptors.

A screening analysis indicates that neither the Project's A.M. nor P.M. peak hour traffic would, on its own, generate noise levels greater than 59.2 dBA L_{eq} at roadside noise-sensitive receptors along the Roxford Street segment between Telfair Avenue and the Project's southern driveway/entrance. Given that noise measurements taken for the Project indicate that daytime noise levels along this Roxford Street segment are above 72 dBA L_{eq}, Project-related traffic would not be capable of generating noise increases greater than 5 dBA or even 3 dBA along this roadway segment. Roxford Street is a major roadway that routinely carries substantially more than 1,000 trips per hour, and a significant portion of these trips are from existing truck traffic. Thus, and as further demonstrated by the screening analysis, Project-related traffic – which would not exceed 134 passenger vehicle and 21 truck trips per hour – would not be capable

causing substantial noise increases along this roadway segment. Given these considerations, the Project's off-site operational noise impact would be **less than significant.**

5.2 Threshold b):

Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

5.2.1 Building damage vibration impact

Construction of the Project would require a variety of large, steel-tracked earthmoving vehicles and vibratory rollers. Large steel-tracked earthmoving vehicles can produce vibration levels of 0.089 inches per second PPV at a reference distance of 25 feet. Vibratory rollers can produce even greater vibration levels – 0.210 inches per second PPV at a reference distance of 25 feet.[22] This corresponds with a groundborne vibration level of 0.098 inches per second PPV at 50 feet. The Project's other construction vehicles would generate lower groundborne vibration levels. The FTA's most stringent vibration criteria for "Buildings extremely susceptible to vibration damage" is 0.12 inches per second PPV (see **Table 3**). Because the Project's maximum groundborne vibration level of 0.098 inches per second PPV at 50 feet is below this most stringent vibration criteria, and because there is no structure located within 50 feet of the Project's construction, it follows that the Project would not expose any structure to groundborne vibration levels in excess of FTA vibration damage criteria. As a result, the Project's construction-related vibration impact would be **less than significant**.

5.2.2 Operational vibrations impact

The Project, as built to its current specifications and design, would not contain significant stationary sources of vibration. Depending on the nature of any future light industrial uses at the Project, it is possible that groundborne vibrations may be generated by the equipment of future tenants. However, it is unrealistic to assume that any vibration would be potentially damaging or even perceptible at nearby buildings, which would be at least approximately 100 feet from the Project's proposed buildings. Additionally, surrounding buildings are modern industrial structures that are not relatively sensitive to groundborne vibrations to begin with. As a result, the Project's potential to generate excessive groundborne vibrations due to operations would be **less than significant**.

5.3 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?

The Project is not located within an airport land use plan or within two miles of a public or public use airport. The Project is also not located within the vicinity of a private airstrip. As a result, the Project would not expose people residing or working in the Project area to excessive noise levels from aircraft. **No impact**.

5.4 Cumulative impacts

5.4.1 Construction

As discussed previously, the Project's various construction activities could temporarily increase ambient noise levels at noise-sensitive land uses, primarily residential uses along Roxford Street that are near the Roxford Parking Lot. Any

[22] Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.

other developments that are built at the same time as the Project could contribute to additional increases in noise levels at these residential uses and potentially result in a cumulatively considerable noise impact. However, no other developments, or "related projects," have been identified within 1,000 feet of the Roxford Street residential uses that would be affected by the Project's construction at the Roxford Parking Lot site. Therefore, there is no realistic potential that any distant related projects would be capable of causing significant cumulatively considerable construction noise impacts at these receptors, especially when considering that these receptors experience existing daytime noise levels in excess of 70 dBA L_{eq}. Construction noises from related projects would not be measurable at these receptors, and the Project itself would not cause significant construction noise impacts at these receptors. **Less than significant.**

Concerning vibration, the Project would generate negligible construction-related groundborne vibrations at surrounding buildings, far below thresholds associated with building damage. There is no potential for cumulatively considerable vibration impacts at receptors because the presence of multiple vibration sources rarely results in cumulative increases in groundborne vibration levels. Generally, additional vibration sources result in additional vibration "peaks" (i.e., PPV groundborne vibration events), not necessarily higher (i.e., more damaging) "peaks" or levels, because the probabilities of constructive wave interference are extremely small. **Less than significant**.

5.4.2 Operations

As discussed earlier, the Project's on- and off-site operational noise sources would have a nominal effect at surrounding noise-sensitive residential land uses. The Project's main campus area where most on-site operations would take place is over 800 feet from the nearest noise-sensitive residential land uses. Vehicle activity at the Project's Roxford Parking Lot site would generate noise levels that are far below existing ambient noise conditions at nearby Roxford Street residential land uses. Additionally, the Project's peak traffic generation would also result in off-site mobile source noise levels that are far below existing ambient noise conditions along Roxford Street. Therefore, the Project's operations would not meaningfully contribute to any cumulatively considerable noise increases at surrounding noise-sensitive receptors. **Less than significant**.

Noise Study Appendix

Roxford Street Warehouses Project

Measurement Report

Report Summary

Meter's File Name	831_Data.068.s	Computer's File Name	831_0001371-20220111 143356-831_Data.068.ldbin
Meter	831 0001371		
Firmware	2.314		
User		Location	Roxford St near Telfair Ave
Job Description			
Note			
Start Time	2022-01-11 14:33:56	Duration	0:15:00.0
End Time	2022-01-11 14:48:56	Run Time	0:15:00.0
Pause Time	0:00:00.0		

Results

Overall Metrics

LA_{eq}	72.8 dB		
LAE	102.3 dB	SEA	--- dB
EA	1.9 mPa²h		
LZ_{peak}	114.9 dB	2022-01-11 14:40:25	
LAS_{max}	86.7 dB	2022-01-11 14:46:55	
LAS_{min}	57.4 dB	2022-01-11 14:45:30	
LA_{eq}	72.8 dB		
LC_{eq}	79.7 dB	LC_{eq} - LA_{eq}	6.9 dB
LAI_{eq}	74.8 dB	LAI_{eq} - LA_{eq}	2.0 dB

Exceedances

	Count	Duration
LAS > 65.0 dB	17	0:13:10.4
LAS > 85.0 dB	2	0:00:03.9
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight
72.8 dB	72.8 dB	0.0 dB

LDEN	LDay	LEve	LNight
72.8 dB	72.8 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	72.8 dB		79.7 dB		84.5 dB	
$L_{S(max)}$	86.7 dB	2022-01-11 14:46:55	97.1 dB	2022-01-11 14:46:55	104.1 dB	2022-01-11 14:40:25
$L_{F(max)}$	89.8 dB	2022-01-11 14:40:25	98.7 dB	2022-01-11 14:46:54	110.8 dB	2022-01-11 14:40:25
$L_{I(max)}$	90.9 dB	2022-01-11 14:40:24	99.4 dB	2022-01-11 14:46:54	113.0 dB	2022-01-11 14:40:25
$L_{S(min)}$	57.4 dB	2022-01-11 14:45:30	69.8 dB	2022-01-11 14:45:32	74.4 dB	2022-01-11 14:42:36
$L_{F(min)}$	56.5 dB	2022-01-11 14:45:29	68.5 dB	2022-01-11 14:45:29	71.7 dB	2022-01-11 14:42:36
$L_{I(min)}$	57.1 dB	2022-01-11 14:45:30	70.8 dB	2022-01-11 14:45:32	75.5 dB	2022-01-11 14:42:29
$L_{Peak(max)}$	102.6 dB	2022-01-11 14:46:05	108.4 dB	2022-01-11 14:46:54	114.9 dB	2022-01-11 14:40:25

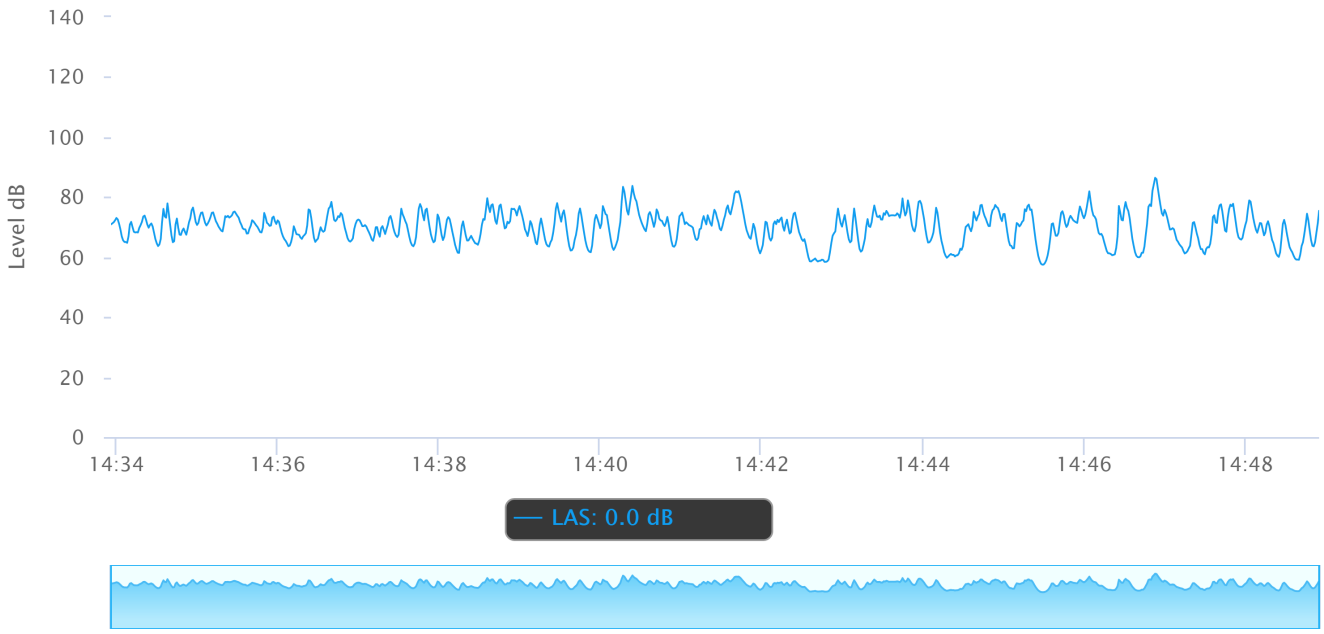
Overloads

Count	Duration
0	0:00:00.0

Statistics

LAS 5.0	77.4 dB
LAS 10.0	76.0 dB
LAS 33.3	72.3 dB
LAS 50.0	70.5 dB
LAS 66.6	68.0 dB
LAS 90.0	62.7 dB

Time History



Measurement Report

Report Summary

Meter's File Name	831_Data.067.s	Computer's File Name	831_0001371-20220111 141423-831_Data.067.ldbin
Meter	831 0001371		
Firmware	2.314		
User		Location	Roxford St near Project driveway
Job Description			
Note			
Start Time	2022-01-11 14:14:23	Duration	0:15:00.0
End Time	2022-01-11 14:29:23	Run Time	0:15:00.0
		Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	73.0 dB		
LAE	102.6 dB	SEA	--- dB
EA	2.0 mPa²h		
LZ_{peak}	109.8 dB	2022-01-11 14:24:16	
LAS_{max}	85.7 dB	2022-01-11 14:20:38	
LAS_{min}	51.0 dB	2022-01-11 14:25:22	
LA_{eq}	73.0 dB		
LC_{eq}	80.3 dB	LC_{eq} - LA_{eq}	7.3 dB
LAI_{eq}	75.2 dB	LAI_{eq} - LA_{eq}	2.1 dB

Exceedances	Count	Duration
LAS > 65.0 dB	31	0:10:59.8
LAS > 85.0 dB	1	0:00:01.7
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight
	73.0 dB	73.0 dB	0.0 dB

	LDEN	LDay	LEve	LNight
	73.0 dB	73.0 dB	--- dB	--- dB

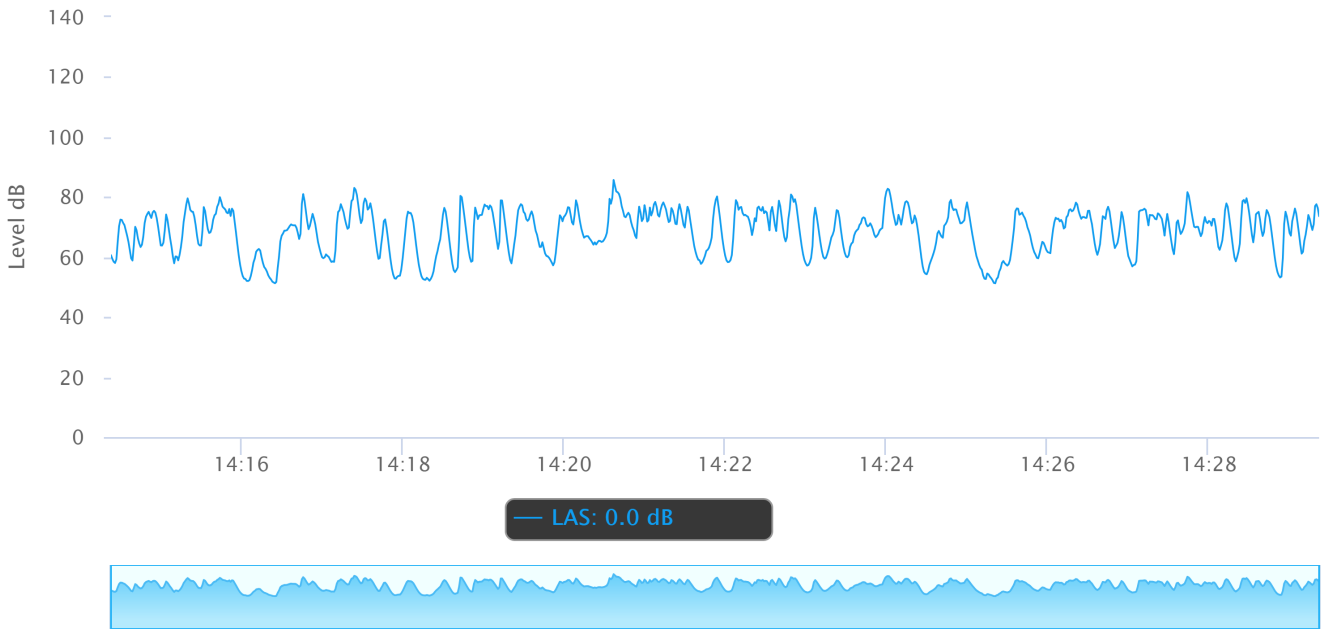
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	73.0 dB		80.3 dB		86.7 dB	
$L_{S(max)}$	85.7 dB	2022-01-11 14:20:38	92.1 dB	2022-01-11 14:17:25	98.5 dB	2022-01-11 14:15:22
$L_{F(max)}$	88.6 dB	2022-01-11 14:20:38	95.9 dB	2022-01-11 14:24:16	104.0 dB	2022-01-11 14:27:49
$L_{I(max)}$	89.6 dB	2022-01-11 14:20:38	98.8 dB	2022-01-11 14:24:16	105.9 dB	2022-01-11 14:27:49
$L_{S(min)}$	51.0 dB	2022-01-11 14:25:22	63.6 dB	2022-01-11 14:17:57	71.8 dB	2022-01-11 14:17:45
$L_{F(min)}$	50.0 dB	2022-01-11 14:25:21	62.6 dB	2022-01-11 14:17:57	68.1 dB	2022-01-11 14:16:07
$L_{I(min)}$	50.4 dB	2022-01-11 14:25:21	65.0 dB	2022-01-11 14:17:56	72.4 dB	2022-01-11 14:17:45
$L_{Peak(max)}$	101.6 dB	2022-01-11 14:18:44	105.7 dB	2022-01-11 14:17:25	109.8 dB	2022-01-11 14:24:16

Overloads	Count	Duration
	0	0:00:00.0

Statistics

LAS 5.0	78.4 dB
LAS 10.0	76.8 dB
LAS 33.3	73.1 dB
LAS 50.0	70.1 dB
LAS 66.6	65.7 dB
LAS 90.0	58.1 dB

Time History



Construction Noise Impact Analysis

noah tanski environmental consulting

Roxford Street Residential Uses: SITE PREP / GRADING

Ambient Noise Level:	72.8 dBA Leq
Distance:	140 feet

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - 50ft dBA Leq	Usage %	Workday Noise Level - 50ft dBA Leq
Bulldozer	80.0	0.4	76.0
Skid Steer Loader	72.4	0.4	68.4
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	76.7

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	76.7 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0
Distance - Equipment to Receptor	140 ft

Unmitigated Construction Noise Level	67.8 dBA Leq
Ambient Noise Level	72.8 dBA
New Noise Level	74.0 dBA Leq
Unmitigated Noise Increase	**1.2 dBA**

Construction Noise Impact Analysis

noah tanski environmental consulting

Roxford Street Residential Uses: CONCRETE

Ambient Noise Level:	72.8 dBA Leq
Distance:	140 feet

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - 50ft dBA Leq	Usage %	Workday Noise Level - 50ft dBA Leq
Concrete Pump Truck	83.5	0.2	76.5
Concrete Mixer Truck	81.1	0.4	77.1
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	79.8

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	79.8 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0
Distance - Equipment to Receptor	140 ft

Unmitigated Construction Noise Level	70.9 dBA Leq
Ambient Noise Level	72.8 dBA
New Noise Level	75.0 dBA Leq
Unmitigated Noise Increase	**2.2 dBA**

Construction Noise Impact Analysis

noah tanski environmental consulting

Roxford Street Residential Uses: PAVING

Ambient Noise Level:	72.8 dBA Leq
Distance:	140 feet

Unmitigated

Equipment Noise Levels

Equipment	Noise Level - 50ft dBA Leq	Usage %	Workday Noise Level - 50ft dBA Leq
Paver w/ Dump Truck	81.8	0.5	78.8
Roller	82.4	0.2	75.4
-	0	1	0.0
-	0	1	0.0
-	0	1	0.0
		Combined dBA Leq:	80.4

Unmitigated Construction Noise Impact

Combined Equipment Noise Level	80.4 dBA Leq
Existing Shielding	0 dBA
Ground Factor	0
Distance - Equipment to Receptor	140 ft

Unmitigated Construction Noise Level	71.5 dBA Leq
Ambient Noise Level	72.8 dBA
New Noise Level	75.2 dBA Leq
Unmitigated Noise Increase	**2.4 dBA**

NTEC
Noah Tanski

27 January 2022
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Roxford Warehouses
RUN: Roxford St: AM Peak
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
75ft from centerline	2	1	0.0	59.1	66	59.1	10	----	59.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

NTEC 27 January 2022
Noah Tanski TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: Roxford Warehouses
RUN: Roxford St: PM Peak
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
75ft from centerline	2	1	0.0	59.2	66	59.2	10	----	59.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0