IV. Environmental Impact Analysis

I. Noise

1. Introduction

This section of the Draft EIR analyzes potential noise and vibration impacts of the Project. Included in this section is a description of the existing noise environment within the Project site area, an estimation of future noise and vibration levels at surrounding sensitive land uses associated with construction and operation of the Project, a description of the potential significant impacts, and the inclusion of mitigation measures to address any identified potential significant impacts. This section summarizes the noise and vibration information analyses provided in the Noise and Calculation Worksheets included in Appendix I of this Draft EIR.

2. Environmental Setting

Due to the technical nature of noise and vibration impacts, a brief overview of basic noise principles and descriptors is provided below.

a. Noise and Vibration Basics

(1) Noise Principles 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 undesirable (i.e., loud, unexpected, or annoying) sound. Acoustics is defined as the physics of sound and addresses its propagation and control.[1] 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 determine the sound level and characteristics of the noise perceived by the receiver.

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[1] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.2.1, September 2013.*

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 and reflects the way people perceive changes in sound amplitude.[2] 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 pain. Pressure waves traveling through air exert a force registered by the human ear as sound.[3]

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. When all of the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.[4]

The typical human ear is not equally sensitive to the frequency range from 20 to 20,000 Hz. 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.[5] Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in Figure IV.I-1 on page IV.I-3.

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[2] *All sound levels measured in decibel (dB), as identified in the noise calculation worksheets included in Appendix of this Draft EIR and in this section of the Draft EIR, are relative to* $2x10^{-5}$ *N/m*^{2}*.*

[3] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.3, September 2013.*

[4] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.3, September 2013.*

[5] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.3, September 2013.*

Common Outdoor Activities	Noise Level (dBA)	Common IndoorActivities
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**70**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**60**	
		Large business office
Quiet urban daytime	**50**	Dishwasher in next room
Quiet urban nighttime	**40**	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast recording studio
	10	
	0	

Figure IV.I-1

Decibel Scale and Common Noise Sources

Source: State of California, Department of Transportation (Caltrans), Technical Noise Supplement, 2009.

(2) Noise Exposure and Community Noise

Community noise exposure is typically measured over a period of time; a noise level is a measure of noise at a given instant in time. 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 unidentifiable individual contributors. Single-event noise sources, such as aircraft flyovers, sirens, etc., may cause sudden changes in background noise level.[6] However, generally, background noise levels change gradually throughout the day, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume.

These successive additions of sound to the community noise environment change the community noise level from moment to moment, requiring the noise exposure to be measured over periods of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. The following noise descriptors are used to characterize environmental noise levels over time.[7]

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 energy-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 dBA to measured noise levels between the hours of 10:00 P.M. and 7:00 A.M. to account for nighttime noise sensitivity. The L_{dn} is also termed the day-night average noise level (DNL).

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[6] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.2.1, September 2013.*

[7] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 2.2.2.*

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

(3) 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); and
- 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.

The World Health Organization's Guidelines for Community Noise details the adverse health effects of high noise levels, which include hearing impairment, speech intelligibility, sleep disturbance, physiological functions (e.g. hypertension and cardiovascular effects), mental illness, performance of cognitive tasks, social and behavioral effects (e.g. feelings of helplessness, aggressive behavior), and annoyance.[8]

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

[8] *World Health Organization Team, edited by Birgitta Berglund, Thomas Lindvall, and Dietrich H. Schwela, Guidelines for Community Noise, 1999.*

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:[9]

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

These relationships between change in noise level and human hearing response occur in part because of the logarithmic nature of sound and the dB scale. 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 10 sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.[10]

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[9] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 2.2.1.*

[10] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 2.2.1.1.*

(4) Noise Attenuation

When noise propagates over a distance, the noise level reduces, or attenuates, with distance depending 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." The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g., air conditioner) or idling vehicle (e.g., bulldozer), is 6 dBA per doubling of distance from the noise source to the receptor over acoustically "hard" sites and 7.5 dBA per doubling of distance from the noise source to the receptor over acoustically "soft" sites.[11] 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. 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. 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).[12] For example, an outdoor condenser fan that generates a sound level of 60 dBA at a distance of 50 feet from a point source at an acoustically hard site would attenuate to 54 dBA at a distance of 100 feet from the point source and attenuate to 48 dBA at 200 feet from the point source.

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.[13] Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading."[14] 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.[15] Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Structures (e.g., buildings and solid walls) and natural topography (e.g., hills and berms) that obstruct the line-of-sight between a noise source and a receptor further reduce the noise level if the receptor is located within the "shadow" of the obstruction, such as

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[11] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Sections 2.1.4.1 and 2.1.4.2.*

[12] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Sections 2.1.4.1 and 2.1.4.2.*

[13] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 2.1.4.1.*

[14] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 2.1.4.1.*

[15] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 2.1.4.1.*

behind a sound wall. This type of sound attenuation is known as "barrier insertion loss." If a receptor is located behind the wall but still has a view of the source (i.e., the line-of-sight is not fully blocked), barrier insertion loss would still occur but to a lesser extent. Additionally, a receptor located on the same side of the wall as a noise source may actually experience an increase in the perceived noise level as the wall can reflect noise back to the receptor, thereby compounding the noise. Noise barriers can provide noise level reductions ranging from approximately 5 dBA (where the barrier just breaks the line-of-sight between the source and receiver) to an upper range of 20 dBA with a larger barrier.[16] Additionally, structures with closed windows can further attenuate exterior noise by a minimum of 20 dBA to 30 dBA.[17]

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.[18] Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances. Other factors such as air temperature, humidity, and turbulence can, under the right conditions, also have substantial effects on noise levels.[19]

(5) Vibration Fundamentals

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. Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Since energy is lost during its transfer from one particle to another, 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.[20] In contrast to airborne noise, groundborne

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16 California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Sections 2.1.4.24 and 5.1.1.

17 California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 7.4.2, Table 7-1.

18 California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 2.1.4.3.

19 California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013, Section 2.1.4.3.

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

vibration is not a common environmental problem, as it is unusual for vibration from sources such as rubber-tired 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 certain construction activities, such as blasting, pile-driving, and operation of heavy earth-moving equipment.[21] Groundborne vibration generated by man-made activities (e.g., road traffic, construction operations) typically weakens with greater horizontal distance from the source of the vibration.

Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal in inches per second (in/sec), and is most frequently used to describe vibration impacts to buildings.[22] 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 vibration on the human body.[23] Decibel notation (VdB) is commonly used to express RMS vibration velocity amplitude. 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. PPV is typically a factor of 1.7 to 6 times greater than RMS vibration velocity; FTA uses a crest factor of 4.[24] The decibel notation VdB acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include buildings where vibration would interfere with operations within the building or cause damage (especially older masonry structures), locations where people sleep, and locations with vibration sensitive equipment.[25]

Groundborne noise 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.[26] The relationship between groundborne vibration and groundborne noise depends on the frequency 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

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[21] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 7.*

[22] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 5.1.*

[23] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 5.1.*

[24] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 5.1.*

[25] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 6.1, 6.2, and 6.3.*

[26] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 5.4.*

peak is between 30 and 60 Hz), the groundborne noise level will be approximately 35 to 37 decibels lower than the velocity level.[27] Therefore, for typical buildings, the groundborne noise decibel level is lower than the groundborne vibration velocity level at low frequencies.

b. Regulatory Framework

There are several plans, regulations, and programs that include policies, requirements, and guidelines regarding Noise at the federal, State, regional, and local levels. As described below, these plans, guidelines, and laws include the following:

- Noise Control Act of 1972
- Federal Transportation Administration Vibration Standards
- Occupational Safety and Health Act of 1970
- Office of Planning and Research Guidelines for Noise Compatible Land Use
- Caltrans Vibration/Groundborne Noise Standards
- Los Angeles County Airport Land Use Commission Comprehensive Land Use Plan
- City of Los Angeles Municipal Code
- City of Los Angeles General Plan Noise Element

(1) Federal

(a) Noise Control Act of 1972

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, USEPA issued guidance levels for the protection of public health and welfare in residential areas of an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA.[28] These guidance levels are not standards or

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[27] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 6-3 and Table 6-14..*

[28] *U.S. Environmental Protection Agency, EPA Identifies Noise Levels Affecting Health and Welfare, April 1974.*

regulations and were developed without consideration of technical or economic feasibility. There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Project. Moreover, the federal noise standards are not reflective of urban environments that range by land use, density, proximity to commercial or industrial centers, etc. As such, for purposes of determining acceptable sound levels to determine and evaluate intrusive noise sources and increases, this document utilizes the City of Los Angeles Noise Regulations, discussed below.

(b) Federal Transit Administration Vibration Standards

There are no federal vibration standards or regulations adopted by any agency that are applicable to evaluating vibration impacts from land use development projects, such as the Project. However, the FTA has adopted vibration criteria for use in evaluating vibration impacts from construction activities.[29] The vibration damage criteria adopted by the FTA are shown in Table IV.I-1 on page IV.I-12.

The FTA has also adopted standards associated with human annoyance for determining the groundborne vibration and noise impacts from ground-borne noise on the following three off-site land-use categories: Vibration Category 1—High Sensitivity, Vibration Category 2—Residential, and Vibration Category 3—Institutional.[30] The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but that still potentially involve activities that could be disturbed by vibration. The vibration thresholds associated with human annoyance for these three land-use categories are shown in Table IV.I-2 on page IV.I-12. No thresholds have been adopted or recommended for commercial or office uses.

(c) Occupational Safety and Health Act of 1970

Under the Occupational Safety and Health Act of 1970 (29 United States Code [USC] Sections 1919 et seq.), the Occupational Safety and Health Administration (OSHA)

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[29] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 7-5, p. 86.*

[30] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 6-1, p. 124.*

Table IV.I-1
Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.50
II. Engineered concrete and masonry (no plaster)	0.30
III. Non-engineered timber and masonry buildings	0.20
IV. Buildings extremely susceptible to vibration damage	0.12

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

Table IV.I-2
Groundborne Vibration and Groundborne Impact Criteria for General Assessment

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Building where vibration would interfere with interior operations	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime uses	75 VdB	78 VdB	83 VdB

[a] *"Frequent Events" are defined as more than 70 vibration events of the same source per day.*
[b] *"Occasional Events" are defined as between 30 and 70 vibration events of the same source per day.*
[c] *"Infrequent Events" are defined as fewer than 30 vibration events of the same source per day.*
[d] *This criterion limit is based on the levels that are acceptable for most moderately sensitive equipment such as optical microscopes.*

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

has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.[31]

[31] *U.S. Department of Labor, Occupational Safety and Health Act, 1970.*

(2) State

(a) Office of Planning and Research Guidelines for Noise Compatible Land Use

The State of California has not adopted Statewide standards for environmental noise, but the Governor's Office of Planning and Research (OPR) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as presented in Figure IV.I-2 on page IV.I-14.[32] The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise levels are divided into four general categories, which vary in range according to land use type: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." The City has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR Guidelines. California Government Code Section 65302 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(f) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels. These requirements are collectively known as the California Noise Insulation Standards (Title 24 of the California Code of Regulations [CCR]). The noise insulation standards set forth an interior standard of 45 dBA CNEL in any habitable room. The standards require an acoustical analysis demonstrating how 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.

(b) Caltrans Vibration/Groundborne Noise Standards

The State of California has not adopted Statewide standards or regulations for evaluating vibration or groundborne noise impacts from land use development projects, such as the Project. Although the State has not adopted any vibration standard, Caltrans in its 2013 *Transportation and Construction Vibration Guidance Manual* recommends the following vibration thresholds that are more practical than those provided by the FTA. The Caltrans vibration thresholds are shown in Table IV.I-3 on page IV.I-15.

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[32] *State of California, Governor's Office of Planning and Research, General Plan 2017 Guidelines, p. 377.*

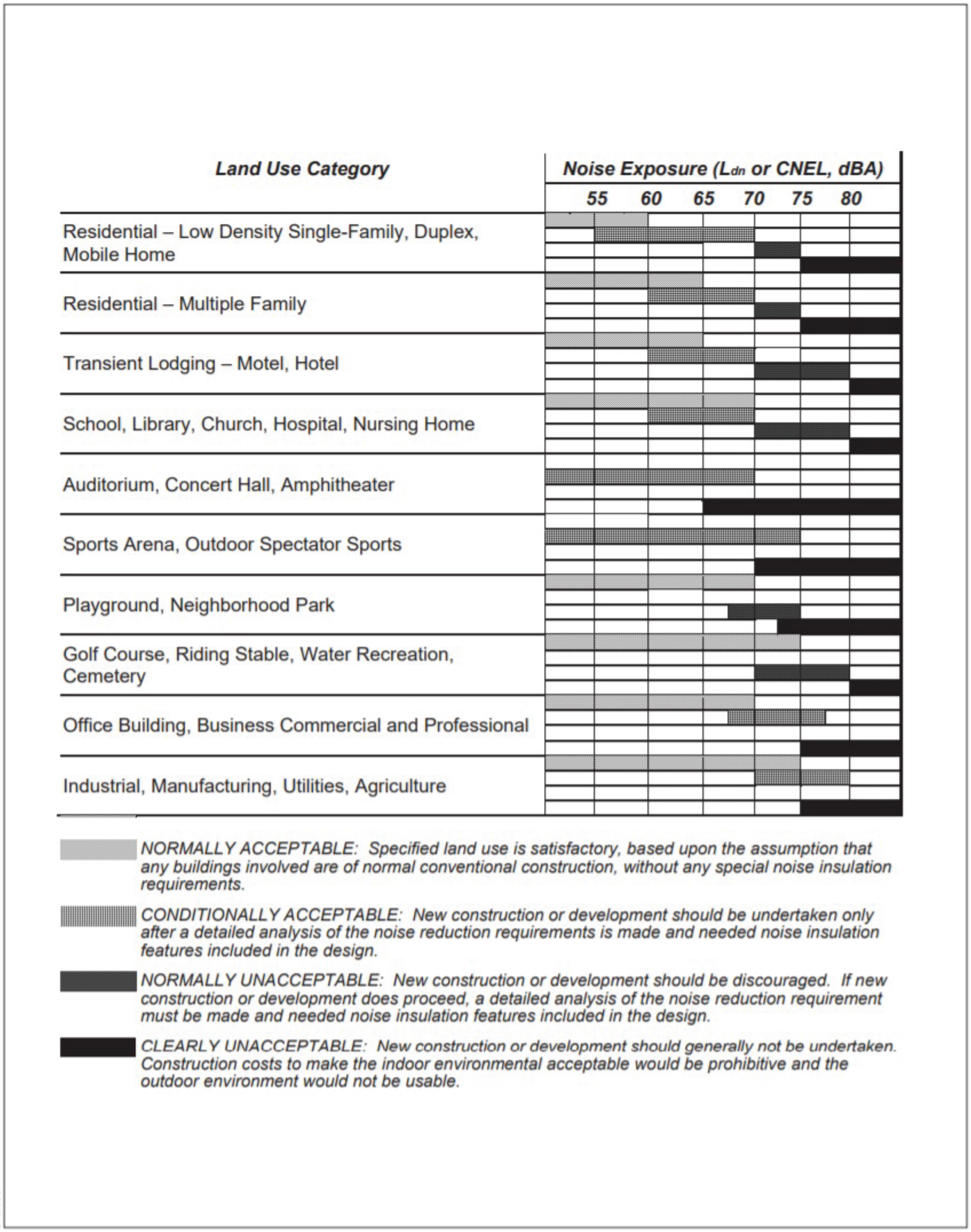

Figure IV.I-2

Guidelines for Noise Compatible Land Use

Source: State of California, General Plan Guidelines, Governor's Office of Planning and Research, 2003.

Table IV.I-3
Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (inch/sec)	
	Transient Sources[a]	Continuous/Frequent Intermittent Sources[b]
Extremely Fragile Historic Buildings, Ruins, Ancient Monuments	0.12	0.08
Fragile Buildings	0.20	0.10
Historic and Some Old Buildings	0.50	0.25
Older Residential Structures	0.50	0.30
New Residential Structures	1.00	0.50
Modern Industrial/Commercial Buildings	2.00	0.50

[a] *Transient sources create a single, isolated vibration event, such as blasting or drop balls.*

[b] *Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.*

Source: Caltrans, Transportation and Construction Vibration Guidance Manual, April 2020, Table 19.

(3) Regional

(a) Los Angeles County Airport Land Use Commission Comprehensive Land Use Plan

In Los Angeles County the Regional Planning Commission has the responsibility for acting as the Airport Land Use Commission (ALUC) and for coordinating the airport planning of public agencies within the county. The ALUC coordinates planning for the areas surrounding public use airports. The Comprehensive Land Use Plan provides for the orderly expansion of Los Angeles County's public use airports and the area surrounding them.

The Comprehensive Land Use Plan is intended to provide for the adoption of land use measures that will minimize the public's exposure to excessive noise and safety hazards. In formulating the Comprehensive Land Use Plan, the Los Angeles County ALUC has established provisions for safety, noise insulation, and the regulation of building height within areas adjacent to each of the public airports in the County.

(4) Local

(a) Los Angeles Municipal Code

The City of Los Angeles Noise Regulations are provided in Chapter XI of the Los Angeles Municipal Code (LAMC). 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 source that causes a noise level increase of 5 dBA over the existing average ambient noise level as measured at an adjacent property line creates a noise violation. This standard applies to radios, television sets, air conditioning, refrigeration, heating, pumping and filtering equipment, powered equipment intended for repetitive use in residential areas, and motor vehicles driven on-site. To account for people's increased tolerance for short-duration noise events, the Noise Regulations provide a 5-dBA allowance for a noise source that causes noise lasting more than 5 but less than 15 minutes in any 1-hour period, and an additional 5 dBA allowance (for a total of 10 dBA) for a noise source that causes noise lasting 5 minutes or less in any 1-hour period.[33]

The LAMC provides that in cases where the actual ambient conditions are not known, the City's presumed daytime (7:00 A.M. to 10:00 P.M.) and nighttime (10:00 P.M. to 7:00 A.M.) minimum ambient noise levels as defined in LAMC Section 111.03 should be used. The presumed ambient noise levels for these areas where the actual ambient conditions are not known as set forth in the LAMC Sections 111.03 are provided in Table IV.I-4 on page IV.I-17. For example, for residential-zoned areas, the presumed ambient noise level is 50 dBA during the daytime and 40 dBA during the nighttime.

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 dB.

LAMC Section 112.05 sets a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard shall not apply where compliance therewith is technically infeasible.[34] LAMC Section 41.40 prohibits construction between the hours of 9:00 P.M. and

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33 *Los Angeles Municipal Code, Chapter XI, Article I, Section 111.02-(b).*

34 *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.*

Table IV.I-4
City of Los Angeles Presumed Ambient Noise Levels

Zone	Daytime (7:00 A.M. to 10:00 P.M.) dBA (L_{eq})	Nighttime (10:00 P.M. to 7:00 A.M.) dBA (L_{eq})
Residential (A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5)	50	40
Commercial (P, PB, CR, C1, C1.5, C2, C4, C5, and CM)	60	55
Manufacturing (M1, MR1, and MR2)	60	55
Heavy Manufacturing (M2 and M3)	65	65

Source: LAMC Section 111.03.

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 (LAPD) 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.

Section 91.1207.14.2 prohibits interior noise levels attributable to exterior sources from exceeding 45 dBA in any habitable room. The noise metric shall be either the day-night average sound level (L_{dn}) or the CNEL, consistent with the noise element of the local general plan.

(b) City of Los Angeles General Plan Noise Element

The Noise Element of the City's General Plan policies include the CNEL guidelines for land use compatibility as shown in Table IV.I-5 on page IV.I-18 and includes a number of goals, objectives, and policies for land use planning purposes. The overall purpose of the Noise Element is to guide policymakers in making land use determinations and in

Table IV.I-5
City of Los Angeles Guidelines for Noise Compatible Land Use

Land Use	Community Noise Exposure CNEL (dB)			
	Normally Acceptable	**Conditionally Acceptable**	**Normally Acceptable**	**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, 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 assumption 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 are 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.

preparing noise ordinances that would limit exposure of citizens to excessive noise levels.[35] The following policies and objectives from the Noise Element apply to the Project.

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,

35 *City of Los Angeles, General Plan Noise Element, Adopted February 3, 1999, pp. 1.1–2.4.*

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.

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

Exhibit I of the Noise Element also contains guidelines for noise compatible land uses.[36] Table IV.I-5 on page IV.I-18 summarizes these guidelines, which are based on OPR guidelines from 1990.

c. Existing Conditions

As discussed in Section II, Project Description, of this Draft EIR, the Project site is located in a generally commercial office and industrial area within the Palms-Mar Vista-Del Rey Community Plan area of the City of Los Angeles. The area surrounding the Project site is developed primarily with commercial and industrial buildings, surface parking, and a five-story apartment building. The predominant source of noise in the vicinity of the Project site is vehicular traffic on nearby roadways, particularly along Beatrice Street, Westlawn Avenue, Grosvenor Boulevard, Jefferson Boulevard, and Centinela Avenue. Other ambient noise sources in the vicinity of the Project site include truck traffic, parking lot operations, landscaping activities, and other miscellaneous noise sources associated with typical urban activities.

(1) Noise-Sensitive Receptors

Some land uses are considered more sensitive to intrusive noise than others based on the types of activities typically involved at the receptor location. The *L.A. CEQA Thresholds Guide* states that noise-sensitive uses include residences, transient lodgings (hotels), schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks.[37] Similarly, the General Plan Noise Element defines noise-sensitive land uses as single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodging, and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves; and

[36] *City of Los Angeles, General Plan Noise Element, Adopted February 3, 1999, p. I-1.*

[37] *City of Los Angeles, L.A. CEQA Thresholds Guide, p. I.1-3.*

parks.[38] These uses are generally considered more sensitive to noise than commercial and industrial land uses.

Based on a review of the land uses in the vicinity of the Project site, five off-site noise receptor locations were selected to represent noise-sensitive uses within 500 feet of the Project site. These locations represent areas with land uses that could qualify as noise-sensitive uses according to the definition of such uses in the *L.A. CEQA Thresholds Guide* and the General Plan Noise Element. Although studios, sound stages, and recording studio uses are not defined as noise sensitive receptors by the *L.A. CEQA Thresholds Guide*, potential noise impacts at nearby studios, including the 740 Sound (represented by receptor location R4), and the Vista Studio, Venn Studios, Digital Domain and ATN Stages (together represented by receptor location R5), were evaluated as potential noise and vibration sensitive uses but for informational purposes only. An additional studio use, Activision at 12540 Beatrice Street, is identified and potential impacts are represented by receptor location R1. It should be noted that these are the only known studio uses in the Project vicinity at this time, although others may exist. Each of these identified studios or stages is referred to in this section as a "recording studio," although it is unknown what type of noise or vibration sensitive activities occur at these sites, or what type of noise attenuation is built into the facilities.

As discussed below, noise measurements were conducted at five off-site locations around the Project site to establish baseline noise conditions in the vicinity of the Project site. The noise measurement locations essentially surround the Project site and thereby provide representative baseline measurements for uses in all directions. In addition, the noise measurement locations provide an adequate basis to evaluate potential impacts at the noise measurement locations and receptors beyond in the same direction, as impacts at these receptors would be further reduced due to distance attenuation and intervening building structures. The noise measurement locations are shown in Figure IV.I-3 on page IV.I-21 and described in Table IV.I-6 on page IV.I-22.

(2) Ambient Noise Levels

To establish baseline noise conditions, existing ambient noise levels were measured at five off-site receptor locations (identified as receptor locations R1 to R5) that are representative of noise sensitive uses in the vicinity of the Project site. The baseline noise measurements were conducted on February 2, 2021 using a Larson-Davis Model 870

[38] *Noise Element, City of Los Angeles General Plan, Chapter IV, p. 4-1.*

Figure IV.I-3
Noise Measurement Locations

Source: Acoustical Engineering Services, 2021.

Table IV.I-6
Description of Noise Measurement Locations

Receptor Location	Description	Approximate Distance from Measurement Location to Nearest Project Site Boundary (feet)[a]	Nearest Noise-Sensitive Land Use(s)
R1	Residential use at the southwest corner of Beatrice Street and Westlawn Avenue, south of the Project site. Noise measurement was conducted along the north side facing Beatrice Street. This location also represents the studio use at Activision on the corner of Westlawn Avenue and Beatrice Street.	60	Residential
R2	Residential use on the east side of Grosvenor Boulevard, east of the Project site.	300	Residential
R3	Residential use at the southwest corner of Beatrice Street and Westlawn Avenue, south of the Project site. Noise measurement was conducted along the east side facing Westlawn Avenue.	230	Residential
R4	740 Studio on Beatrice Street, east of the Project site.	60	Recording Studio[b]
R5	Vista Studios on the west side of Jandy Place, west of the Project site. Receptor location R5 also represents nearby studios, Venn Studios, Digital Domain, ATN Stages.	70	Recording Studio[b]
P1	Project site	Project site	Commercial

[a] *Distances are estimated using Google Earth.*

[b] *Recording studio uses are not identified as noise sensitive uses by the L.A. CEQA Thresholds Guide. Therefore, the recording studios represented by receptor locations R4 and R5 (and R3 in addition to residential use) are included in the noise analysis for informational purposes only.*

Source: Acoustical Engineering Services (AES), 2023. See Appendix I of this Draft EIR.

Integrating/Logging Sound Level Meter.[39] Two 15-minute measurement durations were conducted at five off-site receptor locations (R1 to R5) during daytime and nighttime hours. The daytime ambient noise levels were measured between 10:00 A.M. and 12:00 P.M., and the nighttime ambient noise levels were measured between 10:00 P.M. and 12:00 A.M. In addition, a 24-hour noise measurement, between 10:00 A.M. on February 2, 2021, to

[39] *This sound meter meets and exceeds the minimum industry standard performance requirements for "Type 1" standard instruments as defined in the American National Standard Institute (ANSI) S1.4. It also meets the requirement specified in Section 111.01(l) of the LAMC that instruments be "Type S2A" standard instruments or better. The sound meter was calibrated and operated according to the manufacturer's written specifications.*

10:00 A.M. on February 3, 2021, was conducted at the Project site (receptor location P1) along the southern property line to document the current ambient noise pattern (i.e., noise levels fluctuations with respect to time of day/night) during the Project's proposed operation hours in the vicinity of the Project site. The ambient noise measurements were recorded in accordance with the City's standards (LAMC Section 111.01), which require ambient noise to be measured over a period of at least 15 minutes. Table IV.I-7 on page IV.I-24 provides a summary of the ambient noise measurements recorded at the five off-site noise receptors and at the Project site. These ambient noise measurements are conservative (i.e., lower than a typical condition), due to the fact that the decrease in traffic volume associated with the COVID-19 pandemic on the measurement date produced lower ambient noise levels.

Based on field observations, the ambient noise at the Project measurement locations is dominated by local traffic (i.e., Beatrice Street, Westlawn Avenue, and Grosvenor Boulevard) and, to a lesser extent, by nearby parking lots, helicopter flyovers, and other typical urban noises. As indicated in Table IV.I-7, the existing daytime ambient noise levels at the off-site noise receptor locations (R1 through R5) ranged from 52.2 dBA (L_{eq}) at receptor location R5 to 57.7 dBA (L_{eq}) at receptor location R4. The measured nighttime ambient noise levels ranged from 51.8 dBA (L_{eq}) at receptor locations R1, R2 and R4 to 53.5 dBA (L_{eq}) at receptor location R3. Thus, the existing ambient noise levels at all off-site locations are above the City's presumed daytime and nighttime ambient noise levels of 50 dBA (L_{eq}) and 40 dBA (L_{eq}), respectively, for residential uses, as presented above in Table IV.I-4 on page IV.I-17. In addition, the existing ambient noise levels at Project site (receptor location P1) ranged from 55.9 dBA (L_{eq}) during the nighttime hours to 62.4 dBA (L_{eq}) during the daytime hours, which are above the City's presumed daytime and nighttime ambient noise level of 60 dBA (L_{eq}) and 55 dBA (L_{eq}), for commercial use, respectively.

In addition to the ambient noise measurements in the vicinity of the Project site, the existing traffic noise on local roadways in the surrounding area was calculated to quantify the 24-hour CNEL noise levels using information provided in the Transportation Assessment prepared for the Project, included in Appendix K of this Draft EIR. Ten (10) roadway segments were selected for the existing off-site traffic noise analysis based on proximity to noise-sensitive uses along the roadway segments and potential increases in traffic volumes from the Project. Traffic noise levels were calculated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) and traffic volume data from the Transportation Assessment prepared for the Project.[40]

[40] *The Transportation Assessment, prepared by Linscott, Law & Greenspan, Engineers, included in Appendix K of this Draft EIR.*

Table IV.I-7
Existing Ambient Noise Levels

Receptor Location	Noise-Sensitive Land Use	Measured Noise Levels, L_{eq} (dBA)		CNEL[b] (24-hour)
		Daytime Hours[a] (7:00 A.M.–10:00 P.M.)	Nighttime Hours[a] (10:00 P.M.–7:00 A.M.)	
R1	Residential	57.4	51.8	60.3
R2	Residential	55.8	51.8	59.6
R3	Residential	57.2	53.5	61.2
R4	Recording Studio[b]	57.7	51.8	60.4
R5	Recording Studio[b]	52.2	52.7	59.3
P1	Commercial (Project site)	62.4[c]	55.9[c]	64.3

[a] *The range of hours for the daytime and nighttime periods shown herein are defined by the LAMC. Daytime ambient noise levels were measured between 10:00 A.M. and 12:00 P.M., and the nighttime ambient noise levels were measured between 10:00 P.M. and 12:00 A.M.*

[b] *Estimated based on short-term (15-minute) noise measurement based on FTA procedures.*

[c] *Levels shown for P1 represent the average for the entire daytime and nighttime periods.*

Source: AES, 2023. See Appendix I of this Draft EIR.

The TNM calculates the hourly L_{eq} noise levels based on specific Project information, including the hourly traffic volume, vehicle type mix, vehicle speed, and lateral distance between the noise receptor and the roadway. To calculate the 24-hour CNEL levels, the hourly L_{eq} levels were calculated during daytime hours (7:00 A.M. to 7:00 P.M.), evening hours (7:00 P.M. to 10:00 P.M.), and nighttime hours (10:00 P.M. to 7:00 A.M.). The TNM calculates the 24-hour CNEL noise levels based on specific information, including Average Daily Traffic (ADT); percentages of day, evening, and nighttime traffic volumes relative to ADT; vehicle speed; and distance between the noise receptor and the roadway. Vehicle mix/distribution information used in the noise calculations is shown in Table IV.I-8 on page IV.I-25.

Table IV.I-9 on page IV.I-26 provides the calculated CNEL for the analyzed local roadway segments based on existing traffic volumes. As shown therein, the existing CNEL due to surface street traffic volumes ranges from 59.0 dBA CNEL along Westlawn Avenue (between Jefferson Boulevard and Millennium Drive) to 73.1 dBA CNEL along Jefferson Boulevard (between Grosvenor Boulevard and Centinela Avenue). Currently, the existing traffic-related noise levels along the roadway segments of Westlawn Avenue (between Beatrice Street to Millennium Drive), Grosvenor Boulevard (between Hammack Street and Jefferson Boulevard), and Beatrice Street (between Jandy Place and Grosvenor Boulevard) fall within the conditionally acceptable noise levels for residential uses (i.e., between 55 and 70 dBA CNEL). The existing traffic noise levels along Jefferson Boulevard

Table IV.I-8
Vehicle Mix for Traffic Noise Model

Vehicle Type	Percent of Average Daily Traffic (ADT)			Total Percent of ADT per Vehicle Type
	Daytime Hours (7 A.M.–7 P.M.)	Evening Hours (7 P.M.–10 P.M.)	Nighttime Hours (10 P.M.–7 A.M.)	
Automobile	77.6	9.7	9.7	97.0
Medium Truck[a]	1.6	0.2	0.2	2.0
Heavy Truck[b]	0.8	0.1	0.1	1.0
Total	80.0	10.0	10.0	100.0

[a] *Medium Truck—Trucks with 2 axles.*
[b] *Heavy Truck—Trucks with 3 or more axles.*
Source: AES, 2023. See Appendix I of this Draft EIR.

(between Village Drive and Centinela Avenue), are between 70 dBA CNEL and 75 dBA CNEL, which are considered normally unacceptable for residential uses.

(3) Existing Ground-Borne Vibration Levels

Based on field observations, the primary source of existing ground-borne vibration in the vicinity of the Project site is vehicular travel (e.g., standard cars, refuse trucks, delivery trucks, construction trucks, school buses, and buses) on local roadways. According to the FTA technical study "Federal Transit Administration: Transit Noise and Vibration Impacts Assessments," typical road traffic-induced vibration levels are unlikely to be perceptible by people. Specifically, the FTA study reports that "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads."[41] Trucks and buses typically generate ground-borne vibration velocity levels of around 63 VdB (at 50 feet distance), and these levels could reach 72 VdB when trucks and buses pass over bumps in the road. Per the FTA, 75 VdB is the dividing line between barely perceptible (with regard to ground vibration) and distinctly perceptible.[42] Therefore, existing ground vibration in the vicinity of the Project site is generally less than 65 VdB and would be below the perceptible level of 75 VdB. However, ground vibration associated with heavy trucks traveling on road surfaces with irregularities, such as speed bumps and potholes, could reach the perceptible threshold.

[41] *FTA, Transit Noise and Vibration Impact Assessment, September 2018, p. 112.*

[42] *FTA, Transit Noise and Vibration Impact Assessment, September 2018, Table 5-5.*

Table IV.I-9
Existing Roadway Traffic Noise Levels

Roadway Segment	Most Sensitive Street-Adjacent Land Use	Approximate Distance to Roadway Center Line (feet)	Calculated Traffic Noise Levels, CNEL (dBA)[a]	Noise-Sensitive Land Uses	Existing Noise Exposure Compatibility Category[b]
Jandy Place					
North of Beatrice St.	Studio	30	59.7	No	Normally Acceptable
Westlawn Avenue					
Between Beatrice St. and Jefferson Blvd.	Residential	30	64.2	Yes	Conditionally Acceptable
Between Jefferson Blvd. and Millennium Dr.	Residential	35	59.0	Yes	Conditionally Acceptable
Grosvenor Boulevard					
Between Hammack St. and Beatrice St.	Residential	30	64.9	Yes	Conditionally Acceptable
Between Beatrice St. and Jefferson Blvd.	Residential	30	66.4	Yes	Conditionally Acceptable
Beatrice Street					
Between Jandy Pl. and Westlawn Ave.	Residential	30	64.6	Yes	Conditionally Acceptable
Between Westlawn Ave. and Grosvenor Blvd.	Studio	30	61.0	No	Normally Acceptable
Jefferson Boulevard					
Between Village Dr. and Westlawn Ave.	Residential	55	72.5	Yes	Normally Unacceptable
Between Westlawn Ave. and Grosvenor Blvd.	Residential	55	72.6	Yes	Normally Unacceptable
Between Grosvenor Blvd. and Centinela Ave.	Residential	55	73.1	Yes	Normally Unacceptable

[a] *Detailed calculation worksheets are included in Appendix I of this Draft EIR.*
[b] *Noise compatibility is based on the most stringent land use, per City's land use compatibility as provided in Table IV.I-5 on page IV.I-18.*
Source: AES, 2023.

3. Project Impacts

a. Thresholds of Significance

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

Threshold (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;***

Threshold (b): ***Generation of excessive ground-borne vibration or ground-borne noise levels;***

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?***

For this analysis, the Appendix G Thresholds described above are relied upon. The analysis utilizes factors and considerations identified in the City's 2006 *L.A. CEQA Thresholds Guide*, as appropriate, to assist in answering the Appendix G Threshold questions.

The *L.A. CEQA Thresholds Guide* identifies the following criteria to evaluate applicable noise impacts:

(1) Construction Noise

A project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior sound levels by 10 dBA (hourly 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 (hourly L_{eq}) or more at a noise-sensitive use; or
- Construction activities of any duration would exceed the ambient noise level by 5 dBA (hourly 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.

As discussed in Section II, Project Description, of this Draft EIR, construction of the Project is anticipated to occur over an approximate 18-month period and be completed in 2025. Since construction activities would occur over a period longer than 10 days for all phases, the corresponding significance criteria used in the construction noise analysis presented in this section of the Draft EIR is an increase in the ambient exterior noise levels by 5 dBA (hourly L_{eq}) or more at a noise-sensitive use.

(2) Operational Noise

A project would normally have a significant impact on noise levels from operation if:

- The project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 3 dBA in CNEL to or within the “normally unacceptable” or “clearly unacceptable” level depending on the land use category (see Table IV.I-5 on page IV.I-18 for a description of these categories); or
- The project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 5 dBA in CNEL or greater; or
- Project-related operational on-site (i.e., non-roadway) noise sources, such as outdoor building mechanical/electrical equipment, outdoor activities, loading, or parking facilities, increase the ambient noise level (hourly L_{eq}) at noise-sensitive uses by 5 dBA.

The significance criterion used in the noise analysis for on-site operations presented below is an increase in the ambient noise level of 5 dBA (hourly L_{eq}) at the property line of the noise-sensitive uses, in accordance with the City’s Noise Regulations (LAMC Chapter XI). The Noise Regulations do not apply to off-site traffic (i.e., vehicles traveling on public roadways).[43] Therefore, based on the *L.A. CEQA Thresholds Guide*, the significance criterion for off-site traffic noise associated with Project operations is an increase in the ambient noise level at noise sensitive uses by 3 dBA in CNEL when the noise levels fall within the “normally unacceptable” or “clearly acceptable” categories or 5 dBA in CNEL when the noise levels fall within the “normally acceptable” or “conditionally acceptable” land use categories (see Table IV.I-5 on page IV.I-18 at noise sensitive uses. In addition, the significance for composite noise levels (on-site and off-site sources) is also based on the *L.A. CEQA Thresholds Guide*, which is an increase in the ambient noise level at the noise

[43] *LAMC Section 114.02.(b)*

sensitive use of 3 dBA or 5 dBA in CNEL (depending on the land use category) for the Project's composite noise (both Project-related on-site and off-site sources).

(3) FTA Ground-Borne Vibration Standards and Guidelines

The City currently does not have significance criteria to assess vibration impacts during construction. Thus, FTA guidelines set forth in FTA's *Transit Noise and Vibration Assessment*, dated September 2018, are used to evaluate potential impacts related to construction vibration for both potential building damage and human annoyance. The FTA guidelines regarding construction vibration are the most current guidelines and are commonly used in evaluating construction vibration impacts.

Based on this FTA guidance, impacts relative to ground-borne vibration associated with potential building damage would be considered significant if any of the following future events were to occur:

- Project construction activities cause ground-borne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building.
- Project construction activities cause ground-borne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.2 PPV at the nearest off-site non-engineered timber and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

Based on FTA guidance, construction vibration impacts associated with human annoyance would be significant if the following were to occur (applicable to frequent events; 70 or more vibration events per day):

- Project construction activities cause ground-borne vibration levels to exceed 72 VdB at off-site residential uses.[44]
- Project construction activities cause ground-borne vibration levels to exceed 65 VdB at off-site recording studios.[45]

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[44] *Per FTA, vibration impacts associated with human annoyance are evaluated in terms of VdB. 72 VdB is equal to approximately 0.016 PPV, based on a crest factor of 4 per FTA for construction equipment.*

b. Methodology

(1) On-Site Construction Activities

Construction noise impacts due to on-site construction activities associated with the Project were evaluated by calculating the construction-related noise levels at representative sensitive receptor locations and comparing these estimated construction-related noise levels associated with construction of the Project to the existing ambient noise levels (i.e., noise levels without construction noise from the Project). It is noted that while the existing office building to remain at 12541 Beatrice Street may be occupied during Project construction, office uses are not considered sensitive uses. Construction noise associated with the Project was analyzed based on the Project's potential construction equipment inventory, construction durations, and construction schedule. The estimated noise levels were calculated for a worst-case scenario in which all pieces of construction equipment were assumed to operate simultaneously and be located at the construction area nearest to the affected receptors. The construction noise model for the Project is based on construction equipment noise levels as published by the FHWA's "Roadway Construction Noise Model (FHWA 2006)."[46] The ambient noise levels at surrounding sensitive receptor locations were based on field measurement data (see Table IV.I-7 on page IV.I-24). The construction noise levels were then calculated for sensitive receptor locations based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance (as described above in Subsection 2.a(1)(b), Outdoor Sound Propagation). Additional noise attenuation was assigned to receptor locations where the acoustics line-of-sight to the Project site was interrupted by the presence of intervening structures. Based on such intervening structures, a 5- to 15-dBA noise attenuation was assigned for receptor location R2, a 10-dBA noise attenuation was assigned for receptor location R3, and a 5- to 15-dBA noise attenuation was assigned for receptor location R4.

(2) Off-Site Construction Haul Trucks

Off-site construction noise impacts from haul trucks associated with the Project were analyzed using the FHWA's TNM. The TNM is the current Caltrans standard computer noise model for traffic noise studies. The model allows for the input of roadway, noise receivers, and sound barriers, if applicable. The construction-related off-site truck volumes were obtained from the transportation consultant based on their transportation modeling. The TNM calculates the hourly L_{eq} noise levels generated by construction-related haul

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[45] *65 VdB is equal to approximately 0.007 PPV, based on a crest factor of 4 per FTA for construction equipment.*

[46] *The reference noise levels for construction equipment from the FHWA are based on measurements of newer construction equipment (published in 2006), rather than the noise levels from the Environmental Protection Agency report referenced in the L.A. CEQA Thresholds Guide (published in 1971).*

trucks. Noise impacts were determined by comparing the predicted noise level plus ambient with that of the existing ambient noise levels along the Project's anticipated haul routes.

(3) On-Site Stationary Noise Sources (Operation)

On-site stationary point-source noise impacts were evaluated by (1) identifying the noise levels that would be generated by the Project's stationary noise sources, such as rooftop mechanical equipment, outdoor activities (e.g., use of the outdoor courtyard), parking facilities, and loading area; (2) calculating the noise level from each noise source at surrounding sensitive receptor property line locations; and (3) comparing such noise levels to ambient noise levels to determine significance. The on-site stationary noise sources were calculated using the SoundPLAN (version 8.2) computer noise prediction model.[47] SoundPLAN is widely used by acoustical engineers as a noise modeling tool for environmental noise analysis. The SoundPLAN computer noise model takes into account ground sound absorption, barriers, and building reflection.

(4) Off-Site Roadway Noise (Operation)

As discussed in Subsection 2.c above, off-site roadway noise was analyzed using the FHWA TNM and traffic data from the Project's transportation consultant. Roadway noise levels were calculated for various roadway segments, based on the intersection traffic volumes. Roadway noise conditions without the Project were compared to noise levels that would occur with implementation of the Project to determine Project-related noise impacts for operational off-site roadway noise.

(5) Construction Vibration

Ground-borne vibration impacts due to the Project's construction activities were evaluated by identifying potential vibration sources (i.e., construction equipment), estimating the vibration levels at the potentially affected receptor, and comparing the Project's activities to the applicable vibration significance thresholds, as described below. The estimated vibration levels were calculated for a worst-case scenario in which all pieces of construction equipment were assumed to operate simultaneously and be located at the construction area nearest to the affected receptors.

[47] *SoundPLAN GmbH, SoundPLAN version 8.2, 2020.*

(6) Operational Vibration

The primary source of vibration related to operation of the Project would include vehicle circulation within the proposed above-grade and subterranean parking garage and off-site vehicular trips. However, as discussed above, vehicular-induced vibration is unlikely to be perceptible by people. The Project would also include typical commercial-grade stationary mechanical equipment, such as air-condenser units (mounted at the roof level), that would include vibration-attenuation mounts to reduce the vibration transmission. The Project does not include land uses that would generate high levels of vibration. In addition, ground-borne vibration attenuates rapidly as a function of distance from the vibration source.

c. Project Design Features

The following project design features are proposed with regard to noise and vibration:

Project Design Feature NOI-PDF-1: Power construction equipment (including combustion engines), fixed or mobile, will be equipped with state-of-the-art noise shielding and muffling devices (consistent with manufacturers' standards). All equipment will be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated.

Project Design Feature NOI-PDF-2: All outdoor mounted mechanical equipment will be screened from off-site noise-sensitive receptors. The equipment screen will be impermeable (i.e., solid material with minimum weight of 2 pounds per square feet) and break the acoustic line-of-sight from the equipment to the off-site noise-sensitive receptors.

d. Analysis of Project Impacts

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?

(1) Impact Analysis

(a) Construction Noise

Construction of the Project would commence with demolition of the existing on-site structures, followed by grading and excavation for the subterranean parking. Building foundations would then be constructed, followed by building construction, paving/concrete installation, and landscape installation. It is estimated that approximately 59,000 cubic yards of export material would be hauled from the Project site during the demolition and excavation phase. Construction delivery/haul trucks would travel on approved truck routes between the Project site and the San Diego Freeway (I-405) (a distance of approximately one mile) via the following options:

1. Option 1: Incoming trucks would travel from I-405, exit onto Jefferson Boulevard, heading west, turn right onto Westlawn Avenue, left onto Beatrice Street to the Project site. Departing trucks would exit the Project site via Beatrice Street, turn right onto Westlawn Avenue heading south, turn left onto Jefferson Boulevard heading east, and onto I-405.

2. Option 2: Incoming trucks would travel from I-405, exit onto Jefferson Boulevard, heading west, turn right onto Grosvenor Boulevard, left onto Beatrice Street to the Project site. Departing trucks would exit the Project site via Beatrice Street, turn right onto Westlawn Avenue heading south, turn left onto Jefferson Boulevard heading east, and onto I-405.

(i) On-Site Construction Noise

Noise impacts from Project-related construction activities occurring within or adjacent to the Project site would be a function of the noise generated by construction equipment, the location of the equipment, the timing and duration of the noise-generating construction activities, and the relative distance to noise-sensitive receptors. Construction activities for the Project would generally include demolition, site grading and excavation for the subterranean parking garage, and building construction. Each stage of construction would involve the use of various types of construction equipment and would, therefore, have its own distinct noise characteristics. Demolition generally involves the use of air compressors, concrete/industrial saws, mobile crane, excavator, water truck, and tractor/loader/backhoes. Grading and excavation typically require the use of earth-moving equipment, such as excavators, front-end loaders, bore/drill rigs, and heavy-duty trucks. Building construction typically involves the use of cranes, forklifts, concrete trucks, pumps, and delivery trucks. Noise from construction equipment would generate both steady-state and episodic noise that could be heard within and adjacent to the Project site.

As provided in Project Design Feature NOI-PDF-1 above, construction equipment will have proper noise muffling devices per the manufacturer's standards. Individual pieces of construction equipment anticipated to be used during construction of the Project could produce maximum noise levels (L_{max}) of 74 dBA to 90 dBA at a reference distance of 50 feet from the noise source, as shown in Table IV.I-10 on page IV.I-34. These maximum noise levels would occur when equipment is operating under full power conditions (i.e., the

Table IV.I-10
Construction Equipment Noise Levels

Equipment	Estimated Usage Factor[a] (%)	Typical Noise Level at 50 feet from Equipment, dBA (L_{max})
Air Compressor	40	78
Cement and Mortar Mixer	50	80
Concrete Mixer Truck	40	79
Concrete Saw	20	90
Crane	16	81
Drill Rig	20	84
Forklift	20	75
Generator	50	81
Grader	40	85
Dump/Haul Truck	40	76
Excavator	40	81
Paver	50	77
Pump	50	81
Roller	20	80
Rubber Tired Loader	40	79
Tractor/Loader/Backhoe	40	80
Delivery Truck	40	74
Welders	40	74

[a] Usage factor represents the percentage of time the equipment would be operating at full speed.
Source: FHWA Roadway Construction Noise Model User's Guide, 2006.

equipment engine at maximum speed). However, equipment used on construction sites often operates under less than full power conditions, or part power.

To more accurately characterize construction-period noise levels, the average (hourly L_{eq}) noise level associated with each construction phase is calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each construction phase.[48] These noise levels are typically associated with multiple pieces of equipment operating on part power, simultaneously. Table IV.I-11 on page IV.I-35 provides the estimated construction noise levels for various construction phases at the

[48] *Pursuant to the FHWA Roadway Construction Noise Model User's Guide, 2006, the usage factor is the percentage of time during a construction noise operation that a piece of construction is operating at full power.*

Table IV.I-11
Construction Noise Impacts

Off-Site Receptor Location	Approximate Distance from Receptor to Project Construction Area (feet)	Estimated Construction Noise Levels by Construction Phases (L_{eq} (dBA))						Existing Daytime Ambient Noise Levels (L_{eq} (dBA))	Significance Criteria (L_{eq} (dBA))[a]	Maximum Noise Exceed-ance Above the Criteria (L_{eq} (dBA))	Significant Impact Without Mitigation?
		Demo	Site Prepara-tion	Grading/ Excavation	Founda-tion	Building Construc-tion	Paving/ Landscape				
R1	60	85.3	81.5	82.5	82.2	81.0	76.9	57.4	62.4	22.9	**Yes**
R2	555	52.6	47.9	49.7	50.0	49.6	58.9	55.8	60.8	0.0	No
R3	230	64.8	60.4	62.0	62.1	61.4	56.1	57.2	62.2	2.6	**Yes**
R4	310	57.4	52.8	54.5	54.7	54.2	60.4	57.7	62.7	0.0	No
R5	70	84.1	80.3	81.4	81.1	79.9	75.7	52.2	57.2	26.9	**Yes**

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.I-7 on page IV.I-24) plus 5 dBA, per the L.A. CEQA Thresholds Guide for construction activities lasting longer than 10 days in a three-month period. If the estimated construction noise levels exceed those significance criteria, a construction-related noise impact is identified.*

Source: AES, 2023. See Appendix I of this Draft EIR.

five off-site noise-sensitive receptor locations. To present a conservative impact analysis, the estimated noise levels were calculated for a scenario in which all pieces of construction equipment were assumed to operate simultaneously and be located at the construction area nearest to the affected receptors. These assumptions represent the worst-case noise scenario because construction activities would typically be spread out throughout the Project site, and, thus, some equipment would be farther away from the affected receptors. In addition, the noise modeling assumes that construction noise is constant, when, in fact, construction activities and associated noise levels are periodic and fluctuate based on the construction activities.

As discussed above, since construction activities would occur over a period longer than 10 days for all phases combined, the corresponding significance criterion used in the construction noise analysis is when the construction-related noise exceeds the ambient L_{eq} noise level of 5 dBA at a noise-sensitive use. As indicated in Table IV.I-11 on page IV.I-35, the estimated noise levels during all stages of Project construction would be below the significance threshold at receptors R2 and R4. However, the estimated construction-related noise would exceed the significance criterion at receptor locations R1, R3, and R5. The estimated construction-related noise would exceed the significance threshold by a range of 2.6 dBA at receptor location R3 to up to 26.9 dBA at receptor location R5. **Therefore, the Project's temporary noise impact associated with the Project's on-site construction would be potentially significant.**

(ii) Off-Site Construction Noise

In addition to on-site construction noise sources, other noise sources may include materials delivery, concrete mixing, and haul trucks (construction trucks), as well as construction worker vehicles accessing the Project site during construction. Typically, construction trucks generate higher noise levels than construction worker vehicles. The major noise sources associated with off-site construction trucks would be from the delivery/concrete/haul trucks. As described above, construction delivery/haul trucks would travel between the Project site and I-405 via Beatrice Street, Westlawn Avenue, Grosvenor Boulevard, and Jefferson Boulevard.

It is assumed that the peak period of construction with the highest number of construction trucks would occur during the concrete mat foundation phase, which would include 150 concrete trucks (equal to 300 truck trips) per day for a few days. To provide a conservative analysis, haul truck trips during the grading phase are based on 6 hours of hauling per day. Table IV.I-12 on page IV.I-37 provides the estimated number of construction-related truck trips for the various construction phases, including haul/concrete/material delivery trucks and worker vehicles, and the estimated noise levels along the anticipated truck routes.

Table IV.I-12
Off-Site Construction Truck Noise Levels

Construction Phase	Estimated Number of Construction Truck/Worker Trips per Day	Estimated Number of Construction Truck/Worker Trips per Hour[b]	Estimated Truck Noise Levels Plus Ambient Along the Project Truck Routes,[a] (L_{eq} (dBA)) (Project/Project + Ambient)			
			Beatrice Street	**Westlawn Avenue**	**Grosvenor Boulevard**	**Jefferson Boulevard**
Demolition	38/24	7/10	60.2/62.0	59.4/61.4	58.0/60.0	57.2/71.7
Site Preparation	20/8	4/4	57.9/60.7	57.0/60.1	54.9/58.4	54.9/71.6
Grading/Excavation	150/16	25/7	65.5/66.1	64.7/65.4	62.7/63.5	62.5/72.0
Building Foundation (concrete pour)	300/40	38/16	67.4/67.8	66.5/67.0	64.4/65.0	64.4/72.3
Building Construction	100/260	13/104	64.0/64.9	63.2/64.2	62.2/63.1	61.1/71.9
Paving/Landscaping	20/48	3/20	57.4/60.4	56.6/59.9	56.2/59.0	54.5/71.6
Existing Ambient Noise Levels Along the Project Haul Routes, L_{eq} (dBA)[c]			57.4	57.2	55.8	71.5
Significance Criteria, L_{eq} (dBA)[d]			62.4	62.2	60.8	76.5
Maximum Noise Exceedance Above the Criteria, (L_{eq} (dBA))			5.4	4.8	4.2	0.0
Significant Impact?			**Yes**	**Yes**	**Yes**	No

[a] *Noise levels include Project-related construction truck trips plus ambient.*

[b] *For construction trucks, the number of hourly trips is based on an hourly average, assuming a uniform distribution of trips over an 8-hour workday. Haul truck trips during grading phase were conservatively based on a 6-hour hauling period per day. For worker vehicles, the number of hourly trips is based on 40 percent of the worker trips that would arrive in one hour to represent a conservative analysis.*

[c] *Ambient noise levels along the truck routes are based on nearby measurements: R1 for Beatrice Street, R2 for Grosvenor Boulevard, R3 for Westlawn Avenue. Ambient noise along Jefferson Boulevard is estimated based on existing traffic volumes.*

[d] *Significance criteria are equivalent to the ambient noise levels plus 5 dBA.*

Source: AES, 2023. See Appendix I of this Draft EIR.

As indicated in Table IV.I-12 on page IV.I-37, the hourly noise levels generated by Project construction trucks would exceed the significance criterion of a 5-dBA increase over the ambient noise level along Beatrice Street, Westlawn Avenue and Grosvenor Boulevard, during the grading/excavation, foundation, and building construction phases. The estimated construction trucks noise levels along Jefferson Boulevard would be below the existing ambient noise level. **Therefore, the Project's temporary noise impacts associated with off-site construction traffic would be potentially significant.**

(iii) Summary of Construction Noise Impacts

As discussed above, temporary noise impacts associated with the Project's on-site and off-site construction activities would be significant. **Therefore, Project construction activities would result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the Project site in excess of significance criteria established by the City.**

(b) Operational Noise

This section provides a discussion of potential operational noise impacts. Specific operational noise sources addressed herein include (1) on-site stationary noise sources, including outdoor mechanical equipment (e.g., heating, ventilation, and air conditioning [HVAC] equipment), activities within the proposed outdoor spaces, parking facilities, and loading dock; and (2) off-site mobile (roadway traffic) noise sources.

(i) On-Site Stationary Noise Sources

Mechanical Equipment

As part of the Project, new mechanical equipment (e.g., air ventilation equipment) would be located at the building roof level, as well as within the building interior (e.g., garage exhaust fans and mechanical rooms). Although operation of this equipment would generate noise, Project-related outdoor mechanical equipment would be designed so as not to increase the existing ambient noise levels by 5 dBA in accordance with the City's Noise Regulations. Specifically, the Project would comply with LAMC Section 112.02, which prohibits noise from air conditioning, refrigeration, heating, pumping, and filtering equipment from exceeding the ambient noise levels on the premises of other occupied properties by more than 5 dBA. In addition, as provided above in Project Design Feature NOI-PDF-2, all outdoor mounted mechanical equipment will be screened from off-site noise-sensitive receptors. Table IV.I-13 on page IV.I-39 presents the estimated noise levels at the off-site receptor locations from operation of the Project's mechanical equipment.

Table IV.I-13
Estimated Noise Levels from Mechanical Equipment

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Mechanical Equipment, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Criteria, dBA (L_{eq})[a]	Exceedance over Significance Criteria	Significant Impact?
R1	51.8	37.1	51.9	56.8	0.0	No
R2	51.8	45.9	52.8	56.8	0.0	No
R3	53.5	42.6	53.8	58.5	0.0	No
R4	51.8	46.2	52.9	56.8	0.0	No
R5	52.2	44.4	52.9	57.2	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.I-7 on page IV.I-24) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a noise impact is identified.*

Source: AES, 2023. See Appendix I of this Draft EIR.

As indicated in Table IV.I-13, the estimated noise levels from the mechanical equipment would range from 37.1 dBA (L_{eq}) at the uses represented by receptor location R1 to 46.2 dBA (L_{eq}) at the uses represented by receptor location R4, which would be below the existing ambient noise levels. As such, the estimated ambient noise levels at all off-site receptor locations with the addition of the Project's mechanical equipment would be below the significance criterion of 5 dBA (L_{eq}) above ambient noise levels (based on the lowest measured ambient). **Therefore, the Project's noise impact from mechanical equipment would be less than significant.**

Outdoor Spaces

As discussed in Section II, Project Description, of this Draft EIR, the Project would include outdoor spaces, including the courtyards at Level 1 and terraces at Levels 4 through 8 intended to serve as private outdoor space for the office tenants. Noise sources associated with outdoor uses typically include noise from people gathering and conversing. For this operational noise analysis, reference noise levels of 65 dBA for a male and 62 dBA for a female speaking in a raised voice were used for analyzing potential noise impacts from people gathering at the outdoor spaces.[49] In order to analyze a typical noise scenario, it was assumed that up to 50 percent of the people (half of which would be male and the other half female) would be talking at the same time. In addition, the hours of operation for

[49] *Harris, Cyril M., Handbook of Acoustical Measurements and Noise Control, Third Edition, 1991, Table 16.1.*

use of the outdoor areas were assumed to be from 7:00 A.M. to 12:00 A.M. for a worst-case scenario. Table IV.I-14 on page IV.I-41 presents the anticipated number of people at each of the outdoor spaces.

An additional potential noise source associated with outdoor spaces would be the use of an outdoor sound system (e.g., music or other sounds broadcast through an outdoor mounted speaker system) at the outdoor spaces. If an amplified sound system is used in the outdoor areas, it will be designed so as not to exceed LAMC Section 112.01 (i.e., an increase of 5 dBA L_{eq}) at any off-site noise-sensitive receptor location.

Table IV.I-15 on page IV.I-41 presents the estimated noise levels at the off-site receptors resulting from the use of outdoor areas. The estimated noise levels were calculated with the assumption that all of the outdoor spaces would be fully occupied pursuant to maximum building code capacity limits and operating concurrently to represent a worst-case noise analysis. As presented in Table IV.I-15, the estimated noise levels from the outdoor spaces would range from 52.1 dBA (L_{eq}) at the uses represented by receptor location R4 to 54.7 dBA (L_{eq}) at the uses represented by receptor location R3. The estimated ambient noise levels with the addition of the noise levels generated by the Project's outdoor spaces would be below the significance criterion of 5 dBA (L_{eq}) above ambient noise levels at all off-site receptor locations. **As such, the Project's noise impact from the use of the outdoor spaces would be less than significant.**

Parking Facilities

As discussed in Section II, Project Description, of this Draft EIR, the Project would provide 811 vehicular parking spaces within two subterranean parking levels and three above grade parking levels. Sources of noise within the parking levels would primarily include vehicular movements and engine noise, doors opening and closing, and intermittent car alarms. Since the subterranean parking levels would be fully enclosed on all sides, noise generated within the subterranean parking levels would be effectively shielded from off-site sensitive receptor locations in the immediate vicinity of the Project site. Table IV.I-16 on page IV.I-42 presents the estimated noise levels at the off-site receptor locations from the Project's parking facilities.

As indicated in Table IV.I-16 the estimated noise levels from the parking facilities would range from 26.6 dBA (L_{eq}) at the uses represented by receptor location R2 to 47.9 dBA (L_{eq}) at the uses represented by receptor location R1, which would be below the existing ambient noise levels. As such, the estimated ambient noise levels at all off-site receptor locations with the addition of the Project's parking facilities would be below the significance criterion of 5 dBA (L_{eq}) above ambient noise levels. **Therefore, the Project's noise impact from the parking facilities would be less than significant.**

Table IV.I-14
Outdoor Use Analysis Assumptions

Location	Approximate Area (sf)	Estimated Total Number of People
Level 1 – Perimeter and internal courtyard	9,421	N/A
Level 4 – Terrace/patio	7,503	501
Level 5 – Terrace/patio	2,300	154
Level 6 – Terrace/patio	3,181	213
Level 7 – Terrace/patio	4,755	317
Level 8 – Terrace/patio	16,427	1,096

Source: Areas and total number of occupants provided by The Chait Company, Inc. (executive architect); AES, 2023.

Table IV.I-15
Estimated Noise Levels from Outdoor Uses

Receptor Location	Existing Ambient Noise Levels (dBA (L_{eq}))	Estimated Noise Levels from Outdoor Uses (dBA (L_{eq}))	Ambient + Project Noise Levels (dBA (L_{eq}))	Significance Criteria[a]	Exceedance over Significance Criteria	Significant Impact?
R1	51.8	52.9	55.4	56.8	0.0	No
R2	51.8	53.7	55.9	56.8	0.0	No
R3	53.5	54.7	57.2	58.5	0.0	No
R4	51.8	52.1	55.0	56.8	0.0	No
R5	52.2	53.6	56.0	57.2	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.I-7 on page IV.I-24) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a noise impact is identified.*

Source: AES, 2023. See Appendix I of this Draft EIR.

Table IV.I-16
Estimated Noise Levels from Parking Facilities

Receptor Location	Existing Ambient Noise Levels (dBA (L_{eq}))	Estimated Noise Levels from Parking Facilities (dBA (L_{eq}))	Ambient + Project Noise Levels (dBA (L_{eq}))	Significance Criteria[a]	Exceedance over Significance Criteria	Significant Impact?
R1	51.8	47.9	53.3	56.8	0.0	No
R2	51.8	26.6	51.8	56.8	0.0	No
R3	53.5	27.8	53.5	58.5	0.0	No
R4	51.8	29.6	51.8	56.8	0.0	No
R5	52.2	47.1	53.4	57.2	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.I-7 on page IV.I-24) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a noise impact is identified.*

Source: AES, 2023. See Appendix I of this Draft EIR.

Loading

The Project would include a loading area located at the northeast corner of the building on Level 1. Noise sources associated with the new loading area would include delivery trucks. Based on measured noise levels from typical loading dock facilities, the loading area could generate noise levels of approximately 71 dBA (L_{eq}) at a distance of 50 feet.[50] Table IV.I-17 on page IV.I-43 presents the estimated noise levels at the off-site noise-sensitive receptor locations from operation of the loading area. As indicated in Table IV.I-17, the estimated noise from the loading area would range from 24.9 dBA (L_{eq}) at the uses represented by receptor location R3 to 29.8 dBA (L_{eq}) at the uses represented by receptor location R1, which would be well below the significance criterion of 5 dBA (L_{eq}) above ambient noise levels at all off-site sensitive receptors. **Therefore, the Project's noise impact from loading operations would be less than significant.**

[50] *RK Engineering Group, Inc., Wal-Mart/Sam's Club Reference Noise Level Study, 2003. This study is based on measured noise levels for typical loading dock operations, including truck movements, backing with backup alarm, and loading/unloading activities.*

Table IV.I-17
Estimated Noise Levels from Loading Area

Receptor Location	Existing Ambient Noise Levels (dBA (L_{eq}))	Estimated Noise Levels from Loading Area (dBA (L_{eq}))	Ambient + Project Noise Levels (dBA (L_{eq}))	Significance Criteria[a]	Exceedance over Significance Criteria	Significant Impact?
R1	51.8	29.8	51.8	56.8	0.0	No
R2	51.8	28.1	51.8	56.8	0.0	No
R3	53.5	24.9	53.5	58.5	0.0	No
R4	51.8	25.3	51.8	56.8	0.0	No
R5	52.2	27.0	52.2	57.2	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.I-7 on page IV.I-24) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a noise impact is identified.*

Source: AES, 2023. See Appendix I of this Draft EIR.

(ii) Off-Site Mobile Noise Sources

Future Plus Project

Project-related traffic would increase the existing traffic volumes along the roadway segments in the study area when compared with Future without Project conditions. This increase in roadway traffic volumes was analyzed to determine if any traffic-related noise impacts would result from operation of the Project. Table IV.I-18 on page IV.I-44 provides a summary of the roadway noise impact analysis under future plus project conditions (impact evaluated against the future baseline condition). The calculated CNEL levels are conservatively calculated in front of the roadways and do not account for the presence of any physical sound barriers or intervening structures. As shown in Table IV.I-18, the Project would result in a maximum noise increase of 1.5 dBA along the roadway segment of Jandy Place (north of Beatrice Street). The estimated noise increase along all other analyzed roadway segments would be 1.1 dBA or lower. The estimated noise increase due to the Project-generated traffic would be well below the 5-dBA significance criterion (applicable where the estimated ambient noise level is less than 70 dBA CNEL) along Jandy Place (north of Beatrice Street), Westlawn Avenue (between Beatrice Street and Millennium Drive), Grosvenor Boulevard (between Hammack Street and Jefferson Boulevard), and Beatrice Street (between Jandy Place and Grosvenor Boulevard). The estimated increase in traffic-related noise levels along Jefferson Boulevard (between Village Drive and Centinela Avenue) would be well below the 3-dBA CNEL significance criterion (applicable whether the estimated ambient noise level is 70 dBA CNEL or higher). **Therefore, traffic noise impacts under Future Plus Project conditions would be less than significant.**

Table IV.I-18
Roadway Traffic Noise Impacts—Future Plus Project

Roadway Segment	Most Sensitive Street-Adjacent Land Use	Calculated Traffic Noise Levels[a] (CNEL (dBA))		Increase in Noise Levels due to Project (CNEL (dBA))	Significance Threshold (Noise Increase), (CNEL (dBA))	Significant Impact?
		Future Without Project	Future Plus Project			
Jandy Place						
North of Beatrice St.	Studio	62.7	64.2	1.5	5	No
Westlawn Avenue						
Between Beatrice St. and Jefferson Blvd.	Residential	65.5	66.6	1.1	5	No
Between Jefferson Blvd. and Millennium Dr.	Residential	63.3	63.5	0.2	5	No
Grosvenor Boulevard						
Between Hammack St. and Beatrice St.	Residential	65.1	65.1	0.0	5	No
Between Beatrice St. and Jefferson Blvd.	Residential	66.8	67.2	0.4	5	No
Beatrice Street						
Between Jandy Pl. and Westlawn Ave.	Residential	66.0	67.0	1.0	5	No
Between Westlawn Ave. and Grosvenor Blvd.	Studio	62.0	63.1	1.1	5	No
Jefferson Boulevard						
Between Village Dr. and Westlawn Ave.	Residential	73.4	73.5	0.1	3	No
Between Westlawn Ave. and Grosvenor Blvd.	Residential	73.5	73.6	0.1	3	No
Between Grosvenor Blvd. and Centinela Ave.	Residential	73.9	74.1	0.2	3	No

[a] *Detailed calculation worksheets are included in Appendix I of this Draft EIR.*
Source: AES, 2023.

Existing Plus Project

The analysis of traffic noise impacts provided above was based on the incremental increase in traffic noise levels attributable to the Project as compared to Future Without Project conditions. An additional analysis was performed to determine the potential noise impacts based on the increase in noise levels due to Project-related traffic compared with the existing baseline traffic noise conditions. As shown in Table IV.I-19 on page IV.I-46, when compared with existing conditions, the Project would result in a maximum noise increase of 2.5 dBA along the roadway segment of Jandy Place (north of Beatrice Street). The estimated noise increase along all other analyzed roadway segments would be 1.5 dBA or lower. The estimated noise increase due to the Project-generated traffic would be well below the 5-dBA significance criterion (applicable where the estimated ambient noise level is less than 70 dBA CNEL) along Jandy Place (north of Beatrice Street), Westlawn Avenue (between Beatrice Street and Millennium Drive), Grosvenor Boulevard (between Hammack Street and Jefferson Boulevard), and Beatrice Street (between Jandy Place and Grosvenor Boulevard). The estimated increase in traffic-related noise levels along Jefferson Boulevard (between Village Drive and Centinela Avenue) would be well below the 3-dBA CNEL significance criterion (applicable where the estimated ambient noise level is 70 dBA CNEL or higher). Therefore, traffic noise impacts under Existing Plus Project conditions would be less than significant.

(iii) Composite Noise Level Impacts from Project Operations

In addition to considering the potential noise impacts to neighboring noise-sensitive receptors from each specific on-site and off-site noise source (e.g., mechanical equipment, outdoor areas, loading, and off-site traffic), an evaluation of potential composite noise level increases (i.e., noise levels from all on-site and off-site noise sources combined) at the analyzed sensitive receptor locations was also performed. The composite noise analysis uses the CNEL noise metric to determine the contributions at the noise-sensitive receptor locations in the vicinity of the Project site. Table IV.I-20 on page IV.I-47 presents the estimated composite noise levels in terms of CNEL at the off-site sensitive receptor locations from the Project-related noise sources. As indicated in Table IV.I-20, the Project would result in an increase (relative to the existing ambient) in composite noise levels ranging from 2.1 dBA at the uses represented by receptor location R4 to 3.6 dBA at the uses represented by receptor location R1. The composite noise levels from Project operation at all off-site receptor locations would be below the 5-dBA significance criterion as the composite noise levels fall within the conditionally acceptable (60 to 70 CNEL) land use category. **As such, composite noise level impacts due to Project operations would be less than significant.**

Table IV.I-19
Roadway Traffic Noise Impacts—Existing Plus Project

Roadway Segment	Most Sensitive Street-Adjacent Land Use	Calculated Traffic Noise Levels[a] (CNEL (dBA))		Increase in Noise Levels due to Project (CNEL (dBA))	Significance Threshold (Noise Increase), (CNEL (dBA))	Significant Impact?
		Existing	Existing Plus Project			
Jandy Place						
North of Beatrice St.	Studio	59.7	62.2	2.5	5	No
Westlawn Avenue						
Between Beatrice St. and Jefferson Blvd.	Residential	64.2	65.7	1.5	5	No
Between Jefferson Blvd. and Millennium Dr.	Residential	59.0	59.5	0.5	5	No
Grosvenor Boulevard						
Between Hammack St. and Beatrice St.	Residential	64.9	64.9	0.0	5	No
Between Beatrice St. and Jefferson Blvd.	Residential	66.4	66.8	0.4	5	No
Beatrice Street						
Between Jandy Pl. and Westlawn Ave.	Residential	64.6	66.0	1.4	5	No
Between Westlawn Ave. and Grosvenor Blvd.	Studio	61.0	62.3	1.3	5	No
Jefferson Boulevard						
Between Village Dr. and Westlawn Ave.	Residential	72.5	72.6	0.1	3	No
Between Westlawn Ave. and Grosvenor Blvd.	Residential	72.6	72.7	0.1	3	No
Between Grosvenor Blvd. and Centinela Ave.	Residential	73.1	73.2	0.1	3	No

[a] *Detailed calculation worksheets are included in Appendix I of this Draft EIR.*

Source: AES, 2023.

Table IV.I-20
Composite Noise Impacts

Receptor Location	Existing Ambient Noise Levels (CNEL (dBA))	Calculated Project-Related Noise Sources (CNEL (dBA))					Project Composite Noise Levels (CNEL (dBA))	Ambient Plus Project Composite Noise Levels (CNEL (dBA))	Increase in Noise Levels due to Project (CNEL (dBA))	Significance Criteria[a] (CNEL (dBA))	Significant Impact?
		Traffic	Mechanical	Loading	Parking	Outdoor Spaces					
R1	60.3	60.4	35.5	27.0	53.2	49.2	61.4	63.9	3.6	65.3	No
R2	59.6	55.6	52.6	22.2	31.9	55.7	59.6	62.6	3.0	66.2	No
R3	61.2	57.5	49.3	22.2	32.4	56.7	60.5	63.9	2.7	66.2	No
R4	60.4	55.8	45.7	22.6	34.9	54.1	58.3	62.5	2.1	65.4	No
R5	59.3	56.9	51.1	24.2	52.4	55.6	60.6	63.0	3.7	64.3	No

[a] *Significance criteria are equivalent to the existing ambient plus 3 dBA if the estimated noise levels (ambient plus Project) fall within the "normally unacceptable" or "clearly unacceptable" land use categories or ambient plus 5 dBA if the estimated noise levels fall within the "normally acceptable" or "conditionally acceptable" land use categories, per the City of Los Angeles Noise Element. If the estimated noise levels exceed those significance criteria, a noise impact is identified.*

Source: AES, 2023. See Appendix I of this Draft EIR.

In conclusion, Project on-site and off-site operations would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. **Therefore, the Project's operational noise impacts would be less than significant.**

(2) Mitigation Measures

(a) Construction Noise

As analyzed above, on-site construction activities associated with the Project would have the potential to result in significant short-term noise impacts at the off-site sensitive receptor locations. Therefore, the following mitigation measure is provided to reduce construction-related noise impacts:

Mitigation Measure NOI-MM-1: Temporary and impermeable sound barriers shall be erected at the locations listed below. At plan check, building plans shall include documentation prepared by a noise consultant verifying compliance with this measure.

- Along the southern property line of the Project site between the construction areas and receptor locations R1 and R3. The temporary sound barrier shall be designed to provide a minimum 15-dBA noise reduction at the ground level of receptor locations R1 and 5-dBA at receptor location R3.
- Along the western property line of the Project site between the construction areas and the receptor location R5. The temporary sound barrier shall be designed to provide a minimum 15-dBA noise reduction at the ground level of receptor location R5.

(b) Operational Noise

Project-level noise impacts with regard to on-site and off-site operational noise would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

(a) On-Site Construction Noise

Implementation of Mitigation Measure NOI-MM-1 provided above would reduce the Project's construction noise levels to the extent feasible. Specifically, implementation of Mitigation Measure NOI-MM-1 (installation of temporary sound barrier) would reduce the noise generated by on-site construction activities at the off-site noise-sensitive uses including recording studio uses, by up to 15 dBA at receptor locations R1 and R5 since temporary noise barriers are typically limited to a 15-dBA noise reduction and the exceedances at receptor locations R1 and R5 would be greater. A minimum 5-dBA temporary sound barrier at receptor location R3 was selected as noise exceedances above the threshold would only be 2.6 dBA and, as noted above under the Noise and Vibration Fundamentals subsection, noise barriers can provide noise level reductions beginning from approximately 5 dBA where the barrier just breaks the line-of-sight between the source and receiver.[51] As summarized above in Table IV.I-11 on page IV.I-35, the estimated construction-related noise would exceed the significance threshold by 22.9 dBA at receptor location R1, 2.6 dBA at receptor location R3, and 26.9 dBA at receptor location R5. Implementation of Mitigation Measure NOI-MM-1, which offers a 5-dBA noise reduction at receptor location R3 would, therefore, reduce the noise impacts at receptor location R3 to a less-than-significant level. However, as indicated in Table IV.I-21 on page IV.I-50, the estimated construction-related noise levels would still exceed the significance thresholds at receptor locations R1 (apartments) and R5 (studios) with the implementation of Mitigation Measure NOI-MM-1 as temporary noise barriers are typically limited to a 15-dBA noise reduction. There are no other feasible mitigation measures that could be implemented to further reduce the temporary noise impacts from on-site construction at receptor locations R1 and R5. **Therefore, the Project's construction noise impact associated with on-site noise sources would be significant and unavoidable.**

(b) Off-Site Construction Noise

As discussed above, the short-term noise impacts associated with off-site construction traffic would be significant along nearby segments of Westlawn Avenue, Beatrice Street and Grosvenor Blvd due primarily to construction trucks along the haul route prior to reaching Jefferson Blvd. There are no feasible mitigation measures that could be implemented to reduce this short-term impact because conventional mitigation measures, such as providing temporary noise barrier walls, would not be feasible as the barriers would obstruct vehicular and pedestrian access, as well as visibility to the properties along these street segments and would extend for a significant distance on city streets until the haul trucks reach Jefferson Blvd. **Therefore, the Project's construction noise impact associated with off-site construction traffic would be significant and unavoidable.**

(c) Operational Noise

Project impacts with regard to on-site and off-site operational noise were determined to be less than significant. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

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[51] *Caltrans, Technical Noise Supplement (TeNS), 2009, Chapter 2.1.4.2.*

Table IV.I-21
Construction Noise Impacts With Mitigation Measures

Off-Site Receptor Location	Noise Reduction Provided by Mitigation Measures[b] (dBA)	Estimated Construction Noise Levels by Construction Phases (L_{eq} (dBA))						Existing Daytime Ambient Noise Levels (L_{eq} (dBA))	Significance Criteria (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Criteria (L_{eq} (dBA))	Significant Impact With Mitigation?
		Demo	Site Prepara-tion	Grading/ Excavation	Founda-tion	Building Construc-tion	Paving/ Landscape				
R1	15	70.3	66.5	67.5	67.2	66.0	61.9	57.4	62.4	7.9	**Yes**
R2	0	52.6	47.9	49.7	50.0	49.6	58.9	55.8	60.8	0.0	No
R3	5	59.8	55.4	57.0	57.1	56.4	51.1	57.2	62.2	0.0	No
R4	0	57.4	52.8	54.5	54.7	54.2	60.4	57.7	62.7	0.0	No
R5	15	69.1	65.3	66.4	66.1	64.9	60.7	52.2	57.2	11.9	**Yes**

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.I-7 on page IV.I-24) plus 5 dBA, per the L.A. CEQA Thresholds Guide for construction activities lasting longer than 10 days in a three-month period. If the estimated construction noise levels exceed those significance criteria, a construction-related noise impact is identified.*

[b] *Noise reduction provided by mitigation (dBA).*

Source: AES, 2023. See Appendix I of this Draft EIR.

Threshold (b): Would the Project result in the generation of excessive ground-borne vibration or ground-borne noise levels?

(1) Impact Analysis

(a) Construction

Construction activities can generate varying degrees of ground vibration, depending on the construction procedures and the type of 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 often 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. However, ground-borne vibrations from construction activities rarely reach levels that damage structures.

(i) Building Damage Impacts from On-Site Construction

With regard to potential building damage, the Project would generate ground-borne construction vibration during demolition and site excavation/grading activities when heavy construction equipment, such as large bulldozers, drill rigs, and loaded trucks, would be used. The FTA has published standard vibration velocities for various construction equipment operations. There are no historical resources adjacent to the Project site. Therefore, the assessment of construction vibration provided below for potential building damage due to on-site construction compares the estimated vibration levels generated during construction of the Project to the 0.5-PPV significance criterion for engineered concrete and masonry buildings (applicable to the one- and two-story industrial buildings, five-story residential building, and the five-story parking structure adjacent the Project site to the northeast).

Table IV.I-22 on page IV.I-52 provides the estimated ground vibration velocity levels (in terms of inch per second PPV) at the nearest off-site structures to the Project site. It is noted that since impact pile driving methods will not be used during construction of the Project, impact pile driving vibration is not included in the on-site construction vibration analysis. Installation of piles for shoring and foundation would utilize drilling methods to minimize vibration generation. As indicated in Table IV.I-22 the estimated vibration levels from the construction equipment would be well below the 0.5-PPV building damage criterion for the one- and two-story industrial buildings (to the north, east and west), the five-story residential building to the south, and the five-story parking structure to the northeast. **Therefore, the on-site vibration impacts during construction of the Project, pursuant to the significance criteria for building damage would be less than significant.**

Table IV.I-22
Construction Vibration Impacts—Building Damage

Nearest On-Site and Off-Site Building Structure[a]	Approximate Distance to the Equipment (feet)	Estimated Vibration Velocity Levels at the Outside of and Adjacent to the Nearest Off-Site Structures from the Project Construction Equipment (inch/second (PPV))[b]					Sig. Criteria (PPV)	Sig. Impact?
		Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	25	0.089	0.089	0.076	0.035	0.003	—	—
Two-story Industrial Building to the North	80	0.016	0.016	0.013	0.006	0.001	0.5[c]	No
Four-Story Residential Building to the South	60	0.024	0.024	0.020	0.009	0.001	0.5[c]	No
Two-story Industrial Building to the East	265[d]	0.003	0.003	0.208	0.206	0.018	0.5[c]	No
Two-story Industrial Building to the West	70	0.019	0.019	0.016	0.008	0.001	0.5[c]	No
Five-story Parking Structure to the Northeast	230[e]	0.003	0.003	0.208	0.206	0.018	0.5[c]	No

[a] Represents off-site building structures located nearest to the Project site to the north, south, east, and west.

[b] Vibration level calculated based on FTA reference vibration level at 25-foot distance.

[c] FTA criterion for reinforced concrete and masonry buildings.

[d] 265 feet from large bulldozer and caisson drilling, 10 feet from loaded truck, and 5 feet from jackhammer and small bulldozer.

[e] 230 feet from large bulldozer and caisson drilling, 10 feet from loaded truck, and 5 feet from jackhammer and small bulldozer.

Source: FTA, 2018; AES, 2023. See Appendix I of this Draft EIR.

(ii) Human Annoyance Impacts from On-Site Construction

Table IV.I-23 on page IV.I-53 provides the estimated vibration levels at the off-site sensitive uses and recording studio uses due to construction equipment operation and compares the estimated vibration levels to the specified significance criteria for human annoyance. It should be noted that, unlike the City's noise thresholds, the applicable FTA guidance identifies recording studios as a use potentially impacted by vibration. Per the FTA guidance, the significance criteria for human annoyance are 72 VdB for residential and 65 VdB for recording studios, assuming there are a minimum of 70 vibration events occurring during a typical construction day.

Table IV.I-23
Construction Vibration Impacts—Human Annoyance

Off-Site Receptor Location	Estimated Vibration Velocity Levels at the Off-Site Sensitive Uses Due to On-Site Construction Equipment Operation[a] (VdB)					Significance Criteria (VdB)	Sig. Impact?
	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	87.0	87.0	86.0	79.0	58.0	—	—
R1 (residential)	75.6	75.6	74.6	67.6	46.6	72	**Yes**
R2 (residential)	46.6	46.6	53.6	46.6	25.6	72	No
R3 (residential)	58.1	58.1	57.1	50.1	29.1	72	No
R4 (recording studio)	54.2	54.2	56.5	49.5	28.5	65	No
R5 (recording studio)	73.6	73.6	72.6	65.6	44.6	65	**Yes**

[a] *Vibration levels at the off-site receptor locations were calculated based on FTA reference vibration level at a distance of 25 feet and the actual distances from the construction equipment to the receptor locations.*

Source: FTA, 2018; AES, 2023. See Appendix I of this Draft EIR.

As indicated in Table IV.I-23, the estimated ground-borne vibration levels from construction equipment would be below the significance criteria for human annoyance at off-site sensitive receptor locations R2 through R4. However, the estimated ground-borne vibration levels at receptor locations R1 and R5 would exceed the 72-VdB and 65-VdB significance criteria, respectively. **Therefore, on-site vibration impacts during construction of the Project, pursuant to the significance criteria for human annoyance, would be potentially significant.**

(iii) Building Damage and Human Annoyance Impacts from Off-Site Construction

As described above, construction delivery/haul trucks would travel between the Project site and I-405 via Beatrice Street, Westlawn Avenue, Grosvenor Boulevard, and Jefferson Boulevard. Heavy-duty construction trucks would generate ground-borne vibration as they travel along the Project's anticipated haul routes. Thus, an analysis of potential vibration impacts using the building damage and human annoyance criteria for ground-borne vibration along the anticipated local haul routes was conducted.

Regarding building damage, based on FTA data, the vibration generated by a typical heavy-duty truck would be approximately 63 VdB (0.00566 PPV) at a distance of 50 feet from the truck.[52] According to the FTA "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads." Nonetheless, there are existing buildings along the Project's anticipated haul routes that are situated approximately 20 feet from the right-of-way and would be exposed to ground-borne vibration levels of approximately 0.022 PPV, as provided in the noise calculation worksheets included in Appendix I of this Draft EIR. This estimated vibration generated by construction trucks traveling along the anticipated haul routes would be well below the most stringent building damage criterion of 0.12 PPV for buildings extremely susceptible to vibration. **Therefore, the Project's vibration impact (pursuant to the significance criterion for building damage) from off-site construction activities (i.e., construction trucks traveling on public roadways) would be less than significant**.

As discussed above, per FTA guidance, the significance criteria for human annoyance is 72 VdB for sensitive uses, including residential, and 65 VdB for recording studio uses. It should be noted that buses and trucks rarely create vibration that exceeds 70 VdB at 50 feet from the receptor unless there are bumps in the road.[53] To provide a conservative analysis, the estimated vibration levels generated by construction trucks traveling along the anticipated haul routes were assumed to be within 25 feet of the sensitive uses, including residential uses along Beatrice Street, Westlawn Avenue, Grosvenor Boulevard, and Jefferson Boulevard; and recording studio uses along Beatrice Street. As indicated in the noise calculation worksheets included in Appendix I of this Draft EIR, temporary vibration levels could reach approximately 72 VdB periodically as trucks pass sensitive receptors located within 25 feet from the anticipated haul routes. Therefore, the sensitive uses along anticipated construction truck routes would be exposed to ground-borne vibration up to 72 VdB, which would exceed the 65-VdB significance criteria (for recording studio use) and would be at the 72-VdB significance criteria (for residential uses) from the construction trucks. **As such, potential vibration impacts with respect to human annoyance that would result from temporary and intermittent off-site vibration from construction trucks traveling along the anticipated haul routes would be potentially significant.**

(iv) Summary of Construction Vibration Impacts

As discussed above, the estimated vibration levels from on-site construction equipment would be below the building damage significance criteria at the nearest off-site buildings surrounding the Project site to the north, south, east, and west. The estimated vibration levels from on-site construction equipment would be below the human annoyance significance criteria of 72 VdB at receptor locations R2 and R3 and 65 VdB at receptor

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[52] *FTA, Transit Noise and Vibration Impact Assessment, September 2018, Figure 5-4.*

[53] *FTA, Transit Noise and Vibration Impact Assessment, September 2018, p. 113.*

location R4. However, the estimated vibration levels from the on-site construction equipment would exceed the human annoyance significance criteria of 72 VdB at receptor location R1 and 65 VdB at receptor location R5.

Vibration impacts associated with temporary and intermittent vibration from off-site construction activities (i.e., construction trucks traveling along the anticipated truck routes) would be less than significant with respect to building damage; however, vibration impacts from off-site construction activities would be significant with respect to the significance criteria for human annoyance along the along anticipated truck routes, including Beatrice Street, Westlawn Avenue, Grosvenor Boulevard, and Jefferson Boulevard. **Therefore, Project on- and off-site construction would result in the generation of excessive ground-borne vibration levels with respect to human annoyance that would be perceptible in the vicinity of the Project site. As such, vibration impacts associated with Project construction with respect to human annoyance would be potentially significant.**

(b) Operation Vibration Impacts

As described above, sources of vibration related to operation of the Project would include vehicle circulation, delivery trucks, and building mechanical equipment. As also discussed above, vehicular-induced vibration, including vehicle circulation within the subterranean parking area, would not generate perceptible vibration levels at off-site sensitive uses. Building mechanical equipment installed as part of the Project would include typical commercial-grade stationary mechanical equipment, such as air-condenser units (mounted at the roof level), that would include vibration-attenuation mounts to reduce vibration transmission so vibration would not be perceptible at the off-site sensitive receptors. **Therefore, operation of the Project would not result in the generation of excessive ground-borne vibration levels that would be perceptible in the vicinity of the Project site. As such, vibration impacts associated with operation of the Project would be less than significant.**

(2) Mitigation Measures

(a) *Construction Vibration*

As analyzed above, vibration impacts from on-site and off-site construction activities would be significant pursuant to the significance criteria for human annoyance at two of the sensitive receptors. Mitigation measures considered to reduce vibration impacts from on-site construction activities with respect to human annoyance included the installation of a wave barrier, which is typically a trench or a thin wall made of sheet piles installed in the ground (essentially a subterranean sound barrier to reduce noise). However, wave barriers must be very deep and long to be effective and are cost prohibitive for temporary applications, such as construction, and, therefore, are considered infeasible.[54] In addition, constructing a wave barrier to reduce the Project's construction-related vibration impacts would, in and of itself, generate ground-borne vibration from the excavation equipment. In addition, it would not be feasible to install a wave barrier along the public roadways for the off-site construction vibration impacts. As such, there are no feasible mitigation measures to reduce the potential vibration human annoyance impacts.

(b) Operation Vibration Impacts

As discussed above, operation of the Project would not result in a significant vibration impact during operation, and no mitigation measures are required.

(3) Level of Significance After Mitigation

(a) Construction Vibration

As described above, there are no feasible mitigation measures that could be implemented to reduce the temporary vibration impacts associated with human annoyance from both on-site and off-site construction to a less-than-significant level. **Therefore, the Project's vibration impacts with respect to human annoyance from on-site and off-site construction activities would be significant and unavoidable.**

(b) Operation Vibration

As discussed above, the vibration impact associated with Project operation was determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains 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?

As evaluated in the Initial Study prepared for the Project, included as Appendix A of this Draft EIR, the Project site is not located within the vicinity of a private airstrip or an airport land use plan. The Project is, however, located approximately two miles from the Los Angeles International Airport. Based on a report published by the Los Angeles International Airport, the Project site is not located within the 2015 65 dB CNEL noise

[54] Caltrans, Transportation- and Construction-Induced Vibration Guidance Manual, June 2004.

contours for the airport, indicating airport noise is not an issue at the Project site.[55] Thus, the Project would not expose people residing or working in the project area to excessive airport-related noise levels. Therefore, as determined in the Initial Study, impacts with respect to Threshold (c) would be less than significant, and no further analysis is required.

e. Cumulative Impacts

(1) Impact Analysis

The Project, together with the related project and future growth, could contribute to cumulative noise impacts. The potential for cumulative noise impacts to occur is specific to the distance between each related project and their stationary noise sources, as well as the cumulative traffic that these projects would add to the surrounding roadway network.

(a) Construction Noise

(i) On-Site Construction Noise

As indicated in Section III, Environmental Setting, of this Draft EIR, one related project has been identified in the vicinity of the Project site. Noise from construction of development projects is typically localized and has the potential to affect noise-sensitive uses within 500 feet from the construction site, based on the *L.A. CEQA Thresholds Guide* screening criteria. Thus, noise from construction activities for two projects within 1,000 feet of each other can contribute to a cumulative noise impact for receptors located midway between the two construction sites. The related project is located approximately 2,000 feet from the Project with intervening building structures. The sound attenuation at 2,000 feet would be approximately 32 dBA and intervening buildings would provide minimum 15 dBA noise reduction (for a total of 47 dBA noise reduction). Therefore, the construction noise from the related project would be minimum 47 dBA lower than the Project construction noise levels, which would not contribute to the cumulative on-site construction noise impacts.[56] **As such, cumulative noise impacts associated with on-site construction would be less than significant.**

55 Los Angeles International Airport, Title 14 Code of Federal Regulations (CFR) Part 150 Noise Exposure Map Report Update August 2015, Exhibit 5-1 2015 Noise Exposure Map, www.lawa.org/-/media/lawa-web/noise-management/files/150-noise-exposure/final-lax-nem-entire-report.ashx, accessed May 24, 2021.

56 Per Caltrans, when two noise levels are 10 dB or more apart, the lower value does not contribute significantly to the total noise level. Caltrans, Technical Noise Supplement, Chapter 2.1.3.5, September 2013.

(ii) Off-Site Construction Noise

In addition to the cumulative impacts of on-site construction activities, off-site construction haul trucks would have a potential to result in cumulative impacts if the trucks for the related project and the Project were to utilize the same haul route. As discussed above, the only related project which could contribute to the cumulative impacts, is Related Project No. 2. Based on the location of the related project, construction trucks for the Related Project No. 2 would likely not use the same haul routes as the Project (i.e., Beatrice Street, Westlawn Avenue, Grosvenor Boulevard, and Jefferson Boulevard), as the nearest freeway access to Related Project No. 2 is the Marina Freeway (SR-90 Centinela Avenue ramps). **As such, cumulative noise impacts associated with off-site construction would be less than significant.**

(iii) Summary of Cumulative Construction Noise Impacts

As discussed above, on-site and off-site construction activities from the Project and one related project would not result in the generation of noise levels in excess of standards established by the City. **Therefore, cumulative noise impacts associated with on-site and off-site construction activities would be less than significant.**

(b) Operational Noise

The Project site and surrounding area have been developed with uses that have previously generated, and will continue to generate, noise from a number of community noise sources, including mechanical equipment (e.g., HVAC systems), outdoor activity areas, and vehicle travel. Similar to the Project, the related project that has been identified in the vicinity of the Project site would also generate stationary-source and mobile-source noise due to ongoing day-to-day operations. The related project is residential and is not typically associated with excessive exterior noise levels. However, the related project would produce traffic volumes that are capable of generating roadway noise impacts. The potential cumulative noise impacts associated with on-site and off-site noise sources are addressed below.

(i) On-Site Stationary Noise Sources

Due to provisions set forth in the LAMC that limit stationary source noise from items such as rooftop mechanical equipment, noise levels would be less than significant at the property line for each related project. In addition, as discussed above, noise impacts associated with operations within the Project site would be less than significant. **Therefore, based on the distance of the related projects from the Project site and the operational noise levels associated with the Project, cumulative stationary source noise impacts associated with operation of the Project and related projects would be less than significant**.

(ii) Off-Site Mobile Noise Sources

The Project and related project in the area would produce traffic volumes (off-site mobile sources) that would generate roadway noise. Cumulative noise impacts due to off-site traffic were analyzed by comparing the projected increase in traffic noise levels from "Existing" conditions to "Future Plus Project" conditions to the applicable significance criteria. Future Plus Project conditions include traffic volumes from future ambient growth, the related project, and the Project. The calculated traffic noise levels under "Existing" and "Future Plus Project" conditions are presented in Table IV.I-24 on page IV.I-60 for a typical weekday and weekend. As shown therein, cumulative traffic volumes would result in an increase ranging from 0.2 dBA (CNEL) along the roadway segment of Grosvenor Boulevard (between Hammack Street and Beatrice Street) to up to 4.5 dBA (CNEL) along the roadway segments of Jandy Place (north of Beatrice Street) and Westlawn Avenue (between Jefferson Boulevard and Millenium Drive). These increases would be below the 5-dBA significance criterion (applicable when noise levels fall within the normally acceptable or conditionally acceptable land use category) along Jandy Place (north of Beatrice), Grosvenor Boulevard (between Hammack Street and Jefferson Boulevard), and Beatrice Street (between Jandy Place and Grosvenor Boulevard), and below the 3-dBA significance criterion (applicable when noise levels fall within the normally unacceptable or clearly unacceptable land use category) along Jefferson Boulevard (between Village Drive and Centinela Avenue). **Therefore, cumulative noise impacts due to off-site mobile noise sources associated with the Project, future growth, and related projects would be less than significant.**

(iii) Summary of Cumulative Operational Noise Impacts

As discussed above, on-site and off-site noise sources associated with the Project and related projects would not result in the exposure of persons to or generation of noise levels in excess of the significance criteria established by the City or in a substantial permanent increase in ambient noise levels in the vicinity of the Project site above levels existing without the Project and the related projects. **Therefore, cumulative operational noise impacts from on-site and off-site sources would be less than significant.**

Table IV.I-24
Cumulative Roadway Traffic Noise Impacts

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] (CNEL (dBA))		Increase in Noise Levels due to Project (CNEL (dBA))	Significant Impact?
		Existing Conditions	Future Cumulative Plus Project		
Jandy Place					
North of Beatrice St.	Studio	59.7	64.2	4.5	No
Westlawn Avenue					
Between Beatrice St. and Jefferson Blvd.	Residential	64.2	66.6	2.4	No
Between Jefferson Blvd. and Millennium Dr.	Residential	59.0	63.5	4.5	No
Grosvenor Boulevard					
Between Hammack St. and Beatrice St.	Residential	64.9	65.1	0.2	No
Between Beatrice St. and Jefferson Blvd.	Residential	66.4	67.2	0.8	No
Beatrice Street					
Between Jandy Pl. and Westlawn Ave.	Residential	64.6	67.0	2.4	No
Between Westlawn Ave. and Grosvenor Blvd.	Studio	61.0	63.1	2.1	No
Jefferson Boulevard					
Between Village Dr. and Westlawn Ave.	Residential	72.5	73.5	1.0	No
Between Westlawn Ave. and Grosvenor Blvd.	Residential	72.6	73.6	1.0	No
Between Grosvenor Blvd. and Centinela Ave.	Residential	73.1	74.1	1.0	No

[a] *Detailed calculation worksheets are included in Appendix I of this Draft EIR.*

Source: AES, 2023.

(c) Construction Vibration

(i) On-Site Construction Vibration

As previously discussed, ground-borne vibration decreases rapidly with distance. Potential vibration impacts due to construction activities are generally limited to buildings/structures that are located in proximity to the construction site (i.e., within 20 feet as related to building damage at historic structures, 80 feet as related to human annoyance at residential uses, and 145 feet for recording studio uses).[57] As indicated above, Related Project No. 2 is approximately 2,000 feet northeast of the Project site. The ground-borne vibration due to construction equipment at 2,000 feet would be 0.0001 PPV or 30 VdB, well below the most stringent building damage threshold of 0.12 PPV. In addition, vibration impacts are evaluated based on the peak level generated by each equipment. Therefore, based on distance attenuation, potential cumulative vibration impacts with respect to the building damage from the Project and the related project would be less than significant, as the vibration levels from the related project construction to the buildings in the vicinity of the Project site would be well below the building damage significance criteria. **Therefore, the Project would not contribute to a cumulative construction vibration impact with respect to building damage associated with on-site construction, and the cumulative impact would be less than significant.**

Due to the rapid attenuation characteristics of ground-borne vibration, vibration levels associated the related project construction would be well below the human annoyance threshold and not contribute to the cumulative construction vibration impact with respect to human annoyance. As indicated above, the estimated ground-borne vibration from the related project construction to the sensitive receptor in the vicinity of the Project site would be 30 VdB, which would be perceptible. Although the vibration impacts associated with the Project construction would result in significant impacts at receptor locations R1 and R5 (as provided in Table IV.I-24), the ground-borne vibration levels from the related project would not result in any increase in vibration levels at receptor locations R1 and R3. Therefore, the related project would not contribute to cumulative vibration impacts associated with human annoyance. **As such, the cumulative construction vibration impact with respect to human annoyance associated with on-site construction would be less than significant.**

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[57] Distances calculated based on estimated vibration levels for typical construction equipment at a distance which would be below the 65-VdB significance threshold with respect to human annoyance for recording studio uses, 72-VdB significance threshold with respect to human annoyance for residential and theater uses, and 0.12-PPV significance threshold applicable to buildings extremely susceptible to vibration damage (i.e., historic structures).

(ii) Off-Site Construction Vibration

As previously discussed, Related Project No. 2 would likely not utilize the same haul routes (i.e., Beatrice Street, Westlawn Avenue, Grosvenor Boulevard, and Jefferson Boulevard) as the Project based on the location of the related project. **Therefore, the potential cumulative vibration impact with respect to both building damage and human annoyance from off-site construction would be less than significant.**

(iii) Summary of Cumulative Construction Vibration Impacts

As discussed above, due to the rapid attenuation characteristics of ground-borne vibration and given the distance of the nearest related project to the Project site, there is no potential for a cumulative construction vibration impact with respect to building damage or human annoyance associated with ground-borne vibration from on-site sources. In addition, potential cumulative vibration impacts with respect to building damage from off-site construction would be less than significant. **Therefore, on-site and off-site construction activities associated with the Project and related project would not generate excessive ground-borne vibration levels with respect to building damage or human annoyance, and impacts would be less than significant**.

(d) Operational Vibration

Vibration levels from project operation are generally limited to building mechanical equipment and vehicle circulations and would be limited to immediate vicinity of the project sites. The related project is located approximately 2,000 feet from the Project with intervening building structures. Since ground-borne vibration decreases rapidly with distance, operation of the related project would not contribute to cumulative vibration impacts due to distance between the Project and the related project. As analyzed above, the Project operation would not result in the generation of excessive ground-borne vibration levels that would be perceptible in the vicinity of the Project site. **Therefore, based on the distance of the related project from the Project site and the operational vibration levels associated with the Project, cumulative vibration impacts associated with operation of the Project and related projects would be less than significant**.

(2) Mitigation Measures

(a) Construction Noise

As analyzed above, cumulative noise impacts associated with on-site and off-site construction would be less than significant. Therefore, no mitigation measures are required.

(b) Operational Noise

As discussed above, on-site and off-site operation of the Project and related projects would not result in a significant noise impact during operation. Therefore, no mitigation measures are required.

(c) Construction Vibration

Cumulative vibration impacts with respect to both building damage and human annoyance associated with on-site and off-site construction activities would be less than significant. Therefore, no mitigation measures are required.

(d) Operational Vibration

Cumulative vibration impacts associated with operation of the Project and related projects would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance after Mitigation

(a) Construction Noise

Cumulative construction noise impacts associated with on-site and off-site noise sources would be less than significant. Therefore, no mitigation measures were required, and the impact level remains less than significant.

(b) Operational Noise

Cumulative impacts associated with on- and off-site noise source would be less than significant. Therefore, no mitigation measures were required, and the impact level remains less than significant.

(c) Construction Vibration

Cumulative construction vibration impacts associated with on-site and off-site construction activities with respect to both building damage and human annoyance would be less than significant. Therefore, no mitigation measures were required, and the impact level remains less than significant.

(d) Operational Vibration

Cumulative impacts related to operational vibration would be less than significant without mitigation. Therefore, no mitigation measures were required, and the impact level remains less than significant.