IV. Environmental Impact Analysis

I. Noise

1. Introduction

This section of the Recirculated 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. Additionally, this section of the Recirculated Draft EIR evaluates the Project's incremental contribution to potential cumulative noise and vibration impacts resulting from past, present, and probable future projects. This section summarizes the noise and vibration information analyses provided in the Noise and Calculation Worksheets included in Appendix H of this Recirculated 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, as well as a discussion of the regulatory framework and the environmental setting.

a. Noise and Vibration Fundamentals

(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

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

atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of the noise perceived by the receiver.

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 and 140 dB corresponding to the thresholds of feeling and pain, respectively. 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] Examples of various sound levels in different environments 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 H of this Recirculated Draft EIR and in this section of the Recirculated Draft EIR, are relative to 2x10-5 N/m2.*

[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.*

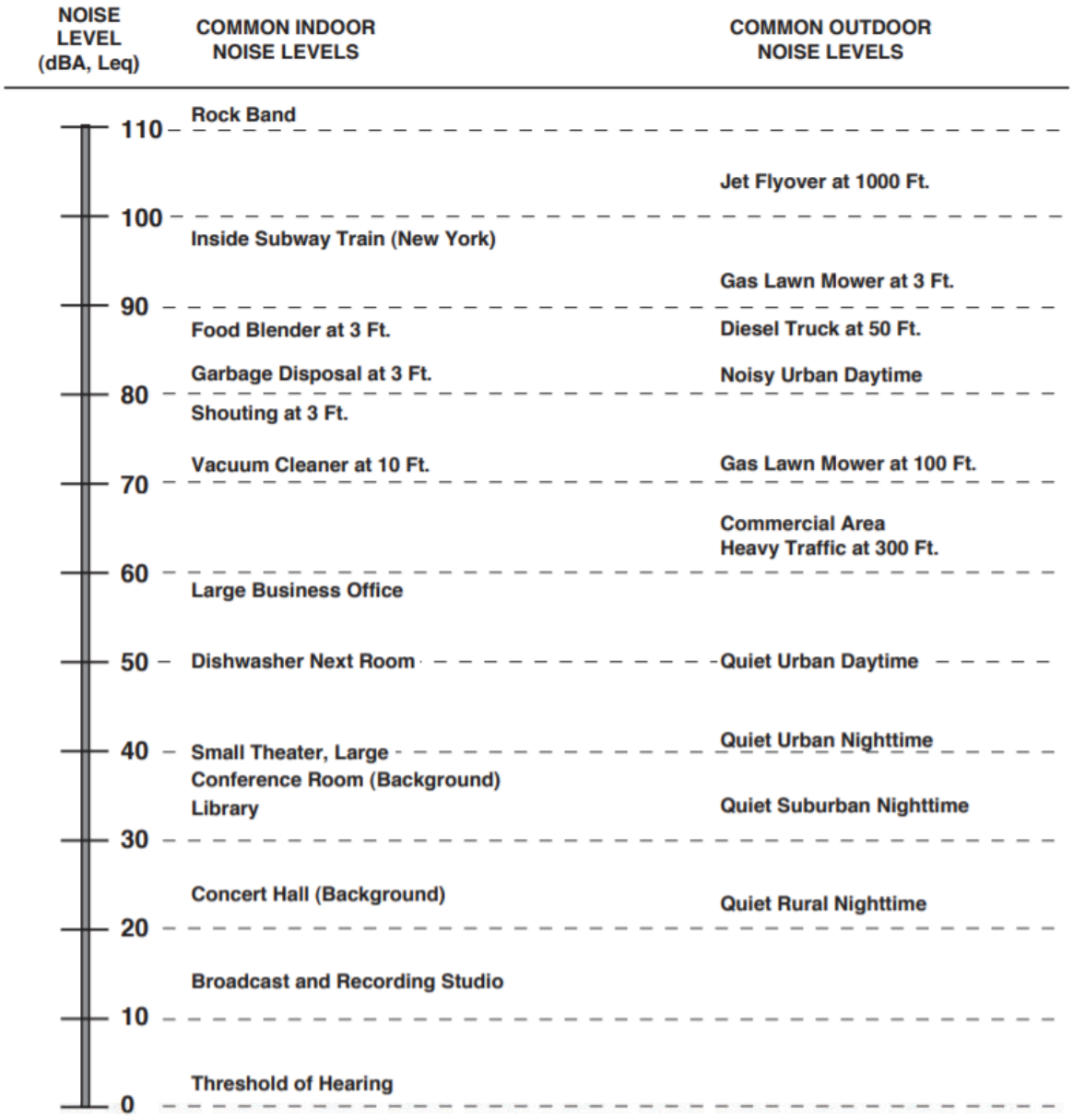

Figure IV.I-1
Decibel Scale and Common Noise Sources

Source: California DOT, September, 2013..

(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.

In an outdoor environment, sound energy attenuates through the air as a function of distance. Such attenuation is called "distance loss" or "geometric spreading" and is based on the type of source configuration (i.e., a point source or a line source). The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g., air conditioner or bulldozer), is 6 dBA per doubling of distance from the noise source to the receptor over acoustically "hard" sites (e.g., asphalt and concrete surfaces) and 7.5 dBA per doubling of distance from the noise source to the receptor over acoustically "soft" sites (e.g., soft dirt, grass or scattered bushes and trees).[7] 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. The rate of sound attenuation for a line source, such as a constant flow of traffic on a roadway, is 3 dBA per doubling of distance from the point source to the receptor for hard sites and 4.5 dBA per doubling of distance for soft sites.[8]

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 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

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

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

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.[9] Additionally, structures with closed windows can further attenuate exterior noise by a minimum of 20 dBA to 30 dBA.[10]

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.[11]

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).

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.

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

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

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

(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. Sleep interference effects can include both awakening and arousal to a lesser state of sleep.[12]

The World Health Organization's Guidelines for Community Noise details the adverse health effects of noise, 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.[13]

With regard to the subjective effects, an individuals' responses to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity. Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences

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

[13] *Berglund, Birgitta, Lindvall, Thomas, Schwela, Dietrich H, & World Health Organization. Occupational and Environmental Health Team. 1999. Guidelines for community noise. World Health Organization. https://apps.who.int/iris/handle/10665/66217, accessed July 6, 2023.*

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:[14]

- Except in carefully controlled laboratory experiments, a change of 1 dBA in ambient noise levels cannot be perceived.
- Outside of the laboratory, a 3-dBA change in ambient noise levels is considered to be a barely perceivable difference.
- A change in ambient noise levels of 5 dBA is considered to be a readily perceivable difference.
- A change in ambient noise levels of 10 dBA 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 ten sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.[15]

(4) Noise Attenuation

When noise propagates over a distance, the noise level reduces 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

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

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

as "spherical spreading." Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between 6 dBA for acoustically "hard" sites and 7.5 dBA for "soft" sites for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface (e.g., for hard surfaces, 80 dBA at 50 feet attenuates to 74 dBA at 100 feet, 68 dBA at 200 feet).[16] 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.[17] 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.[18] Soft sites are those that 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).[19]

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.[20] Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading."[21] 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.[22] Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

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.[23] Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances. Other factors such as air temperature,

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16 *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.2, September 2013.*

17 *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.2, September 2013.*

18 *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.2, September 2013.*

19 *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.2, September 2013.*

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

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

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

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

humidity, and turbulence can, under the right conditions, also have substantial effects on noise levels.[24]

(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.[25] In contrast to airborne noise, groundborne 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.[26] 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.[27] 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.[28] 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

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[24] *California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.3, September 2013.*

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

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

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

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

factor of 1.7 to 6 times greater than RMS vibration velocity; FTA uses a crest factor of 4.[29] 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.[30]

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.[31] 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 peak is 30 to 60 Hz), the groundborne noise level will be approximately 35 to 37 decibels lower than the velocity level.[32] Therefore, for typical buildings, the groundborne noise decibel level is lower than the groundborne vibration velocity level.

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

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

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

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

[32] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, Table 6-3 and Table 6-14, pages 126 and 146, 2018.*

- 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.[33] These guidance levels are not standards or 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.[34] 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

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

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

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.

following three off-site land-use categories: Vibration Category 1—High Sensitivity, Vibration Category 2—Residential, and Vibration Category 3—Institutional.[35]

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-13. 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) 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

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

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.

exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.[36]

(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.[37] 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,

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

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

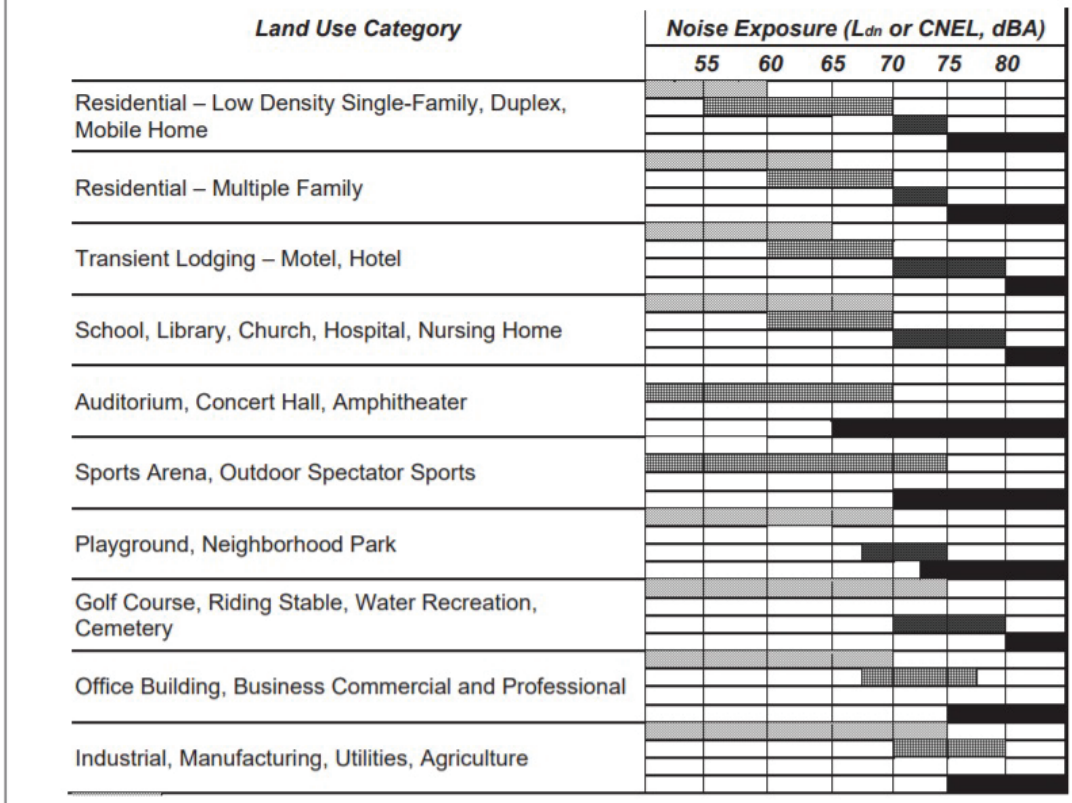

Figure IV.I-2
Guidelines for Noise Compatible Land Use

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

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 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 identify and appraise noise problems in the community and 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-16.

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. It 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.[38]

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-18. 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.[39] LAMC Section 41.40 prohibits construction between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, 6:00 P.M. and 8:00 A.M. on Saturday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 A.M. to 9:00 P.M.; and Saturdays and National Holidays between 8:00 A.M. to 6:00 P.M.). In general, the City's Department of Building and Safety enforces Noise Ordinance provisions relative to equipment, and the Los Angeles Police Department (LAPD) enforces provisions relative to noise generated by people.

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

[39] *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.

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-19 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 preparing noise ordinances that would limit exposure of citizens to excessive noise levels.[40] The following policies and objectives from the Noise Element apply to the Project.

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

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 included in 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.

Objective 2 (Non-Airport): Reduce or eliminate non-airport related intrusive noise, especially relative to noise sensitive uses.

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

Objective 3 (Land Use Development): Reduce or eliminate noise impact associated with proposed development of land and changes in land use.

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.[41] Table IV.I-5 on page IV.I-19 summarizes these guidelines, which are based on OPR guidelines from 1990.

c. Existing Conditions

The area surrounding the Project Site is highly urbanized and includes a mix of low- to high-rise buildings containing a variety of land uses. Land uses surrounding the Project Site specifically include commercial, retail, and residential uses to the north-northeast, along Maxella Avenue; multi-family residential uses to the east, along Glencoe Avenue; additional Marina Marketplace shopping center-related commercial and retail uses and associated parking to the south; the six-story Stella apartment complex to the west; and the Hotel MdR and associated parking located southwest of the Project Site. The predominant source of noise in the vicinity of the Project Site is vehicular traffic on adjacent roadways, including; SR-90 Marina Freeway, Lincoln Boulevard, Maxella Avenue, and Glencoe Avenue. Other existing ambient noise sources in the vicinity of the Project Site include commercial/retail activities; surface parking lot 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, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks.[42] Similarly, the Noise Element of the General Plan 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 parks.[43] 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 noise receptor locations (four off-site and one on-site) were selected to represent noise-sensitive uses within and in the vicinity of the Project Site. These locations represent areas with land uses nearest to the Project Site that could qualify as noise-sensitive uses according to the

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

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

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

definition of such uses in the *L.A. CEQA Thresholds Guide* and the General Plan. As discussed below, noise measurements were conducted at four off-site measurement locations (R1 to R4) surrounding the Project Site, including three multi-family residential buildings and one hotel building, and one on-site measurement location (R5) to establish baseline noise conditions within and in the vicinity of the Project Site. The off-site monitoring locations essentially surround the Project Site and thereby provide baseline measurements for uses in all directions. In addition, the monitoring locations provide an adequate basis to evaluate potential impacts at the monitoring locations and receptors beyond in the same direction. The noise measurement locations are shown in Figure IV.I-3 on page IV.I-22 and described in Table IV.I-6 on page IV.I-23.

(2) Ambient Noise Levels

To establish baseline noise conditions, existing ambient noise levels were monitored at five representative receptor locations (identified as R1 to R5) within and in the vicinity of the Project Site. The baseline noise monitoring program was conducted on May 22, 2017, using a Quest Technologies Model 2900 Integrating/Logging Sound Level Meter.[44] A 24-hour measurement was conducted at receptor R1, and two 15-minute measurements were conducted at each of the receptor locations R2 to R5, one during daytime and another during nighttime hours. The daytime ambient noise levels were taken between 12:00 P.M. and 2:00 P.M., and the nighttime ambient noise levels were taken between 10:00 P.M. and 12:00 A.M. The ambient noise measurements were taken in accordance with the City's standards, which require ambient noise to be measured over a period of at least 15 minutes.[45] Table IV.I-7 on page IV.I-24 provides a summary of the ambient noise measurements.

Based on field observations, the ambient noise at the measurement locations is dominated by local traffic (from adjacent roadways) and, to a lesser extent, other typical urban noises (e.g., parking lot and commercial/retail operation, landscape activities, etc.). Additional ambient noise levels were conducted on February 03, 2021, to confirm that there are no substantial changes in the noise level since 2017. As indicated in Table IV.I-7, the ambient noise measurements conducted in 2021 are generally lower than those measured in 2017. This is due to the reduced local traffic from the decrease in traffic volumes associated with the COVID-19 pandemic. Ambient noise levels would generally increase

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[44] *This sound meter meets and exceeds the minimum industry standard performance requirements for "Type 2" 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.*

[45] *LAMC Section 111.01.*

Figure IV.I-3
Noise Measurement Locations

Source: Google Earth, 2016.

Table IV.I-6
Description of Existing Ambient Noise Measurement Locations

Receptor Location	Description	Approximate Distance from Measurement Location to Nearest Project Site Boundary[a]	Existing Land Use(s)
R1	Six-story multi-family residential use on Maxella Avenue (Stella apartments), west of the Project Site	50 feet	Residential
R2	Hotel MdR on Maxella Avenue, southwest of the Project Site	70 feet	Hotel
R3	Multi-family residential use on Glencoe Avenue, east of the Project Site	90 feet	Residential
R4	Multi-family residential use (apartment building) at the northeast corner of Glencoe Avenue and Maxella Avenue, northeast of the Project Site	135 feet	Residential
R5	Project Site northern boundary, along Maxella Avenue	Project Northern Property Line	Commercial

[a] *Distances are estimated using Google Earth (Map data ©2016 Google).*

Source: Acoustical Engineering Services (AES), 2017. See Appendix H of this Recirculated Draft EIR.

overtime due to the ambient growth in the area. Therefore, the measured ambient noise levels in 2017 are still representative as baseline conditions.

As indicated in Table IV.I-7 on page IV.I-24, the existing daytime ambient noise levels at the noise receptor locations ranged from 56.1 dBA (L_{eq}) at receptor location R2 to 68.6 dBA (L_{eq}) at receptor location R4. The measured nighttime ambient noise levels at the noise receptor locations ranged from 54.9 dBA (L_{eq}) at receptor location R2 to 63.6 dBA (L_{eq}) at receptor location R3. Thus, the existing ambient noise levels at all receptor locations are above the City's presumed daytime and nighttime ambient noise standards of 50 dBA (L_{eq}) and 40 dBA (L_{eq}), respectively, for residential use, as presented above in Table IV.I-4 on page IV.I-18. Therefore, consistent with LAMC procedures, the measured existing ambient noise levels are used as the baseline conditions for the purposes of determining Project impacts.

The baseline CNEL levels at the receptor locations ranged from 59.8 dBA (CNEL) at receptor R2 to 69.0 dBA (CNEL) at receptor R3. The baseline ambient noise levels at receptor location R2 fall within the normally acceptable land use for hotel uses (up to 60 dBA CNEL) and within conditionally acceptable land use category at receptor location R3 for residential uses (up to 70 dBA CNEL). In addition, the baseline ambient noise levels at the Project Site ranged from 59.8 dBA (CNEL) as measured at R2 (Project southwest

Table IV.I-7
Baseline Ambient Noise Levels

Receptor Location	Existing Noise-Sensitive Land Use	Measurement Date	Measured Noise Levels, L_{eq} (dBA)		CNEL (24-hour)
			Daytime Hours (7:00 A.M.–10:00 P.M.)	Nighttime Hours (10:00 P.M.–7:00 A.M.)	
R1	Residential	5/22/2017	63.4[a]	57.1[a]	65.7
		2/03/2021	55.9	52.8	60.3
R2	Hotel	5/22/2017	56.1	54.9	59.8[b]
		2/03/2021	54.4	49.5	57.6
R3	Residential	5/22/2017	66.4	63.6	69.0[b]
		2/03/2021	66.4	57.2	67.7
R4	Residential	5/22/2017	68.6	61.9	68.9[b]
		2/03/2021	66.6	59.0	68.5
R5	Commercial	5/22/2017	67.7	60.3	67.7[b]
		2/03/2021	64.5	57.0	66.4

[a] *Levels shown for R1 represent the average for the entire daytime and nighttime periods.*

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

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

property line) to 69.0 dBA (CNEL) as measured at R3 (representative of Project eastern property line). The baseline ambient noise levels at the Project Site fall within the conditionally acceptable land use category for the proposed mixed-use (residential and commercial) development.

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 traffic volume data provided in the Transportation Assessment prepared for the Project.[46] Ten (10) roadway segments were selected for the existing off-site traffic noise analysis included in this section 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). The TNM traffic noise prediction model calculates the hourly L_{eq} noise levels based on specific 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

[46] *Linscott, Law & Greenspan, Engineers, Transportation Assessment for the Paseo Marina Project, April 2021. See Appendix J of this Recirculated Draft EIR.*

10:00 P.M.), and nighttime hours (10:00 P.M. to 7:00 A.M.). The traffic noise prediction model 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-26.

Table IV.I-9 on page IV.I-27 provides the calculated CNEL for the 10 analyzed local roadway segments based on existing traffic volumes. As shown therein, the existing CNEL due to surface street traffic volumes ranges from 60.3 dBA CNEL along Del Rey Avenue (Between Washington Boulevard and Maxella Avenue) to 72.1 dBA CNEL along Lincoln Boulevard (between Maxella Avenue and Mindanao Way), the latter of which is considered normally unacceptable for residential uses. The existing traffic-related noise levels along roadway segments surrounding the Project Site, including Maxella Avenue (along the northern property line) and Glencoe Avenue (along the eastern property line), fall within the conditionally acceptable noise levels for residential uses (i.e., between 60 and 70 dBA CNEL).

(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 transit 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."[47] 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 regards to ground vibration) and distinctly perceptible.[48] Therefore, the existing ground vibration in the vicinity of the Project Site is generally below the perceptible level. However, ground vibration associated with heavy trucks traveling on road surfaces with irregularities, such as speed bumps and potholes, could reach the perceptible threshold.

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[47] *FTA, "Transit Noise and Vibration Impact Assessment," Page 112, September 2018.*

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

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, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-9
Existing Roadway Traffic Noise Levels

Roadway Segment	Adjacent Land Use(s)	Approximate Distance to Roadway Center Line, (feet)	Calculated Traffic Noise Levels,[a] CNEL (dBA)	Noise-Sensitive Land Uses	Existing Noise Exposure Compatibility Category[b]
Del Rey Avenue					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	30	60.3	Yes	Conditionally Acceptable
Lincoln Boulevard					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	50	71.7	Yes	Normally Unacceptable
– Between Maxella Ave. and Mindanao Wy.	Residential, Commercial	50	72.1	Yes	Normally Unacceptable
Glencoe Avenue					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	30	69.2	Yes	Conditionally Acceptable
– Between Maxella Ave. and Mindanao Wy.	Residential, Commercial	30	69.3	Yes	Conditionally Acceptable
– Between Mindanao Wy. and Alla Road	Residential, Commercial	35	64.4	Yes	Conditionally Acceptable
Maxella Avenue					
– Between Lincoln Blvd. and Glencoe Ave.	Residential, Commercial	35	66.3	Yes	Conditionally Acceptable
– Between Glencoe Ave. and Redwood Ave.	Residential, School	35	64.2	Yes	Conditionally Acceptable
Mindanao Way					
– Between SR-90 and Glencoe Ave.	Residential, Commercial	40	69.5	Yes	Conditionally Acceptable
– Between Glencoe Ave. and Redwood Ave.	Residential	40	66.9	Yes	Conditionally Acceptable

[a] *Detailed calculation worksheets are included in Appendix H of this Recirculated 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-19.*

Source: AES, 2021.

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, expose people residing or working in the project area to excessive noise levels?

For this analysis, the Appendix G Thresholds listed 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 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.

Both project options are anticipated to be developed in one phase with approximately 37 months of construction and be completed in 2026. Therefore, the threshold of significance used in the construction noise analysis presented in this section of the Recirculated 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 operations 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" category (see Table IV.I-5 on page IV.I-19 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, or parking facilities, increase the ambient noise level (hourly L_{eq}) at noise-sensitive uses by 5 dBA.

The threshold of significance 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 noise-sensitive uses, in accordance with the LAMC. The LAMC does not apply to off-site traffic (i.e., vehicle traveling on public roadways). Therefore, based on the *L.A. CEQA Thresholds Guide,* the significance threshold for off-site traffic noise associated with Project operations is an increase in the ambient noise level by 3 dBA or 5 dBA in CNEL (depending on the land use category) at noise-sensitive uses. In addition, the threshold 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 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) at noise-sensitive uses.

(3) Federal Transit Administration 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.

There are no buildings that are extremely susceptible to building damage located immediately adjacent to the property line of the Project Site.

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 sensitive uses, including residential and hotel uses.

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). Construction noise associated with the Project was analyzed based on each option's potential construction equipment inventory, construction durations, and construction schedule. 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)."[49] 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 Section 2.a(1)(b), Outdoor Sound Propagation). Additional noise attenuation was assigned to receptor locations where the line-of-sight to the Project Site was interrupted by the presence of intervening structures.

(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 computer noise model. 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 Assessment prepared for the Project, which is included in Appendix J of this Recirculated Draft EIR. The TNM noise model calculates the hourly L_{eq} noise levels generated by construction-related haul trucks. Noise impacts were determined by comparing the predicted noise level with that of the existing ambient noise levels along the Project's anticipated haul route(s).

Since construction activities would occur over a period longer than 10 days for all phases, the corresponding thresholds of significance used in the construction noise analysis is an increase in the ambient L_{eq} noise level of 5 dBA at the property line of the closest noise-sensitive use.

(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 dining, plazas, paseo, and courtyards), parking facilities, and trash compactor; (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. To provide a conservative analysis, the maximum allowable noise level from outdoor mechanical equipment was calculated based on the maximum sound level permitted by the

[49] *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 (published in 1971) referenced in the City's L.A. CEQA Thresholds Guide as the former is based on more recent data and is considered more accurate.*

LAMC. The on-site stationary noise sources were calculated using the SoundPLAN (version 8.2) computer noise prediction model.[50] SoundPLAN is a 3-dimensional acoustic ray-tracing program for outdoor noise propagation prediction.

(4) Off-Site Roadway Noise (Operation)

As discussed in Section 2.c, Existing Conditions, above, off-site roadway noise was analyzed using the FHWA TNM model and traffic data included in the Project's Transportation Assessment. Roadway noise conditions without the Project were calculated and compared to noise levels that would occur with the 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.

(6) Operational Vibration

The primary source of vibration related to operation of the Project would include vehicle circulation within the proposed 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-handling units (mounted at grade or roof level), that would include appropriate 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. Therefore, operation of the Project would not increase the existing vibration levels in the immediate vicinity of the Project Site, and, as such, vibration impacts associated with operation of the Project would be less than significant. Accordingly, the ground-borne vibration analysis presented in this section is limited to Project-related construction activities.

c. Project Design Features

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

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

NOI-PDF-1: Project construction will not include the use of driven (impact) pile systems.

NOI-PDF-2: All outdoor mounted mechanical equipment will be enclosed or screened from off-site noise sensitive receptors.[51]

NOI-PDF-3: Loading and trash collection areas will be enclosed or screened from off-site noise-sensitive receptors.

NOI-PDF-4: Outdoor amplified sound systems (e.g., speaker and stereo systems, amplification systems, or other sound-producing devices) will be designed as follows:

Option A:

(i) Ground level pedestrian plazas: maximum 70 dBA (L_{eq-1hr}) at a distance of 25 feet from the amplified sound systems,

(ii) Ground level retail and pedestrian plazas: maximum 75 dBA (L_{eq-1hr}) at a distance of 25 feet from the amplified sound systems,

(iii) Ground level outdoor dining areas (patios), community park, and the roof decks at Buildings 1, 2 and 3: maximum 80 dBA (L_{eq-1hr}) at a distance of 25 feet from the amplified sound systems, and

(iv) Podium level courtyards (pool deck) at Buildings 1, 2 and 3: maximum 85 dBA (L_{eq-1hr}) at a distance of 25 feet for the amplified sound systems.

Option B:

(i) Ground level retail and publicly accessible open space area, Building 1 Podium Level pool deck, and Buildings 3 and 4 Level 6 decks: maximum 70 dBA (L_{eq-1hr}) at a distance of 25 feet from the amplified sound systems,

(ii) Podium level courtyards (pool deck) at Buildings 2 and 3: maximum 75 dBA (L_{eq-1hr}) at a distance of 25 feet for the amplified sound systems.

(ii) A qualified noise consultant will provide written documentation that the design of the system complies with these maximum noise levels.

d. Analysis of Project Impacts

As set forth in Section II, Project Description, of this Recirculated Draft EIR, the Project has been modified to include a second development option (referred to as Option

[51] *Per L.A. CEQA Thresholds Guide, noise-sensitive uses include: residences, transient lodgings, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks.*

B). The Project previously evaluated in the Draft EIR is now referred to as Option A. Option A, which was previously evaluated in the Draft EIR, proposes the development of 658 multi-family residential units (including either 20 percent Low Income units or 10 percent Very Low Income units) and up to 27,300 square feet[52] of neighborhood-serving commercial uses, including up to 13,650 square feet of retail space and up to 13,650 square feet of restaurant space. The multi-family residential and commercial uses proposed under Option A would be provided within three seven-story buildings with a maximum height of 77 feet.

Option B proposes the development of 425 multi-family residential units, 90,000 square feet of office space, and 40,000 square feet of neighborhood-serving commercial uses, including approximately 20,000 square feet of retail space and 20,000 square feet of restaurant space. The proposed multi-family residential, office, and commercial uses would be provided within four buildings. The proposed multi-family residential uses would be located within two six-story buildings with a height of up to 69 feet and one seven-story building with a height of up to 79 feet, while the office building would include four stories (three stories of office space above one level of ground floor commercial space) with a height of up to 69 feet. The proposed neighborhood-serving commercial uses would be provided at the ground floor of two of the three residential buildings and the proposed office building.

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?

(a) Construction Noise

Since construction activities associated with both Option A and Option B would occur over a period longer than 10 days for all phases, the corresponding thresholds of significance used in the construction noise analysis is an increase in the ambient L_{eq} noise level of 5 dBA at the property line of the closest noise-sensitive use. As discussed in Section II, Project Description, of this Recirculated Draft EIR, construction of the Project under both options is anticipated to be constructed in one phase and be completed in 2027. Construction of Option A or Option B, which would be approximately 41 months, would commence with removal of the existing on-site buildings and the existing surface parking areas, followed by grading and excavation for the subterranean parking garage. Building foundations would then be laid, followed by building construction, paving/concrete installation, and landscape installation. It is estimated that approximately 241,800 cubic

[52] *All square-footage numbers represent floor area as defined by LAMC Section 12.03.*

yards of soil would be hauled from the Project Site during the excavation phase for Option A and 251,000 cubic yards of soil would be hauled during the excavation phase under Option B. In addition, the haul route from the Project Site under both options is anticipated to be via Glencoe Avenue to Mindanao Way to SR-90. Incoming haul trucks would be anticipated to access the Project Site via SR-90 to Lincoln Boulevard to Maxella Avenue.

(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 backhoes, front-end loaders, and heavy-duty trucks. Grading and excavation typically requires the use of earth-moving equipment, such as excavators, front-end loaders, 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.

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-36. These maximum noise levels would occur when equipment is operating under full power conditions (i.e., the equipment engine at maximum speed). However, equipment used on construction sites often operate 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 for each of the options.[53] These noise levels are typically associated with multiple pieces of equipment operating on part power, simultaneously.

[53] *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-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.

Table IV.I-11 and Table IV.I-12 on pages IV.I-37 and IV.I-38 provide the estimated on-site construction noise levels for various Project construction phases at the off-site noise-sensitive receptors, for Option A and Option B, respectively. To present a conservative impact analysis, the estimated noise levels for each option were calculated for a scenario in which all pieces of construction equipment were assumed to operate simultaneously and be located at the construction areas nearest to the affected receptors. These assumptions represent the worst-case noise scenario because construction activities would typically be spread out throughout the development area, 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 under both options, the corresponding thresholds of

Table IV.I-11
On-Site Construction Noise Impacts—Option A

Off-Site Receptor Location[a]	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)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Sig. Impact?
		Demolition	Grading	Garage/ Podium (Foundation)	Building Construction	Sitework/ Landscape				
Building 1										
R1	40	86.6	84.1	85.0	84.2	85.1	63.4	68.4	18.2	**Yes**
R2	125	78.3	76.5	77.9	75.8	77.4	56.1	61.1	17.2	**Yes**
R3	90	80.6	78.7	70.4	67.5	69.4	66.4	71.4	9.2	**Yes**
R4	130	78.0	76.3	70.2	67.3	69.2	68.6	73.6	4.4	**Yes**
Building 2										
R1	245	N/A	N/A	73.9	71.5	73.2	63.4	68.4	5.5	**Yes**
R2	320	N/A	N/A	76.2	72.8	75.5	56.1	61.1	15.1	**Yes**
R3	135	N/A	N/A	78.0	76.3	77.7	66.4	71.4	6.6	**Yes**
R4	135	N/A	N/A	78.0	76.3	77.7	68.6	73.6	4.4	**Yes**
Building 3										
R1	425	N/A	N/A	69.9	67.0	68.9	63.4	68.4	1.5	**Yes**
R2	270	N/A	N/A	76.4	73.3	75.7	56.1	61.1	15.3	**Yes**
R3	105	N/A	N/A	79.7	78.3	79.5	66.4	71.4	8.3	**Yes**
R4	405	N/A	N/A	70.2	67.4	69.3	68.6	73.6	0.0	No

N/A = not applicable

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction noise impact analysis.*

[b] *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 thresholds, a construction-related noise impact is identified.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-12
On-Site Construction Noise Impacts—Option B

Off-Site Receptor Location[a]	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)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Sig. Impact?
		Demolition	Grading	Garage/ Podium (Foundation)	Building Construction	Sitework/ Landscape				
Building 1										
R1	40	86.6	84.1	84.3	83.4	84.3	63.4	68.4	18.2	**Yes**
R2	125	78.3	76.5	77.7	75.6	77.3	56.1	61.1	17.2	**Yes**
R3	90	80.6	78.7	70.0	67.2	69.1	66.4	71.4	9.2	**Yes**
R4	130	78.0	76.3	69.8	66.9	68.8	68.6	73.6	4.4	**Yes**
Building 2										
R1	55	N/A	N/A	84.3	83.4	84.3	63.4	68.4	15.9	**Yes**
R2	345	N/A	N/A	76.1	72.6	75.4	56.1	61.1	15.0	**Yes**
R3	350	N/A	N/A	71.3	68.6	70.4	66.4	71.4	0.0	No
R4	245	N/A	N/A	73.9	71.5	73.2	68.6	73.6	0.3	**Yes**
Building 3										
R1	340	N/A	N/A	71.6	68.9	70.6	63.4	68.4	3.2	**Yes**
R2	215	N/A	N/A	76.9	74.1	76.2	56.1	61.1	15.8	**Yes**
R3	170	N/A	N/A	76.5	74.4	75.9	66.4	71.4	5.1	**Yes**
R4	150	N/A	N/A	77.3	75.4	76.9	68.6	73.6	3.7	**Yes**

N/A = not applicable

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction noise impact analysis.*

[b] *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 thresholds, a construction-related noise impact is identified.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

significance used in the construction noise analysis is an increase in the ambient L_{eq} noise level of 5 dBA at the property line of the closest noise-sensitive use. As presented in Table IV.I-11 and Table IV.I-12 on pages IV.I-37 and IV.I-38, construction activities under Option A and Option B, respectively, would result in significant short-term noise impacts at all the off-site receptors during construction. The highest noise levels would be generated during the demolition phase, as it is anticipated to require the use of the noisiest construction equipment compared to the other construction stages. During this phase, construction activities would exceed the significance threshold at all off-site receptor locations by up to 18.2 dBA at receptor R1 under both Option A and Option B. **Therefore, noise impacts associated with the Project's on-site construction activities would be significant.**

In addition, the construction phases of the Project would have the potential to overlap. Therefore, overlapping construction noise activities were evaluated to determine the potential impacts. Construction noise impacts associated with the overlapping construction are provided in Table IV.I-13 on page IV.I-40 for Option A, and in Table IV.I-14 on page IV.I-41 for Option B. As indicated therein, the overlapping construction phases would exceed the significance threshold at all receptor locations. The estimated overlapping construction noise would exceed the significance threshold by 7.2 dBA at receptor location R4 to up to 21.2 dBA at receptor location R2 for Option A and by 6.9 dBA at receptor location R4 to up to 21.2 dBA at receptor location R2 for Option B. **Therefore, based on the analysis described above, temporary noise impacts associated with the Project's on-site construction activities would be significant without mitigation measures.**

(ii) Off-Site Construction Noise

In addition to on-site construction noise sources, other noise sources may include materials delivery, concrete trucks, 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 associated with delivery/haul trucks.

As discussed above, the haul route from the Project Site is anticipated to be via Glencoe Avenue to Mindanao Way to SR-90. Incoming haul trucks would be anticipated to access the Project Site via SR-90 to Lincoln Boulevard to Maxella Avenue. In addition, the daily construction traffic trips would be the same for both Option A and Option B. Table IV.I-15 on page IV.I-42 provides the estimated number of daily construction-related trips, including haul/delivery trucks and worker vehicles, and the estimated noise levels at the noise sensitive receptors in the vicinity of the Project Site. As shown therein,

Table IV.I-13
On-Site Construction Noise Impacts—Overlapping Construction (Option A)

Off-Site Receptor Location[a]	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)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Sig. Impact?
		Demo & Grading	Grading, Podium 1, Podium 2	Grading, Podium 2, Podium 3, Const. 1	Podium 3, Const 1, Const 2	Const. 2, Const. 3, Paving 1				
R1	40	88.6	87.8	87.4	84.6	85.3	63.4	68.4	20.2	**Yes**
R2	125	80.5	81.7	82.3	80.1	79.8	56.1	61.1	21.2	**Yes**
R3	90	82.8	81.7	83.8	81.5	80.7	66.4	71.4	12.4	**Yes**
R4	130	80.2	80.6	80.8	77.7	77.5	68.6	73.6	7.2	**Yes**

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction noise impact analysis.*

[b] *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 thresholds, a construction-related noise impact is identified.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-14
On-Site Construction Noise Impacts—Overlapping Construction (Option B)

Off-Site Receptor Location[a]	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)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Sig. Impact?
		Demo & Grading	Grading, Podium 1, Podium 3	Grading, Podium 1, Podium 2, Const. 3	Podium 2, Const. 1, Const. 3	Const. 1, Const. 2, Paving 3				
R1	40	88.6	87.3	89.0	87.0	86.6	63.4	68.4	20.6	**Yes**
R2	125	80.5	81.8	82.3	80.1	79.9	56.1	61.1	21.2	**Yes**
R3	90	82.8	81.1	81.0	76.7	77.1	66.4	71.4	11.4	**Yes**
R4	130	80.2	80.2	80.5	78.1	78.3	68.6	73.6	6.9	**Yes**

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction noise impact analysis.*

[b] *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 thresholds, a construction-related noise impact is identified.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-15
Off-Site Construction Traffic Noise Levels (construction trucks/worker vehicles)—Options A and B

Construction Phase	Estimated Maximum Number of Trips per Day, Construction Truck/Worker Vehicle	Estimated Maximum Number of Trips per Hour,[a] Construction Truck/Worker Vehicle	Estimated Construction Traffic Noise Along the Project Haul Routes (maximum construction truck/worker vehicle), L_{eq} (dBA)		
			Maxella Avenue	Glencoe Avenue	Lincoln Boulevard
Demolition	68/40	6/16	62.3/68.8	58.3/67.0	61.5/70.6
Grading/Excavation	128/60	11/24	64.8/69.5	60.8/67.5	64.1/71.0
Garage/Podium Construction[d]	140/75	9/60	64.2/69.3	60.1/67.3	63.4/70.9
Building Construction[d]	40/225	9/180	64.6/69.4	60.5/67.4	63.8/70.9
Sitework/Landscape[d]	48/70	3/28	59.7/68.3	55.6/66.7	58.9/70.3
Existing Ambient Noise Levels,[b] L_{eq} (dBA)			67.7	66.4	70.0
Significance Criteria,[c] L_{eq} (dBA)			72.7	71.4	75.0
Significant Impact?			No	No	No

[a] *For construction trucks, the number of hourly trips is based on an hourly average, assuming a uniform distribution of trips over an 8-hour work day, and divided by two, as trucks coming to and leaving the Project Site would travel on different roadways. Haul truck trips during the demolition and grading phase were conservatively based on a 6-hour hauling period per day. For worker vehicles, the number of peak hourly trips is equal to 40 percent of the daily trips.*

[b] *Ambient noise level along Maxella Avenue is based on measured ambient at receptor location R5; ambient noise level along Glencoe Avenue is based on measured ambient at receptor location R3; and ambient noise level along Lincoln Boulevard is estimated based on existing traffic volume and nearby measured ambient noise level (receptor location R5).*

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

[d] *Applicable to Buildings 1, 2 and 3.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Project-related construction traffic under both Option A and Option B is estimated to be below the 5-dBA significance threshold along the anticipated haul routes.

As indicated above, construction phases under the Project would have the potential to overlap. Therefore, overlapping off-site construction traffic associated with construction trips and worker trips was evaluated to determine potential impacts. Off-site construction traffic noise impacts associated with the overlapping construction trips for both Option A and Option B are provided in Table IV.I-16 on page IV.I-43. As indicated therein, potential impacts associated with overlapping off-site construction traffic noise levels would be below the 5 dBA significance threshold along the anticipated haul routes. **As such, off-site construction noise impacts would be less than significant.**

Table IV.I-16
Off-Site Construction Traffic Noise Levels—Overlapping Construction Phases—Options A and B

Overlapping 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)		
			Maxella Avenue	Glencoe Avenue	Lincoln Boulevard
Demolition and Grading/ Excavation	196/100	17/40	66.7/70.2	62.7/67.9	66.0/71.5
Grading/Excavation, Podium 1 and Podium 2	408/210	29/84	69.2/71.5	65.1/68.8	68.4/72.3
Grading/Excavation, Podium 2, Podium 3, and Building Construction 1	548/435	38/174	70.6/72.4	66.6/69.5	69.9/73.0
Podium 3, Building Construction 1 and Construction 2	420/525	27/210	69.6/71.8	65.6/69.0	68.9/72.5
Construction 2, Construction 3, and Paving/Landscape 1	328/520	21/208	68.8/71.3	64.8/68.7	68.0/72.1
Existing Ambient Noise Levels,[c] L_{eq} (dBA)			67.7	66.4	70.0
Significance Criteria,[d] L_{eq} (dBA)			72.7	71.4	75.0
Significant Impact?			No	No	No

[a] *Noise levels include Project-related 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, and divided by two, as trucks coming to and leaving the Project Site would travel on different roadways. Haul truck trips during the demolition and grading phase were conservatively based on a 6-hour hauling period per day.*

[c] *Ambient noise level along Maxella Avenue is based on measured ambient at receptor location R5; ambient noise level along Glencoe Avenue is based on measured ambient at receptor location R3; and ambient noise level along Lincoln Boulevard is estimated based on existing traffic volume and nearby measured ambient noise level (receptor location R5).*

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

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

(iii) Summary of Construction Noise Impacts

As discussed above, temporary noise impacts associated with the Project's on-site construction would be significant at all off-site receptor locations. The temporary noise impacts from off-site construction traffic would be less than significant. **Therefore, without mitigation measures, Project on-site construction activities would result in the generation of a substantial temporary increase in ambient noise levels in excess of significance criteria established by the City.**

(b) Operational Noise

This section provides a discussion of potential operational noise impacts on nearby noise-sensitive receptors. Specific operational noise sources addressed herein include: (a) on-site stationary noise sources, including outdoor mechanical equipment (e.g., HVAC equipment), activities within the proposed outdoor spaces (i.e., outdoor dining seating, retail/pedestrian plazas, the paseo, the podium pool and roof level decks); and (b) off-site mobile (roadway traffic) noise sources.

(i) On-Site Stationary Noise Sources

Mechanical Equipment

Under both project options, new mechanical equipment (e.g., air ventilation equipment) would be located at the exterior of the building (at grade or on the roof level) and within the interior of the building. 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 Section 112.02 of the LAMC, 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 would be enclosed or screened from off-site noise-sensitive receptors. Table IV.I-17 on page IV.I-45 presents the estimated noise levels at the receptor locations associated with operation of the Project's mechanical equipment. As indicated in Table IV.I-17, the estimated noise levels from the mechanical equipment would range from 47.7 dBA (L_{eq}) at receptor location R3 to 54.9 dBA (L_{eq}) at receptor location R1 under Option A and would range from 46.2 dBA (L_{eq}) at receptor location R3 to 52.3 dBA (L_{eq}) at receptor location R1 under Option B. The estimated noise levels increase would be below the significance criteria of 5 dBA (L_{eq}) above ambient noise levels (based on the lowest measured ambient noise level). **Therefore, noise impacts from mechanical equipment would be less than significant.**

Outdoor Spaces

As discussed in Section II, Project Description, and illustrated in Figure II-3, Option A Conceptual Site Plan, and in Figure II-7, Option B Conceptual Site Plan, of this Recirculated Draft EIR, the Project would include various outdoor spaces, including: outdoor dining areas, retail/pedestrian plazas, landscaped paseos, and outdoor courtyards at the podium level (i.e., third floor pool deck under Option A and second floor pool deck under Option B), and roof level (seventh floor under Option A and sixth floor under Option B). Under Option A, the proposed plazas located along the northwest portion and in the center of the Project Site would connect to a publicly accessible, privately maintained open

Table IV.I-17
Estimated Noise Levels from Mechanical Equipment

Receptor Location[a]	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Mechanical Equipment, dBA (L_{eq}) Option A/ Option B	Ambient + Project Noise Levels, dBA (L_{eq}) Option A/ Option B	Significance Criteria dBA (L_{eq})[b]	Exceedance Above the Significance Criteria Option A/ Option B	Significant Impact?
R1	57.1	54.9/52.3	59.1/58.3	62.1	0.0/0.0	No
R2	54.9	52.6/51.3	56.9/56.5	59.9	0.0/0.0	No
R3	63.6	47.7/46.2	63.7/63.7	68.6	0.0/0.0	No
R4	61.9	48.8/47.3	62.1/62.0	66.9	0.0/0.0	No

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the operational noise impact analysis.*

[b] *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 thresholds, a significant noise impact is identified.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

space area via an outdoor pedestrian paseo that would run north–south and east–west through the center of the Project Site. This open space area includes a one-story amenity building and additional seating located along the southwestern portion of the Project Site. Option B would also include a large landscaped public open space along Glencoe Avenue, which would include seating areas. Noise sources associated with the outdoor spaces would 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.[54] 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 use of the outdoor spaces were assumed to be from 7:00 A.M. to 2:00 A.M.

An additional potential noise source associated with outdoor uses would include the use of outdoor sound systems (e.g., music or other sounds broadcast through an outdoor mounted speaker system). The sound from outdoor sound systems, if used, would be heard by people in the immediate vicinity of the outdoor areas. As part of the Project and

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

as set forth above in Project Design Feature NOI-PDF-4, the amplified sound system used in the outdoor areas would be designed so as not to exceed the maximum noise levels of 70 to 85 dBA L_{eq} at a distance of 25 feet from the amplified sound system as indicated in Table IV.I-18 on page IV.I-47, thereby ensuring that the amplified sound system would not exceed the significance criteria (i.e., an increase of 5 dBA L_{eq}) at any off-site noise-sensitive receptor location. Table IV.I-18 presents the anticipated number of people at each of the outdoor spaces (based on occupancy levels for outdoor areas) and the Project's maximum amplified sound levels utilized for the noise analysis.

Table IV.I-19 on page IV.I-48 presents the estimated noise levels at the off-site sensitive 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 and operating concurrently to represent a worst-case noise analysis. As presented in Table IV.I-19, the estimated noise levels from the outdoor areas would range from 53.4 dBA (L_{eq}) at receptor location R1 to 66.1 dBA (L_{eq}) at receptor location R3 under Option A and would range from 55.7 dBA (L_{eq}) at receptor location R1 to 62.9 dBA (L_{eq}) at receptor location R3 under Option B. The estimated noise levels from the outdoor spaces would be below the significance criteria of 5 dBA (L_{eq}) above ambient noise levels at all off-site sensitive receptors. **As such, noise impacts from the use of the outdoor areas would be less than significant.**

Parking Facilities

As discussed in Section II, Project Description, of this Recirculated Draft EIR, the Project would include: two subterranean levels and two above-grade parking levels within each of the three structures under Option A and three subterranean levels and one at grade parking level under Option B. Sources of noise within the parking garage would primarily include vehicular movements and engine noise, doors opening and closing, and intermittent car alarms. Noise levels within the parking garage would fluctuate with the amount of automobile and human activity. Noise levels within the subterranean parking levels would be contained within the parking structure itself, as the subterranean parking levels would be fully enclosed on all sides. Thus, noise generated within the subterranean parking garage would be effectively shielded from off-site sensitive receptor locations in the immediate vicinity of the Project Site. The above-grade parking levels under Option A and Option B would be wrapped on all sides by the building structures (including exterior walls) and would not be exposed to the exterior. Furthermore, noise associated with the Project's subterranean and above-grade parking garages would be less than the noise currently generated by the existing unenclosed surface parking lots within the Project Site.

Table IV.I-20 on page IV.I-48 presents the estimated noise levels from the new parking structure at the off-site receptor locations. As indicated in Table IV.I-20, the estimated noise levels from the Project parking structures are estimated to range from

Table IV.I-18
Outdoor Uses Assumptions

Project Location	Outdoor Space	Estimated Total Number of People[a]	Amplified Sound System Levels dBA (L_{eq})
Option A			
Ground Level	Patio 1 (Restaurant 1)	27	80 dBA at 25 feet
	Patio 2 (Restaurants 3, 4 and 5)	69	80 dBA at 25 feet
	Patio 3 (Restaurant 8)	16	80 dBA at 25 feet
	Patio 4 (Restaurants 9, 10, 11 and 12)	50	80 dBA at 25 feet
	Retail/Pedestrian Plazas	263	70 dBA at 25 feet
	Paseo	290	N/A
	Publicly Accessible Open Space Area	340	75 dBA at 25 feet
Podium Level (third floor)	Pool Deck 1 (Building 1)	614	85 dBA at 25 feet
	Pool Deck 2 (Building 2)	694	85 dBA at 25 feet
	Pool Deck 3 (Building 3)	538	85 dBA at 25 feet
Roof Level (seventh floor)	Deck 1 (Building 1)	53	80 dBA at 25 feet
	Deck 2 (Building 2)	15	75 dBA at 25 feet
	Deck 3 (Building 2)	27	75 dBA at 25 feet
	Deck 4 (Building 2)	27	75 dBA at 25 feet
	Deck 5 (Building 3)	80	75 dBA at 25 feet
	Deck 6 (Building 3)	80	75 dBA at 25 feet
Option B			
Ground Level	Patio 1 (Northeast)	77	70 dBA at 25 feet
	Patio 2 (Southeast)	120	70 dBA at 25 feet
	Publicly Accessible Open Space Area	645	70 dBA at 25 feet
Podium Level (second floor)	Pool Deck 1 (Building 1)	627	70 dBA at 25 feet
	Courtyard (Building 2)	698	75 dBA at 25 feet
	Pool Deck 3 (Building 3)	562	75 dBA at 25 feet
Roof Level (sixth floor)	Deck (Building 3)	110	70 dBA at 25 feet
	Deck (Building 4)	30	70 dBA at 25 feet

[a] *The estimated total number of people is based on the followings:*
– 30 square feet/person at the ground level restaurant patios.
– 50 square feet/person at the ground level plazas, paseo and community park.
– 15 square feet/person at the podium level pool decks and roof level decks.

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-19
Estimated Noise Levels from Outdoor Uses

Receptor Location[a]	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Outdoor Uses, dBA (L_{eq}) Option A/ Option B	Ambient + Project Noise Levels, dBA (L_{eq}) Option A/ Option B	Significance Criteria[b]	Exceedance Above the Significance Criteria	Significant Impact?
R1	57.1	52.0/55.7	58.3/59.5	62.1	0.0/0.0	No
R2	54.9	58.1/57.2	59.8/59.2	59.9	0.0/0.0	No
R3	63.6	64.9/62.9	67.3/66.3	68.6	0.0/0.0	No
R4	61.9	62.3/57.2	65.1/63.2	66.9	0.0/0.0	No

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the operational noise impact analysis.*

[b] *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 thresholds, a significant noise impact is identified.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-20
Estimated Noise Levels from Parking Facilities

Receptor Location[a]	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Parking Facilities, dBA (L_{eq}) Option A/ Option B	Ambient + Project Noise Levels, dBA (L_{eq}) Option A/ Option B	Significance Criteria[b]	Exceedance Above the Significance Criteria Option A/ Option B	Significant Impact?
R1	57.1	30.6/43.5	57.1/57.3	62.1	0.0/0.0	No
R2	54.9	20.5/30.2	54.9/54.9	59.9	0.0/0.0	No
R3	63.6	28.8/22.5	63.6/63.6	68.6	0.0/0.0	No
R4	61.9	28.5/21.6	61.9/61.9	66.9	0.0/0.0	No

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the operational noise impact analysis.*

[b] *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 thresholds, a significant noise impact is identified.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

20.5 dBA (L_{eq}) at receptor location R2 to 30.6 dBA (L_{eq}) at receptor location R1 under Option A and would range from 21.6 dBA (L_{eq}) at receptor location R4 to 43.5 dBA (L_{eq}) at receptor location R1. The estimated noise levels at all off-site receptor locations would be below the existing ambient noise levels and the significance criteria of 5 dBA (L_{eq}) above existing ambient noise levels. **Therefore, noise impacts from parking operations would be less than significant.**

Loading Dock and Trash Collection Areas

Loading and trash collection would be located within the parking structures of the three buildings and would not be visible to the surrounding uses, as set forth in Project Design Feature NOI-PDF-3 above. Noise sources associated with loading docks and trash collection areas would include delivery/trash collection trucks and operation of a trash compactor. Based on measured noise levels from typical loading dock facilities and trash compactors, delivery/trash collection trucks and trash compactors could generate noise levels of approximately 71 dBA (L_{eq}) and 66 dBA (L_{eq}), respectively, at a distance of 50 feet.[55] As indicated in Table IV.I-21 on page IV.I-50, the estimated noise levels from loading dock and trash compactor operations are estimated to range from 26.7 dBA (L_{eq}) at receptor location R2 to 45.5 dBA (L_{eq}) at receptor location R1 under Option A. The estimated noise levels at all off-site receptor locations under Option A would be below the existing ambient noise levels and the significance criteria of 5 dBA (L_{eq}) above existing ambient noise levels. The estimated noise levels under Option B would range from 26.6 dBA (L_{eq}) at receptor R4 to 66.1 dBA (L_{eq}) at receptor location R1. The estimated noise levels under Option B would also be below the significance criteria at all off-site receptor locations. **Therefore, noise impacts from loading dock and trash compactor operations would be less than significant.**

(ii) Off-Site Mobile Noise Sources

Existing Plus Project

An analysis was performed to determine the potential noise impacts based on the incremental increase in noise levels due to Project-related traffic compared with the existing traffic noise conditions. The roadway noise levels were calculated using the traffic data provided in the Transportation Assessment prepared for the Project, which is included in Appendix J of this Recirculated Draft EIR. As shown in Table IV.I-22 on page IV.I-51, when compared with existing conditions, the Project would result in a maximum increase of 0.2 dBA CNEL in traffic-related noise levels along Glencoe Avenue between Washington Boulevard and Maxella Avenue under Option A and along Glencoe Avenue between Washington Boulevard and Maxella Avenue and between Maxella Avenue and Mindanao Way under Option B. The estimated noise increase due to Project-related traffic would be below the 5 dBA CNEL significance criteria. **Therefore, off-site traffic noise impacts under Existing Plus Project conditions would be less than significant.**

[55] *RK Engineering Group, Inc., Wal-Mart/Sam's Club Reference Noise Level Study, 2003.*

Table IV.I-21
Estimated Noise Levels from Loading and Trash Compactor

Receptor Location[a]	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Loading Dock and Trash Compactor, dBA (L_{eq}) Option A/ Option B	Ambient + Project Noise Levels, dBA (L_{eq}) Option A/ Option B	Significance Criteria[b]	Exceedance Above the Significance Criteria Option A/ Option B	Significant Impact?
R1	63.4	45.3/66.2	57.4/66.7	68.4	0.0/0.0	No
R2	56.1	26.7/57.4	54.9/59.3	61.1	0.0/0.0	No
R3	66.4	31.5/28.3	63.6/63.6	71.4	0.0/0.0	No
R4	68.6	30.2/26.6	61.9/61.9	73.6	0.0/0.0	No

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the operational noise impact analysis.*

[b] *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 City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance thresholds, a significant noise impact is identified.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Future Plus Project

Future roadway noise levels were calculated along the 24 selected roadway segments in the vicinity of the Project Site. The roadway noise levels were calculated using the traffic data provided in the Transportation Assessment prepared for the Project, which is included in Appendix J of this Recirculated Draft EIR. As shown in the Transportation Assessment, 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 was analyzed to determine if any traffic-related noise impacts would result from operation of the Project. Table IV.I-23 on page IV.I-52 provides a summary of the roadway noise impact analysis for both Option A and Option B. The CNEL traffic levels were calculated using a conservative approach with the receptors facing the roadways and did not account for the presence of any physical sound barriers or intervening structures. As shown in Table IV.I-23, the Project would not result in a measurable increase at any of the analyzed roadway segments. The Project is estimated to result in a maximum increase of up to 0.2 dBA (CNEL) in traffic-related noise levels along Glencoe Avenue between Washington Boulevard and Maxella Avenue under both Option A and Option B and along Maxella Avenue between Lincoln Boulevard and Glencoe Avenue under Option B. The increase in traffic noise levels would be well below the 5 dBA CNEL significance criteria (applicable to noise levels within the conditionally acceptable land use category). In addition, a noise increase of less

Table IV.I-22
Roadway Traffic Noise Impacts—Existing Plus Project

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] CNEL (dBA)		Increase in Noise Levels due to Project, CNEL (dBA)	Significant Impact?
		Existing Without Project	Existing Plus Project, Option A/ Option B	Option A/ Option B	
Del Rey Avenue					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	60.3	60.3/60.3	0.0/0.0	No
Lincoln Boulevard					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	71.7	71.7/71.7	0.0/0.0	No
– Between Maxella Ave. and Mindanao Wy.	Residential, Commercial	72.1	72.1/72.1	0.0/0.0	No
Glencoe Avenue					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	69.2	69.4/69.4	0.2/0.2	No
– Between Maxella Ave. and Mindanao Wy.	Residential, Commercial	69.3	69.4/69.5	0.1/0.2	No
– Between Mindanao Wy. and Alla Road	Residential, Commercial	64.4	64.5/64.5	0.1/0.1	No
Maxella Avenue					
– Between Lincoln Blvd. and Glencoe Ave.	Residential, Commercial	66.3	66.4/66.4	0.1/0.1	No
– Between Glencoe Ave. and Redwood Ave.	Residential, School	64.2	64.2/64.3	0.0/0.1	No
Mindanao Way					
– Between SR-90 and Glencoe Ave.	Residential, Commercial	69.5	69.5/69.5	0.0/0.0	No
– Between Glencoe Ave. and Redwood Ave.	Residential	66.9	67.0/67.0	0.1/0.1	No

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

Source: AES, 2021.

Table IV.I-23
Roadway Traffic Noise Impacts—Future Plus Project

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] CNEL (dBA)		Increase in Noise Levels due to Project, CNEL (dBA)	Significant Impact?
		Future Without Project	Future Plus Project Option A/ Option B	Option A/ Option B	
Del Rey Avenue					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	61.2	61.2/61.2	0.0/0.0	No
Lincoln Boulevard					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	72.1	72.1/72.1	0.0/0.0	No
– Between Maxella Ave. and Mindanao Wy.	Residential, Commercial	72.5	72.6/72.6	0.1/0.1	No
Glencoe Avenue					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	69.7	69.9/69.9	0.2/0.2	No
– Between Maxella Ave. and Mindanao Wy.	Residential, Commercial	69.8	69.9/69.9	0.1/0.1	No
– Between Mindanao Wy. and Alla Road	Residential, Commercial	65.0	65.0/65.0	0.0/0.0	No
Maxella Avenue					
– Between Lincoln Blvd. and Glencoe Ave.	Residential, Commercial	66.9	67.0/67.1	0.1/0.2	No
– Between Glencoe Ave. and Redwood Ave.	Residential, School	64.7	64.8/64.8	0.1/0.1	No
Mindanao Way					
– Between SR-90 and Glencoe Ave.	Residential, Commercial	69.9	70.0/70.0	0.1/0.1	No
– Between Glencoe Ave. and Redwood Ave.	Residential	67.4	67.4/67.4	0.0/0.0	No

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

Source: AES, 2021.

than 1 dBA is generally considered negligible. **Therefore, traffic noise impacts under Future 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, parking facilities, loading docks/trash compactors, outdoor areas, and off-site traffic), an evaluation of potential composite noise level increases (i.e., noise levels from all on-site noise sources combined) at the analyzed sensitive receptor locations was also performed. This evaluation of composite noise levels from all on-site Project-related noise sources, evaluated using the CNEL noise metric, was conducted to determine the contributions at the noise-sensitive receptor locations in the vicinity of the Project Site.

Table IV.I-24 on page IV.I-54 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-24, the estimated composite plus ambient noise levels would be below the significance criteria at all off-site receptor locations under both Option A and Option B. **Therefore, composite noise level impacts due to Project operations would be less than significant.**

(iv) Summary of Operational Noise Impacts

As discussed above, the Project's operational noise impacts associated with on-site sources would be less than significant for both Option A and Option B. The Project's operational noise impacts from off-site source (roadway traffic) would also be less than significant for both Option A and Option B. As such, Project operation would not result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Table IV.I-24
Composite Noise Impacts

Receptor Location[a]	Existing Ambient Noise Levels, CNEL (dBA)	Calculated Project-Related Noise Sources, CNEL (dBA)					Project Composite Noise Levels, CNEL (dBA)	Ambient plus Project Noise Levels, CNEL (dBA)	Significance Criteria,[b] CNEL (dBA)	Significant Impact?
		Traffic	Mechanical	Loading/ Trash Compact.	Parking	Outdoor Spaces				
Option A										
R1	65.7	42.9	61.6	39.4	35.9	53.7	62.3	67.3	70.7	No
R2	59.8	40.2	59.3	13.5	25.8	59.9	62.6	64.5	64.8	No
R3	69.0	51.8	54.4	28.7	34.1	66.9	67.3	71.2	72.0	No
R4	68.9	52.8	55.5	27.4	33.8	64.3	65.1	70.4	71.9	No
Option B										
R1	65.7	42.9	47.9	63.4	48.8	47.2	63.8	67.8	70.7	No
R2	59.8	43.2	58.0	53.2	35.3	59.2	62.3	64.2	64.8	No
R3	69.0	54.8	52.9	25.0	27.0	64.9	65.6	70.6	72.0	No
R4	68.9	52.8	54.0	22.7	26.9	59.2	61.1	69.6	71.9	No

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the operational noise impact analysis.*

[b] *Significance criteria are equivalent to: a) the existing ambient noise level plus 5 dBA if the "Ambient plus Project Noise Level" is within the "normally acceptable" or "conditionally acceptable" categories; or b) the existing ambient noise level plus 3 dBA if the "Ambient plus Project Noise Level" is within the "normally unacceptable" or "clearly unacceptable" category.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

(2) Mitigation Measures

(a) Construction Noise

As analyzed above, use of on-site construction equipment during construction of the Project would have the potential to result in significant noise impacts at the off-site sensitive receptor locations. Therefore, the following measures would be implemented to reduce the construction-related noise impacts:

Mitigation Measure NOI-MM-1: A temporary and impermeable sound barrier 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 northeastern property line of the Project Site between the construction areas and the apartment building at the northeast corner of Glencoe Avenue and Maxella Avenue (receptor location R4). The temporary sound barrier shall be designed to provide a minimum 8-dBA noise reduction at receptor location R4, for both Option A and Option B.
- Along the eastern property line of the Project Site between the construction areas and multi-family residential use located on Glencoe Avenue (receptor location R3). The temporary sound barrier shall be designed to provide a minimum 13-dBA (for Option A) and 12-dBA (for Option B) noise reduction at receptor location R3.
- Along the western property line of the Project Site between the construction area and the multi-family residential (receptor location R1) and hotel (receptor location R2) uses west and southwest of the Project Site, respectively. The temporary sound barrier shall be designed to provide a minimum 20-dBA noise reduction at the ground level of receptor locations R1 and R2 for both Option A and Option B, respectively.

Project-level noise impacts from off-site construction would be less than significant. Therefore, no mitigation measures are required.

(b) Operational Noise

As discussed above, Project-level noise impacts with regard to on- 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

Installation of the temporary sound barriers provided in the mitigation measures above would reduce the noise generated by on-site construction activities at receptor R3 by 8 dBA and at receptor R4 by 11 dBA. Table IV.I-25, Table IV.I-26, Table IV.I-27, and Table IV.I-28 on pages IV.I-57, IV.I-59, IV.I-61, and IV.I-62, respectively, provide the estimated construction noise levels at the off-site sensitive receptors with mitigation measures implemented. As indicated therein, potential impacts associated with on-site construction activities would be reduced to less than significant levels at receptors R3 and R4. However, the temporary sound barriers specified for receptors R1 and R2 would not be effective in reducing the construction-related noise for the upper levels of the residential and hotel uses at receptors R1 and R2. In order to be effective, the temporary noise barrier would need to be as high as the buildings (i.e., 6 stories and 5 stories for receptors R1 and R2, respectively). The construction of barriers of these heights would not be feasible. There are no other feasible mitigation measures that could be implemented to reduce the temporary noise impacts from on-site construction at receptors R1 and R2. **Therefore, construction noise impacts associated with on-site noise sources would remain significant and unavoidable.**

(b) Off-Site Construction Noise

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

(c) Operational Noise

Project impacts with regard to 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.

Table IV.I-25
On-Site Construction Noise Impacts—With Mitigation Measures (Option A)

Off-Site Receptor Location[a]	Noise Reduction Provided by Mitigation Measures	Estimated Construction Noise Levels by Construction Phases, L_{eq} (dBA)					Existing Daytime Ambient Noise Levels, L_{eq} (dBA)	Significance Criteria, L_{eq} (dBA)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Significant Impact?
		Demolition	Grading	Garage/ Podium (Foundation)	Building Construction	Sitework/ Landscape				
Building 1										
R1—Ground level Upper level	20 0[c]	66.6 86.6	64.1 84.1	65.0 85.0	64.2 84.2	65.1 85.1	63.4	68.4	— 18.2[c]	**Yes[c]**
R2—Ground level Upper level	20 0[c]	58.3 78.3	56.5 76.5	57.9 77.9	55.8 75.8	57.4 77.4	56.1	61.1	— 17.2[c]	**Yes[c]**
R3	13	67.6	65.7	57.4	54.5	56.4	66.4	71.4	0.0	No
R4	8	70.0	68.3	62.2	59.3	61.2	68.6	73.6	0.0	No
Building 2										
R1—Ground level Upper level	20 0[c]	N/A	N/A	53.9 73.9	51.5	53.2	63.4	68.4	— 5.5[c]	**Yes[c]**
R2—Ground level Upper level	20 0[c]	N/A	N/A	56.2 76.2	52.8	55.5	56.1	61.1	— 15.1[c]	**Yes[c]**
R3	13	N/A	N/A	65.0	63.3	64.7	66.4	71.4	0.0	No
R4	8	N/A	N/A	70.0	68.3	69.7	68.6	73.6	0.0	No
Building 3										
R1—Ground level Upper level	20 0[c]	N/A	N/A	49.9 69.9	47.0 67.0	48.9 68.9	63.4	68.4	— 1.5[c]	**Yes[c]**
R2—Ground level Upper level	20 0[c]	N/A	N/A	56.4 66.4	53.3 73.3	55.7 75.7	56.1	61.1	— 15.3[c]	**Yes[c]**
R3	13	N/A	N/A	66.7	65.3	66.5	66.4	71.4	0.0	No
R4	8	N/A	N/A	62.2	59.4	61.3	68.6	73.6	0.0	No

N/A = not applicable

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction noise impact analysis.*

[b] *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*

Table IV.I-25 (Continued)
On-Site Construction Noise Impacts—With Mitigation Measures (Option A)

Off-Site Receptor Location[a]	Noise Reduction Provided by Mitigation Measures	Estimated Construction Noise Levels by Construction Phases, L_{eq} (dBA)					Existing Daytime Ambient Noise Levels, L_{eq} (dBA)	Significance Criteria, L_{eq} (dBA)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Significant Impact?
		Demolition	Grading	Garage/ Podium (Foundation)	Building Construction	Sitework/ Landscape				

thresholds, a construction-related noise impact is identified.

[c] *Noise barriers would not be effective in reducing the on-site construction noise at the upper levels of receptors R1 and R2. Therefore, on-site construction noise impacts would remain significant and unavoidable. On-site construction noise levels shown for R1 and R2 are for the ground level of the building only. Noise levels at upper levels of receptors R1 and R2 would be the same in Table IV.I-11 on page IV.I-37.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-26
On-Site Construction Noise Impacts—With Mitigation Measures (Option B)

Off-Site Receptor Location[a]	Noise Reduction Provided by Mitigation Measures	Estimated Construction Noise Levels by Construction Phases, L_{eq} (dBA)					Existing Daytime Ambient Noise Levels, L_{eq} (dBA)	Significance Criteria, L_{eq} (dBA)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Significant Impact?
		Demolition	Grading	Garage/ Podium (Foundation)	Building Construction	Sitework/ Landscape				
Building 1										
R1—Ground level Upper level	20[c] 0[c]	66.6 86.6	64.1 84.1	64.3 84.3	63.4 83.4	64.3 84.3	63.4	68.4	— 18.2[c]	**Yes[c]**
R2—Ground level Upper level	20[c] 0[c]	58.3 78.3	56.5 76,5	57.7 77.7	55.6 75.6	57.3 77.3	56.1	61.1	— 17.2[c]	**Yes[c]**
R3	12	68.6	66.7	58.0	55.2	57.1	66.4	71.4	0.0	No
R4	8	70.0	68.3	61.8	58.9	60.8	68.6	73.6	0.0	No
Building 2										
R1—Ground level Upper level	20[c] 0[c]	N/A	N/A	64.3 84.3	63.4 83.4	64.3 84.3	63.4	68.4	— 15.9[c]	**Yes[c]**
R2—Ground level Upper level	20[c] 0[c]	N/A	N/A	56.1 76.1	52.6 72.6	55.4 75.4	56.1	61.1	— 15.0[c]	**Yes[c]**
R3	12	N/A	N/A	59.3	56.6	58.4	66.4	71.4	0.0	No
R4	8	N/A	N/A	65.9	63.5	65.2	68.6	73.6	0.0	No
Building 3										
R1—Ground level Upper level	20[c] 0[c]	N/A	N/A	51.6 71.6	48.9 68.9	50.6 70.6	63.4	68.4	— 3.2[c]	**Yes[c]**
R2—Ground level Upper level	20[c] 0[c]	N/A	N/A	56.9 76.9	54.1 74.1	56.2 76.2	56.1	61.1	— 15.2[c]	**Yes[c]**
R3	12	N/A	N/A	64.5	62.4	63.9	66.4	71.4	0.0	No
R4	8	N/A	N/A	69.3	67.4	68.9	68.6	73.6	0.0	No

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction noise impact analysis.*

[b] *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 thresholds, a construction-related noise impact is identified.*

[c] *Noise barriers would not be effective in reducing the on-site construction noise at the upper levels of receptors R1 and R2. Therefore, on-site construction noise*

Table IV.I-26 (Continued)
On-Site Construction Noise Impacts—With Mitigation Measures (Option B)

Off-Site Receptor Location[a]	Noise Reduction Provided by Mitigation Measures	Estimated Construction Noise Levels by Construction Phases, L_{eq} (dBA)					Existing Daytime Ambient Noise Levels, L_{eq} (dBA)	Significance Criteria, L_{eq} (dBA)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Significant Impact?
		Demolition	Grading	Garage/ Podium (Foundation)	Building Construction	Sitework/ Landscape				
impacts would remain significant and unavoidable. On-site construction noise levels shown for R1 and R2 are for the ground level of the building only. Noise levels at upper levels of receptors R1 and R2 would be the same in Table IV.I-12 on page IV.I-38.										

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-27
On-Site Construction Noise Impacts—Overlapping Construction with Mitigation Measures (Option A)

Off-Site Receptor Location[a]	Noise Reduction Provided by Mitigation Measures	Estimated Construction Noise Levels by Construction Phases, L_{eq} (dBA)					Existing Daytime Ambient Noise Levels, L_{eq} (dBA)	Significance Criteria, L_{eq} (dBA)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Significant Impact?
		Demo & Grading	Grading, Podium 1, Podium 2	Grading, Podium 2, Podium 3, Const. 1	Podium 3, Const 1, Const 2	Const. 2, Const. 3, Paving 1				
R1—Ground level	20[c]	68.6	67.8	67.4	64.6	65.3	63.4	68.4	—	**Yes**[c]
Upper level	0[c]	88.6	87.8	87.4	84.6	85.3			20.6[c]	
R2—Ground level	20[c]	60.5	61.7	62.3	60.1	59.8	56.1	61.1	—	**Yes**[c]
Upper level	0[c]	80.5	81.7	82.3	80.1	79.8			21.2[c]	
R3	13	69.8	68.7	70.8	68.5	67.7	66.4	71.4	0.0	No
R4	8	72.2	72.6	72.8	69.7	69.5	68.6	73.6	0.0	No

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction noise impact analysis.*

[b] *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 thresholds, a construction-related noise impact is identified.*

[c] *Noise barriers would not be effective in reducing the on-site construction noise at the upper levels of receptors R1 and R2. Therefore, on-site construction noise impacts would remain significant and unavoidable. On-site construction noise levels shown for R1 and R2 are for the ground level of the building only. Noise levels at upper levels of receptors R1 and R2 would be the same in Table IV.I-13 on page IV.I-40.*

Source: AES, 2021. See Appendix H of this Recirculated Draft EIR.

Table IV.I-28
On-Site Construction Noise Impacts—Overlapping Construction with Mitigation Measures (Option B)

Off-Site Receptor Location[a]	Noise Reduction Provided by Mitigation Measures	Estimated Construction Noise Levels by Construction Phases, L_{eq} (dBA)					*Existing Daytime Ambient Noise Levels, L_{eq} (dBA)*	Significance Criteria, L_{eq} (dBA)[b]	Maximum Noise Exceedance Above the Criteria, L_{eq} (dBA)	Significant Impact?
		Demo & Grading	Grading, Podium 1, Podium 3	Grading, Podium 1, Podium 2, Const. 3	Podium 2, Const. 1, Const. 3	Const. 1, Const. 2, Paving 3				
R1—Ground level Upper level	20[c] 0[c]	68.6 88.6	67.3 87.3	69.0 89.0	67.0 87.0	66.6 86.6	63.4	68.4	— 20.6[c]	**Yes**[c]
R2—Ground level Upper level	20[c] 0[c]	60.5 80.5	61.8 81.7	62.3 82.3	60.1 80.1	59.9 79.9	56.1	61.1	—[c] 21.2[c]	**Yes**[c]
R3	12	70.8	69.1	69.0	64.7	65.1	66.4	71.4	0.0	No
R4	8	72.2	72.2	72.5	70.1	70.3	68.6	73.6	0.0	No

[a] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction noise impact analysis.*

[b] *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 thresholds, a construction-related noise impact is identified.*

[c] *Noise barriers would not be effective in reducing the on-site construction noise at the upper levels of receptors R1 and R2. Therefore, on-site construction noise impacts would remain significant and unavoidable. On-site construction noise levels shown for R1 and R2 are for the ground level of the building only. Noise levels at upper levels of receptors R1 and R2 would be the same in Table IV.I-14 on page IV.I-41.*

Source: AES, 2021. See Appendix H of this Recirculated 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 building 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. Table IV.I-29 on page IV.I-64 provides the estimated vibration 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 would not be used during construction of the Project, in accordance with Project Design Feature NOI-PDF-1 provided above, impact pile driving vibration is not included in the on-site construction vibration analysis. As indicated in Table IV.I-29, the estimated vibration velocity levels from all construction equipment would be below the building damage significance criteria of 0.3 PPV for the building structures to the north, south and east, and 0.5 PPV for the six-story residential building structure to the west. **Therefore, on-site vibration impacts, pursuant to the significance criteria for building damage, would be less than significant.**

(ii) Human Annoyance Impacts from On-Site Construction

Table IV.I-30 on page IV.I-65 provides the estimated vibration levels at the off-site sensitive uses due to construction equipment operation and compares the estimated vibration levels to the specified significance criteria for human annoyance. Per FTA guidance, the significance criteria for human annoyance is 72 VdB at residential and hotel uses, assuming there are a minimum of 70 vibration events occurring during a typical construction day. As indicated in Table IV.I-30, the estimated ground-borne vibration levels from construction equipment would be below the significance criteria for human annoyance

Table IV.I-29
Construction Vibration Impacts—Building Damage

Off-Site Building Structure[a]	Estimated Vibration Velocity Levels at the outside of and adjacent to the Nearest Off-Site Structures from the Project Construction Equipment,[b] inch/second (PPV)					Significance Threshold, PPV	Significant Impact?
	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	0.089	0.089	0.076	0.035	0.003	—	—
Two-story commercial building across the Project Site to the north (north side of Maxella Avenue)	0.016	0.016	0.013	0.006	0.001	0.3[c]	No
The Pavilions supermarket building south of the Project Site	0.089	0.089	0.076	0.035	0.003	0.3[c]	No
Multi-family residential building across the Project to the east (east side of Glencoe Avenue)	0.013	0.013	0.011	0.005	<0.001	0.3[c]	No
Six-story apartment building west of the Project Site	0.032	0.032	0.027	0.012	0.001	0.5[d]	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 a distance of 25 feet.*

[c] *FTA criteria for engineered timber and masonry buildings, applicable to the two-story commercial building to the north, the multi-family residential building to the east, and the Pavilions supermarket to the south.*

[d] *FTA criteria for reinforced-concrete, steel or timber buildings, applicable multi-story (3 stories and higher) residential building.*

Source: FTA, 2018; AES, 2021. See Appendix H of this Recirculated Draft EIR.

at all off-site receptor locations, with the exception of receptor R1. The estimated vibration level of 78 VdB at receptor R1 would exceed the significance threshold of 72 VdB. **Therefore, on-site vibration impacts during construction of the Project, pursuant to the significance criteria for human annoyance, would be significant.**

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

As described above, construction delivery/haul trucks would generally travel between the Project Site and the SR-90 Freeway via Lincoln Boulevard, Maxella Avenue,

Table IV.I-30
Construction Vibration Impacts—Human Annoyance

Off-Site Receptor Location[c]	Estimated Vibration Velocity Levels at the Off-Site Sensitive Uses due to On-Site Construction Equipment Operation,[a] VdB					Significance Threshold, VdB	Significant Impact?
	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	87	87	86	79	58	—	—
R1	78	78	77	70	49	72[b]	Yes
R2	65	65	64	57	36	72[b]	No
R3	70	70	69	62	41	72[b]	No
R4	65	65	64	57	36	72[b]	No

[a] *Vibration levels calculated based on FTA reference vibration level at a distance of 25 feet.*

[b] *FTA criteria for residential/hotel use with frequent events.*

[c] *Receptor location R5 is on the Project Site; therefore, it is not included in the construction vibration impact analysis.*

Source: FTA, 2018; AES, 2021. See Appendix H of this Recirculated Draft EIR.

Glencoe Avenue, and Mindanao Way. Heavy-duty construction trucks would generate ground-borne vibration as they travel along the Project's anticipated haul route. Thus, an analysis of potential vibration impacts using the building damage and human annoyance thresholds 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 (0.006 PPV) at a distance of 50 feet from the truck.[56] 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 route(s) that are situated approximately 20 feet from the truck path and would be exposed to ground-borne vibration levels of approximately 0.022 PPV, as provided in the noise calculation worksheets included in Appendix H of this Recirculated Draft EIR. This estimated vibration generated by construction trucks traveling along the anticipated haul route(s) would be well below the most stringent building damage threshold of 0.12 PPV for buildings extremely susceptible to vibration. **Therefore, vibration impacts (pursuant to the threshold of significance for building damage) from off-site construction activities (i.e., construction trucks traveling on public roadways) would be less than significant.**

[56] *FTA, "Transit Noise and Vibration Impact Assessment," May 2006, Figure 7-3.*

As discussed above, per FTA guidance, the threshold of significance for human annoyance is 72 VdB for sensitive uses, including residential 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.[57] The residential uses along Maxella Avenue are approximately 20 feet from the truck travel path. The temporary vibration levels at 20 feet distance could reach approximately 75 VdB periodically as trucks pass by the residences along Maxella Avenue.[58] The estimated ground-borne vibration from the construction trucks would exceed the 72 VdB significance threshold for residential uses. **Therefore, potential vibration impacts with respect to human annoyance that could result from temporary and intermittent vibration from construction trucks traveling along the anticipated haul route would be significant.**

(iv) Summary of Construction Vibration Impacts

As discussed above, the estimated vibration levels from Project construction equipment would be below the building damage significance criteria of 0.3 PPV. Therefore, vibration impacts from on-site construction of the Project with respect to building damage would be less than significant, and no mitigation is necessary.

Vibration impacts from on-site construction activities would be significant pursuant to the significance criteria for human annoyance. Vibration impacts from off-site construction trucks traveling along the anticipated haul route(s) would be less than significant pursuant to the threshold of significance for building damage and potentially significant pursuant to the threshold for human annoyance.

(b) Operation

As discussed above, Project operation would not generate high levels of vibration. The primary sources of the vibration would include vehicular operation within the parking garage and building mechanical equipment, which would not result in excessive vibration levels at the off-site vibration-sensitive receptors. Therefore, operation of the Project would not increase the existing vibration levels in the immediate vicinity of the Project Site, and, as such, vibration impacts associated with building damage and human annoyance during operation of the Project would be less than significant.

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[57] *Id. at Section 7.2.1.*

[58] *Estimated vibration level at 20 feet = 63 – 30xLog(20/50).*

(2) Mitigation Measures

(a) Construction

As discussed above, Project vibration levels generated from on-site construction activities would result in significant impacts with respect to human annoyance. Therefore, mitigation measures were considered to reduce vibration impacts from on-site construction activities with respect to human annoyance, including the installation of a wave barrier. However, wave barriers must be very deep and long to be effective and are not considered appropriate for temporary applications, such as construction.[59] 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. Thus, it is concluded that there are no feasible mitigation measures that could be implemented to reduce the temporary vibration impacts from on-site and off-site construction associated with human annoyance to a less-than-significant level. **As such, vibration impacts associated with human annoyance from on-site and off-site construction would remain significant.**

(b) Operation

Project-level impacts with regard to operational vibration would be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

(a) On-Site Construction Vibration

Project-level vibration impacts from on-site construction activities would exceed the 72 VdB human annoyance significance criteria at the residential uses west of the Project Site (receptor location R1). As discussed, there are no feasible mitigation measures that could be implemented to reduce the temporary vibration impacts from on-site construction associated with human annoyance to a less-than-significant level. **Therefore, Project-level vibration impacts from on-site construction activities with respect to human annoyance would remain significant and unavoidable.**

(b) Off-Site Construction Vibration

Vibration levels generated by construction trucks (i.e., haul, delivery, and concrete trucks) along the Project's haul route (i.e., Lincoln Boulevard, Maxella Avenue, and

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

Glencoe Avenue) would be well below the significance criteria for building damage. **Therefore, Project vibration impacts with respect to building damage would be less than significant.**

Project vibration levels from construction trucks would exceed the significance criteria for human annoyance at sensitive receptors (e.g., residential uses) along Maxella Avenue. There are no feasible mitigation measures that would reduce the potential vibration human annoyance impacts associated with the off-site construction trucks. **Therefore, Project vibration impacts from off-site construction with respect to human annoyance would remain significant and unavoidable.**

(c) Operational Vibration

Project impacts with regard to operational vibration were determined to be less than significant. 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 discussed in Section VI, Other CEQA Considerations, and in the Initial Study (Appendix A of this Recirculated Draft EIR), the Project Site would not expose people residing or working in the project area to excessive airport-related noise levels. The Project Site is also not located within the vicinity of a private airstrip. There are two airports located within 3 miles of the Project Site including: the Santa Monica Airport, which is located approximately 1.9 miles north of the Project Site and the Los Angeles International Airport, which is located approximately 2.5 miles south of the Project Site. However, the Project Site is not located within the airport land use plans for either airport. In addition, the Santa Monia Airport is anticipated to be closed in 2028. Therefore, the Project would not expose people residing or working in the Project area to excessive airport-related noise levels. Thus, the Project would have no impact with respect to **Threshold (c)**. No impacts from excessive airport-related noise levels would occur and no further analysis is required.

d. Cumulative Impacts

(1) Impact Analysis

The Project, together with the related projects 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 Recirculated Draft EIR, there are 14 related projects 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. While the majority of the related projects are located over 1,000 feet from the Project Site, the following three related projects are within 1,000 feet of the Project Site:

- Related Project No. LA1 is a mixed-use (apartment and office) development located at 4140 Glencoe Avenue, approximately 810 feet north of the Project Site. However, construction of this related project is completed. Therefore, this related project would not contribute to cumulative construction-related noise impacts.

- Related Project No. LA2 is a mixed-use (residential and office) development located at 4210 Del Rey Avenue and is approximately 500 feet north of the Project Site. The nearest noise sensitive use between Related Project No. LA2 and the Project Site is the multi-family residential use located on the west side of Glencoe Avenue, adjacent to Related Project No. LA2. However, this related project is under construction and is anticipated to be completed prior to commencement of construction of the Project. Therefore, Related Project No. LA2 would not contribute to cumulative construction-related noise impacts.

- Related Project No. LA7 (Stella Phase 2) is a 65-unit apartment development at 13488 Maxella Avenue and is located approximately 240 feet west of the Project Site. There are existing noise-sensitive uses in the vicinity of this related project site and the Project Site, including the existing multi-family residential use (Stella Phase 1) west of the Project Site (receptor location R1) and the Hotel MdR Hotel southwest of the Project Site (receptor location R2). As analyzed above, Project-related construction noise levels (before mitigation) would be up to 88.6 dBA and 82.3 dBA at receptor locations R1 and R2, respectively, which would exceed the existing ambient noise levels by more than 5 dBA. While mitigation measures would reduce these noise levels, noise levels at the upper levels of receptor locations R1 and R2 cannot be mitigated. Thus, in the event concurrent construction activities occur, cumulative construction noise impacts associated with the Project and Related Project No. LA7 would exceed the 5-dBA

significance criteria at receptor locations R1 and R2. Therefore, construction noise impacts resulting from both projects could be cumulatively considerable and would be considered significant before mitigation.

Based on the analysis provided above, cumulative noise impacts at sensitive uses located in proximity to the Project Site and Related Project No. LA7 could occur. Construction-related noise levels from the related projects would be intermittent and temporary, and it is anticipated that, as with the Project, the related projects would comply with the construction hours and other relevant provisions set forth in the LAMC. Noise associated with cumulative construction activities would be reduced through proposed mitigation measures for each individual related project and compliance with locally adopted and enforced noise ordinances. **Nonetheless, if nearby Related Project No. LA7 were to be constructed concurrently with the Project, significant cumulative construction noise impacts could result.**

(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 projects and the Project were to utilize the same haul routes. Specifically, based on the existing daytime ambient noise level of 67.7 dBA (L_{eq}) measured along Maxella Avenue at receptor location R5 (refer to Table IV.I-7 on page IV.I-24), it is estimated that up to 48 truck trips per hour could occur along Maxella Avenue without exceeding the significance thresholds of 5 dBA increase over the ambient noise levels, as indicated in the noise calculation worksheets (Appendix G of this Recirculated Draft EIR). However, if the total number of trucks from the Project and related projects were to add up to 49 truck trips per hour along Maxella Avenue, the estimated noise level from 49 truck trips per hour would be 71.0 dBA, which would increase the existing ambient noise levels by 5 dBA and exceed the significance criteria.[60] Since the Project would only generate up to 38 haul truck trips per hour (see Table IV.I-16 on page IV.I-43) along Maxella Avenue during the peak construction period (i.e., overlapping of grading/excavation, podium, and building construction), it is likely that truck traffic related to the construction of the Project and the nearby related projects could cumulatively add up to 49 or more hourly truck trips. There is one related project (Related Project No. LA7) located near the Project Site, which would likely use Maxella Avenue for construction trucks, which together with the Project

[60] *It is estimated that with 49 truck trips, the noise level along Maxella Avenue would be 71.0 dBA, when added to the existing ambient noise level of 67.7 dBA the cumulative noise levels would be 72.7 dBA, which would increase the ambient by 5.0 dBA. Similarly, it is estimated that with 92 and 99 truck trips, the noise level along Glencoe Avenue and Lincoln Boulevard would be 69.7 and 73.3 dBA, respectively; and when added to the existing ambient of 66.4 and 70.0 dBA the cumulative noise level would be 71.4 dBA (along Glencoe Avenue) and 75.0 dBA (along Lincoln Boulevard), which would increase the ambient by 5.0 dBA.*

could result in 49 truck trips along Maxella Avenue. In addition, for Glencoe Avenue and Lincoln Boulevard, it would require a total of 92 and 99 cumulative truck trips per hour to increase the ambient noise levels by 5 dBA, respectively. As discussed, there is only one related project (Related Project No. LA7) in the vicinity that could utilize Glencoe Avenue and Lincoln Boulevard, at the same time as the Project. There is no published information with respect to the anticipated haul truck trips associated with Related Project No. LA7. Related Project No. LA7 only has 65 residential units, which is significantly less than the Project (658 residential units under Option A and 524 residential units under Option B). As such, the construction truck trips generated by Related Project No. LA7 would be less than Project-related construction truck trips (maximum 38 trips per hour), which would not add up to 92 and 99 cumulative truck trips along Glencoe Avenue and Lincoln Boulevard, respectively. Therefore, cumulative noise due to construction truck traffic from the Project and other related projects would not exceed the existing ambient noise levels along Glencoe Avenue and Lincoln Boulevard by 5 dBA. **As such, cumulative noise impacts from off-site construction would be significant along Maxella Avenue, in the event of concurrent construction of the Project and Related Project LA7.**

(iii) Summary of Cumulative Construction Noise Impacts

As discussed above, if nearby Related Project No. LA7 were to be constructed concurrently with the Project, significant cumulative on-site construction noise impacts could result. **Therefore, cumulative construction noise impacts from on-site construction activities are conservatively considered to be significant and unavoidable. Thus, construction of the Project and related projects could result in the temporary and intermittent exposure of persons to or generation of noise levels in excess of standards established by the City or result in a substantial temporary or periodic increase in ambient noise levels in the vicinity of the Project Site above levels existing without the Project and related projects.**

Cumulative noise impacts from off-site construction activities would be significant based on the assumption that the Project and the related projects in the vicinity of the Project Site would generate up to 49 truck trips per hour along Maxella Avenue. **Therefore, off-site construction activities from the Project and related projects would result in the exposure of persons to or generation of noise levels in excess of standards established by the City or result in a substantial temporary or periodic increase in ambient noise levels in the vicinity of the Project Site above levels existing without the Project and related projects.**

(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, each of the related projects that have 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. All related projects are of a residential, retail, commercial, or institutional nature, and these uses are not typically associated with excessive exterior noise levels. However, each 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 the 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. 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 projects 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, related projects, and the Project. The calculated traffic noise levels under Existing Conditions and Future Plus Project conditions are presented in Table IV.I-31 on page IV.I-73. As shown therein, cumulative traffic volumes would result in an increase ranging from 0.4 dBA (CNEL) along the roadway segment of Lincoln Boulevard (between Washington Boulevard and Maxella Avenue) to a maximum increase of 0.9 dBA (CNEL) along the roadway segment Del Rey Avenue (between Washington Boulevard and Maxella Avenue). The estimated noise increase would be below the most stringent 3 dBA significance criteria (applicable to noise levels fall within the normally unacceptable land use category). 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.

Table IV.I-31
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 Without Project	Future Plus Project, Option A/ Option B	Option A/ Option B	
Del Rey Avenue					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	60.3	61.2/61.2	0.9/0.9	No
Lincoln Boulevard					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	71.7	72.1/72.1	0.4/0.4	No
– Between Maxella Ave. and Mindanao Wy.	Residential, Commercial	72.1	72.6/72.6	0.5/0.5	No
Glencoe Avenue					
– Between Washington Blvd. and Maxella Ave.	Residential, Commercial	69.2	69.9/69.9	0.7/0.7	No
– Between Maxella Ave. and Mindanao Wy.	Residential, Commercial	69.3	69.9/69.9	0.6/0.6	No
– Between Mindanao Wy. and Alla Road	Residential, Commercial	64.4	65.0/65.0	0.6/0.6	No
Maxella Avenue					
– Between Lincoln Blvd. and Glencoe Ave.	Residential, Commercial	66.3	67.0/67.1	0.7/0.8	No
– Between Glencoe Ave. and Redwood Ave.	Residential, School	64.2	64.8/64.8	0.6/0.6	No
Mindanao Way					
– Between SR-90 and Glencoe Ave.	Residential, Commercial	69.5	70.0/70.0	0.5/0.5	No
– Between Glencoe Ave. and Redwood Ave.	Residential	66.9	67.4/67.4	0.5/0.5	No

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

Source: AES, 2021.

(iii) Summary of Cumulative Operational Noise Impacts

As discussed above, cumulative operational noise impacts from on-site and off-site sources would be less than significant. Therefore, the Project and related projects would not result in the exposure of persons to or generation of noise levels in excess of standards 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.

(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 15 feet with regard to building damage and 80 feet with regard to human annoyance at residential and hotel uses). As indicated above, the nearest related projects to the Project Site are Related Project No. LA7, which is approximately 240 feet west of the Project Site and Related Project No. LA2, which is approximately 500 feet from the Project Site. Due to the rapid attenuation characteristics of ground-borne vibration and given the distance of the nearest related projects to the Project Site, there is no potential for a cumulative construction vibration impact with respect to building damage associated with ground-borne vibration from on-site sources.

With regard to human annoyance, the nearest sensitive use to the Project Site and Related Project No. LA7 is the Hotel MdR (receptor location R2), which is approximately 140 feet from the Project construction area and 30 feet from the Related Project No. LA7 construction area. As discussed above, the closest distance at which heavy construction equipment could result in a significant impact related to human annoyance is 80 feet. The construction vibration associated with Related Project No. LA7 at Hotel MdR would likely exceed the 72 VdB significance threshold; however, the construction-related vibration generated from the Project to Hotel MdR would be 65 VdB (as provided in Table IV.I-30 on page IV.I-65), which is below the significance threshold. Therefore, construction activities from the Project would not be cumulatively considerable with respect to ground-borne vibration. In addition, while Project-related on-site construction activities would result in a significant impact at receptor R1, construction activities from Related Project No. LA7 would be well below the 72 VdB significance threshold at receptor R1, due to distance attenuation. **As such, cumulative construction vibration impacts pursuant to the threshold for human annoyance would be less than significant in the event concurrent construction of the Project and Related Project No. LA7 were to occur.**

(ii) Off-Site Construction Vibration

As previously discussed, based on FTA data, the vibration generated by a typical heavy truck would be approximately 63 VdB (0.006 PPV) at a distance of 50 feet from the truck.[61] In addition, 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." As discussed above, there are existing buildings that are approximately 20 feet from the right-of-way of the anticipated haul routes. These buildings are anticipated to be exposed to ground-borne vibration levels of approximately 0.022 PPV. Trucks from the related projects are expected to generate similar ground-borne vibration levels. Therefore, the vibration levels generated from off-site construction trucks associated with the Project and other related projects along the anticipated haul route(s) would be well below the most stringent building damage threshold of 0.12 PPV for buildings extremely susceptible to vibration. **Therefore, potential cumulative vibration impacts with respect to building damage from off-site construction would be less than significant.**

As discussed above, potential vibration impacts associated with temporary and intermittent vibration from Project-related construction trucks traveling along the anticipated haul route would be potentially significant with respect to human annoyance. As the related projects would be anticipated to use similar trucks as the Project, it is anticipated that construction trucks would generate similar vibration levels along the anticipated haul route (i.e., Maxella Avenue). **Therefore, to the extent that other related projects use the same haul route at the same time as the Project, potential cumulative human annoyance impacts associated with temporary and intermittent vibration from haul trucks traveling along the designated haul routes would be 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 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 projects would not generate excessive ground-borne vibration levels with respect to building damage.**

[61] *FTA, "Transit Noise and Vibration Impact Assessment," May 2006, Figure 7-3.*

Cumulative construction vibration impacts pursuant to the threshold for human annoyance from on-site construction activities would be less than significant.

To the extent that the nearby related projects would use the same haul route at the same time as the Project, potential cumulative human annoyance impacts associated with temporary and intermittent vibration from haul trucks traveling along the designated haul routes would be potentially 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 projects (hotel, mixed-use, and commercial developments) would generate similar vibration levels as the Project. The nearest related project (Related Project No. LA7) is approximately 240 feet from the Project Site. Since ground-borne vibration decreases rapidly with distance, operation of the related projects would not contribute to cumulative vibration impacts due to distance between the Project and the related projects. As analyzed above, 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 projects 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, there would be potential cumulative noise impacts at the nearby sensitive uses located in proximity to the Project Site and Related Project No. LA7, in the event of concurrent construction activities. Noise associated with cumulative construction activities would be reduced to the degree reasonably and technically feasible through proposed mitigation measures (e.g., providing temporary noise barriers) for each individual related project and Mitigation Measure NOI-MM-1 would reduce the Project's on-site noise impacts to the extent feasible. However, as discussed above, the Project-related construction noise levels at receptor locations R1 and R2 would still exceed the significance threshold. Mitigation measures would likely be implemented, as required, to reduce the Related Project No. LA7 at receptor locations R1 and R2. However, even with these mitigation measures, the cumulative noise impact with respect to receptor locations R1 and R2 would be significant (i.e., exceed the ambient by 5 dBA), due to the height of the buildings at receptor locations R1 and R2, and there are no other physical mitigation

measures that would be feasible. As such, cumulative on-site noise impacts associated with on-site construction would remain significant and unavoidable.

(b) Operational Noise

As discussed above, on- 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 building damage associated with on-site and off-site construction activities would be less than significant. However, vibration levels from off-site construction trucks would exceed the significance criteria for human annoyance at vibration sensitive receptors along the anticipated construction routes. There are no feasible mitigation measures to reduce the potential vibration human annoyance impacts. Even though impacts would be temporary, intermittent, and limited to daytime hours when haul trucks are traveling within 25 feet of a sensitive receptor, cumulative vibration impacts from off-site construction with respect to human annoyance would remain significant and unavoidable.

(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 noise sources and off-site construction traffic would remain significant and unavoidable.

(b) Operational Noise

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

(c) Construction Vibration

Cumulative vibration impacts with respect to building damage from on-site and off-site construction activities would be less than significant without mitigation. Therefore, no mitigation measures were required, and the impact level remains less than significant.

However, cumulative vibration impacts associated with human annoyance from off-site construction trucks would be significant and unavoidable.

(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.