IV. Environmental Impact Analysis

G. Noise

1. Introduction

This section of this Draft EIR analyzes the potential noise and vibration impacts of the Project. Included in this section is a description of the existing noise and vibration levels within the Project Site area, an estimation of the future noise and vibration levels at surrounding sensitive land uses associated with construction and operation of the Project, an analysis of the potential noise impacts, and the inclusion of mitigation measures to address any identified potential significant impacts, as applicable. Additionally, this section of this 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 provided in the Noise Calculation Worksheets prepared by Acoustical Engineering Services (AES), included in Appendix G of this Draft EIR.[1]

2. Environmental Setting

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

a. Noise and Vibration Basics

(1) Noise Principles and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as undesirable (i.e., loud, unexpected, or annoying) sound. Acoustics is defined as the physics of sound and addresses its propagation and control.[2] In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver of the sound, and the propagation path between the two. The loudness of the noise source and obstructions or

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[1] *AES, Noise Calculation Worksheets, 2024. See Appendix G of this Draft EIR.*

[2] *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.[3] The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of feeling pain. Pressure waves traveling through air exert a force registered by the human ear as sound.[4]

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.[5]

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.[6] Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in Figure IV.G-1 on page IV.G-3.

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

[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.*

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

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

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

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

(2) Noise Exposure and Community Noise

Community noise exposure is typically measured over a period of time; a noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the sound sources contributing to the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with many unidentifiable individual contributors. Single-event noise sources, such as aircraft flyovers, sirens, etc., may cause sudden changes in background noise level.[7] However, generally, background noise levels change gradually throughout the day, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume.

These successive additions of sound to the community noise environment change the community noise level from moment to moment, requiring the noise exposure to be measured over periods of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. The following noise descriptors are used to characterize environmental noise levels over time.[8]

L_{eq}: The equivalent sound level over a specified period of time, typically, one 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

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

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

5 dBA to measured noise levels between the hours of 7:00 P.M. and 10:00 P.M. and an addition of 10 dBA to noise levels between the hours of 10:00 P.M. and 7:00 A.M. to account for noise sensitivity in the evening and nighttime, respectively.

(3) Effects of Noise on People

Noise is generally a 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., startled response); and
- Physical effects (e.g., hearing loss).

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

The World Health Organization's Guidelines for Community Noise details the adverse health effects of high noise levels, which include hearing impairment, speech intelligibility, sleep disturbance, physiological functions (e.g., hypertension and cardiovascular effects), mental illness, performance of cognitive tasks, social and behavioral effects (e.g., feelings of helplessness, aggressive behavior), and annoyance.[9]

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

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

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 levels, the following relationships generally occur:[10]

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

These relationships between change in noise level and human hearing response occur in part because of the logarithmic nature of sound and the dB scale. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but, rather, logarithmically. Under the dBA scale, a doubling of sound energy corresponds to a 3-dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and 10 sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.[11]

(4) Noise Attenuation

When noise propagates over a distance, the noise level reduces, or attenuates, with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g., air conditioner) or idling vehicle (e.g.,

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

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

bulldozer), is 6 dBA per doubling of distance from the noise source to the receptor over acoustically "hard" sites and 7.5 dBA per doubling of distance from the noise source to the receptor over acoustically "soft" sites.[12] Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which, in addition to geometric spreading, provide an excess ground attenuation value of 1.5 dBA (per doubling distance).[13] For example, an outdoor condenser fan that generates a sound level of 60 dBA at a distance of 50 feet from a point source at an acoustically hard site would attenuate to 54 dBA at a distance of 100 feet from the point source and attenuate to 48 dBA at 200 feet from the point source.

Roadways and highways consist of several localized noise sources on a defined path and, hence, are treated as "line" sources, which approximate the effect of several point sources.[14] Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading."[15] 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.[16] Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

Structures (e.g., buildings and solid walls) and natural topography (e.g., hills and berms) that obstruct the line-of-sight between a noise source and a receptor further reduce the noise level if the receptor is located within the "shadow" of the obstruction, such as behind a sound wall. This type of sound attenuation is known as "barrier insertion loss." If a receptor is located behind the wall but still has a view of the source (i.e., the line-of-sight is not fully blocked), barrier insertion loss would still occur but to a lesser extent. Additionally, a receptor located on the same side of the wall as a noise source may actually experience an increase in the perceived noise level as the wall can reflect noise back to the receptor, thereby compounding the noise. Noise barriers can provide noise level reductions ranging from approximately 5 dBA (where the barrier just breaks the line-of-sight between the source and

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

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

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

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

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

receiver) to an upper range of 20 dBA with a larger barrier.[17] Additionally, structures with closed windows can further attenuate exterior noise by a minimum of 20 dBA to 30 dBA.[18]

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.[19] Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances. Other factors such as air temperature, humidity, and turbulence can, under the right conditions, also have substantial effects on noise levels.[20]

(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, ground-borne 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.[21] In contrast to airborne noise, ground-borne 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 ground-borne 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.[22] Ground-borne vibration generated by man-made activities (e.g., road traffic, construction operations) typically weakens with greater horizontal distance from the source of the vibration.

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

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

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

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

21 *FTA, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 7.*

22 *FTA, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 7.*

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. [23] 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.[24] Decibel notation (VdB) is commonly used to express RMS vibration velocity amplitude. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. PPV is typically a factor of 1.7 to 6 times greater than RMS vibration velocity; FTA uses a crest factor of 4.[25] 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.[26]

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.[27] 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 ground-borne 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 between 30 and 60 Hz), the groundborne noise level will be approximately 35 to 37 decibels lower than the velocity level.[28] Therefore, for typical buildings, the groundborne noise decibel level is lower than the groundborne vibration velocity level at low frequencies.

b. Regulatory Framework

There are several plans, regulations, and programs that include policies, requirements, and guidelines applicable to the Project regarding noise at the federal, State,

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

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

[25] *FTA, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 5.1.*

[26] *FTA, Transit Noise and Vibration Impact Assessment Manual, 2018, Sections 6.1, 6.2, and 6.3.*

[27] *FTA, Transit Noise and Vibration Impact Assessment Manual, 2018, Section 5.4.*

[28] *FTA, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 6-3 and Table 6-14.*

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
- 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.[29] 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 evaluate intrusive noise sources and increases, this section 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

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

impacts from construction activities, as presented in its *Transit Noise and Vibration Impact Assessment Manual*.[30] The vibration damage criteria adopted by the FTA are shown in Table IV.G-1 on page IV.G-12.

The FTA has also adopted standards associated with human annoyance for determining the groundborne vibration and noise impacts from groundborne noise on the following three off-site land-use categories: Vibration Category 1—High Sensitivity, Vibration Category 2—Residential, and Vibration Category 3—Institutional. [31] 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.G-2 on page IV.G-12. No thresholds have been adopted or recommended for commercial or office uses.

(c) Occupational Safety and Health Act of 1970

Under the Occupational Safety and Health Act of 1970 (29 United States Code [USC] Sections 1919 et seq.), the Occupational Safety and Health Administration (OSHA) 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 the noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.[32]

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[30] *FTA, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 7-5, p. 86.*

[31] *FTA, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 6-1, p. 124.*

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

Table IV.G-1
Construction Vibration Damage Criteria

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

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

Table IV.G-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.

(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.G-2 on page IV.G-13.[33] The purpose of these guidelines is to

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

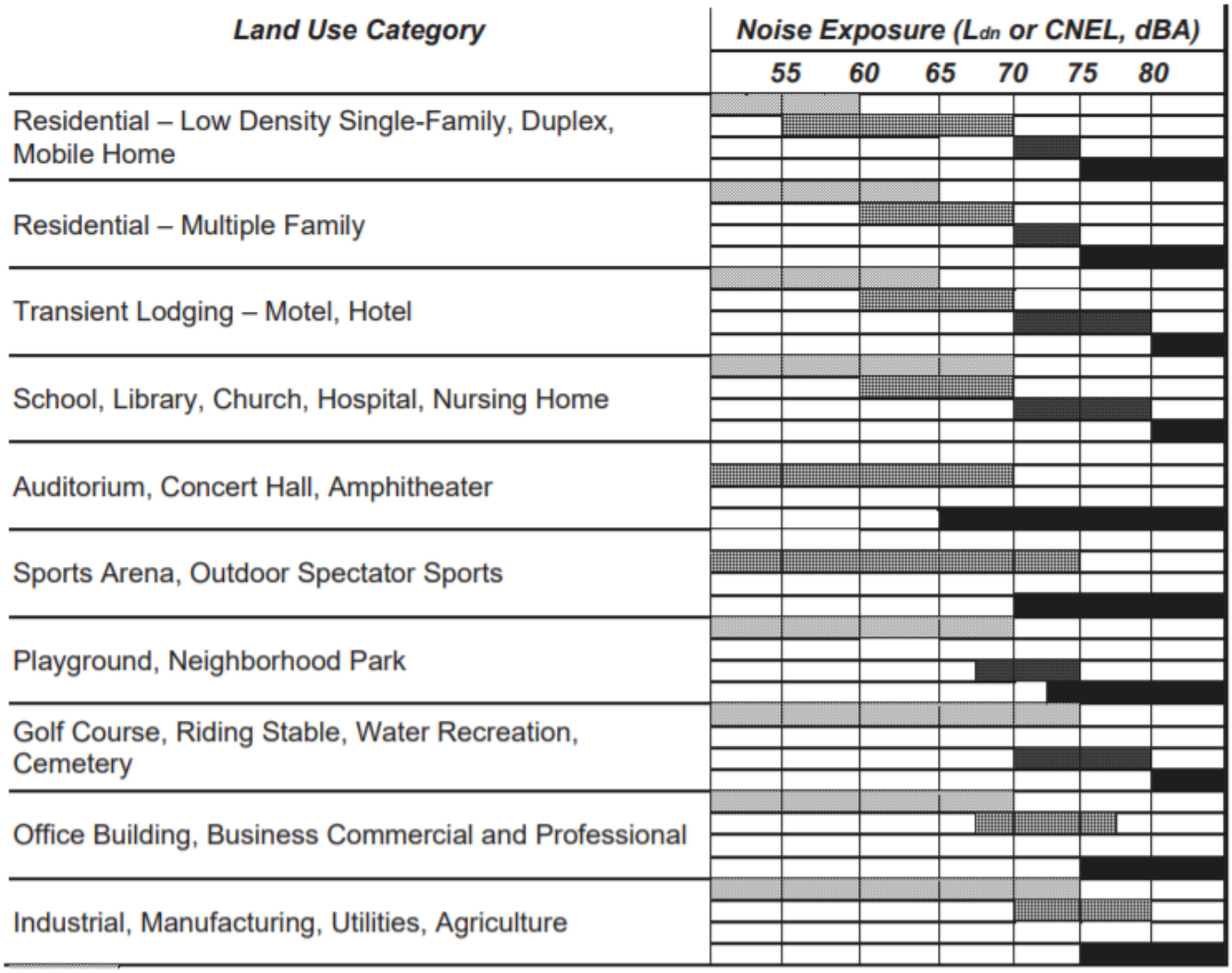

Figure IV.G-2
Guidelines for Noise Compatible Use

Source: City of Los Angeles, 2021.

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 of Los Angeles (City) has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR’s 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.

(3) Regional

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

In Los Angeles County (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 five but less than 15 minutes in any one-hour period, and an additional 5-dBA allowance (for a total of 10 dBA) for a noise source that causes noise lasting five minutes or less in any one -hour period.[34]

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.G-3 on page IV.G-16. 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 112.01 limits noise from amplified voice and music and prohibits the operation of such devices (e.g., radio, musical instrument, phonograph, television receiver, or other machine) or other sounds in such a manner as to disturb the peace, quiet, and comfort of neighbors. Specifically, noise from such uses or operation that is audible at a distance in excess of 150 feet from the property line of the noise source within a residential zone of the City or within 500 feet thereof is prohibited.

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 a 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.[35]

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

[35] *In accordance with the City's noise regulations, "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.G-3
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 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 or any national holiday, 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 provisions of the City's noise regulations relative to construction equipment, and the Los Angeles Police Department (LAPD) enforces provisions relative to noise generated by people.

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

Section 91.1206.14.2 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.G-4 on page IV.G-17 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

Table IV.G-4
City of Los Angeles Guidelines for Noise Compatible Land Use

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

Normally Acceptable: *Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.*

Conditionally Acceptable: *New construction or development should be undertaken only after a detailed analysis of the noise-reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.*

Normally Unacceptable: *New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.*

Clearly Unacceptable: *New construction or development should generally not be undertaken.*

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

noise ordinances that would limit exposure of citizens to excessive noise levels.[36] The following policies and objectives from the Noise Element apply to the Project.

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

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

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

- **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.

c. Existing Conditions

As discussed in Section II, Project Description, of this Draft EIR, land uses surrounding the Project Site include a variety of light industrial, commercial, and residential uses to the north, across 6th Street; light industrial uses directly to the south; a six-story building currently used by a mix of uses as well as other distribution, warehouse, and creative loft uses to the east, across Mill Street; and the Metro facility to the west, across Alameda Street. The predominant source of noise in the vicinity of the Project Site is vehicular traffic on adjacent roadways, including Alameda Street and 6th Street. Other existing ambient noise sources in the vicinity of the Project Site include truck loading activities (at industrial/distribution facilities); surface parking lot activities (e.g., Metro bus facility); and other miscellaneous noise sources associated with typical urban activities.

(1) Noise-Sensitive Receptors

Some land uses are considered more sensitive to intrusive noise than others based on the types of activities typically involved at the receptor location. The *L.A. CEQA Thresholds Guide* states that noise-sensitive uses include residences, transient lodgings (hotels), schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks.[37] Similarly, the Noise Element defines noise-sensitive land uses as single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodging, and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves; and parks.[38] These uses are generally considered more sensitive to noise than commercial and industrial land uses.

Based on a review of the land uses in the vicinity of the Project Site, eight noise receptor locations were identified as noise-sensitive uses within 500 feet of the property line of the Project Site. The eight noise receptor locations are identified herein as receptor

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

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

locations R1 through R7 (including receptor location R6A).[39] These noise receptor locations surrounding the Project Site are shown in Figure IV.G-3 on page IV.G-20 and described in Table IV.G-5 on page IV.G-21.

These locations represent areas with land uses that could qualify as noise-sensitive uses according to the definition of such uses in the City's L.A. CEQA Thresholds Guide and the General Plan. The noise measurement locations surround the Project Site and thereby provide representative baseline measurements for noise-sensitive uses in the vicinity of the Project Site. In addition, the measurement locations provide an adequate basis to evaluate potential noise impacts from Project construction and operation activities at the measurement locations and at other sensitive receptors located beyond the measurement locations in the same direction from the Project Site.

(2) Ambient Noise Levels

To establish baseline noise conditions, existing ambient noise levels were measured at the off-site receptor locations described in Table IV.G-5 (identified as R1 through R7) that are representative of sensitive uses in the vicinity of the Project Site.

The noise measurements were conducted on May 31, 2023, using a Larson-Davis Model 870 and a Quest Technologies Model 2900 Integrating/Logging Sound Level Meters.[40] A 24-hour ambient noise measurement was conducted at receptor location R6.[41] Two 15-minute measurements were conducted at each of the off-site receptor locations R1 through R5, and R7 during daytime and nighttime hours. The daytime ambient noise levels were measured between 10:00 A.M. and 1:00 P.M., and the nighttime ambient noise levels were measured between 10:00 P.M. and 1:00 A.M. The ambient noise measurements were recorded in accordance with the City's standards, which require ambient noise to be measured over a period of at least 15 minutes.[42]

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[39] *While the receptor locations are labeled R1 through R7, receptor R6 includes an additional receptor R6A to evaluate the potential noise impacts during construction in the event the proposed mixed-use development, represented by R6, is not built.*

[40] *These sound meters meet the minimum industry standard performance requirements for "Type 1" (Larson-Davis Model 870) and "Type 2" (Quest Technologies Model 2900) 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 prior to the measurements and operated according to the manufacturer's written specifications.*

[41] *A 24-hour measurement is typically conducted at one receptor location to obtain the pattern and validate the noise measurements at other receptor locations.*

[42] *LAMC Section 111.01.*

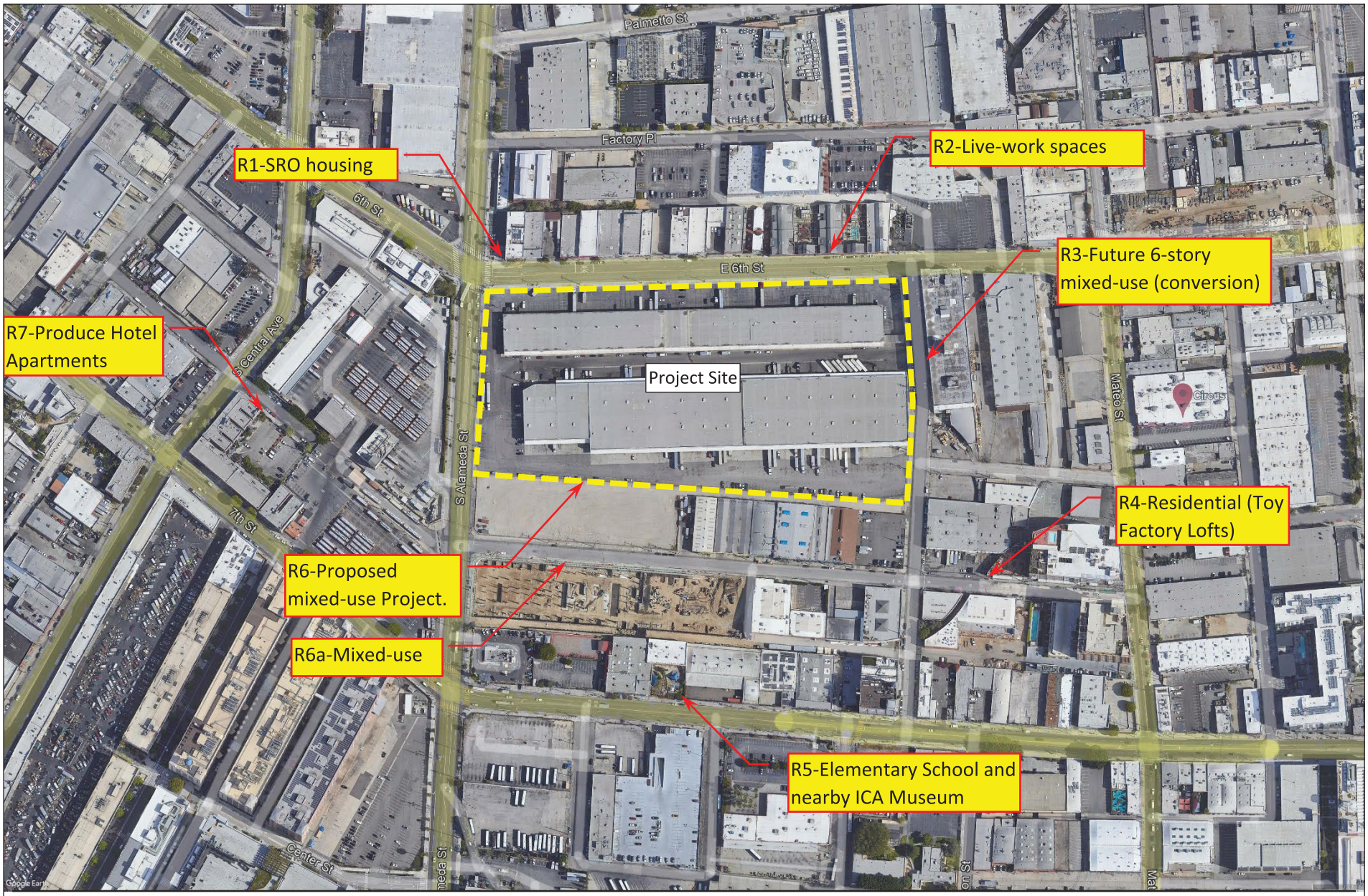

Figure IV.G-3
Noise Measurement Locations

Source: Acoustical Engineering Services, 2024.

Table IV.G-5
Description of Noise Measurement Locations

Receptor Location	Description	Approximate Distance from Measurement Location to Nearest Project Site Boundary (feet)[a]	Nearest Noise-Sensitive Land Use(s)
R1	SRO Housing located at the northeast corner of Alameda Street and 6th Street, north of the Project Site	80	Multi-Family Residential
R2	Live-work units located on the north side of 6th Street, north of the Project Site	65	Multi-Family Residential
R3	Future mixed-use (conversion) on the east side of Mill Street, east of the Project Site	60	Multi-Family Residential
R4	Toy Factory Lofts located on Industrial Street west of Mateo Street, east of the Project Site	430	Multi-Family Residential
R5	Para Los Niños Charter Elementary School and ICA Museum, located on the north side of 7th Street, south of the Project Site	310	School
R6	Future mixed-use development adjacent to the Project Site to the south	Adjacent to the Project Site	Multi-Family Residential
R6A	Mixed-use (AVA Arts District), located on the southside of Industrial Street, south of the Project Site	245	Multi-Family Residential
R7	Produce Hotel Apartments located at the northeast corner of Central Avenue and 7th Avenue, west of the Project Site	580	Multi-Family Residential

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

Source: AES, 2024. See Appendix G of this Draft EIR.

Table IV.G-6 on page IV.G-22 provides a summary of the ambient noise measurements conducted at the noise receptor locations. Based on field observations, the ambient noise at the measurement locations is dominated by local traffic (from adjacent roadways) and industrial/commercial activities (from truck loadings) and, to a lesser extent, other typical urban noises (e.g., parking lot traffic and commercial/retail operations, etc.). As indicated in Table IV.G-6, the existing daytime ambient noise levels at the off-site noise receptor locations ranged from 58.9 dBA (L_{eq}) at receptor location R4 to 72.4 dBA (L_{eq}) at receptor location R2. The measured nighttime ambient noise levels ranged from 55.1 dBA (L_{eq}) at receptor location R4 to 66.9 dBA (L_{eq}) at receptor location R2. Thus, the existing ambient noise levels at all off-site locations are above the City's presumed daytime and nighttime ambient noise levels of 50 dBA (L_{eq}) and 40 dBA (L_{eq}), respectively, for residential uses, as provided in Table IV.G-3 on page IV.G-16.

Table IV.G-6
Existing Ambient Noise Levels

Receptor Location	Noise-Sensitive Land Use	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	Multi-Family Residential	71.1	65.4	71.9[a]
R2	Multi-Family Residential	72.4	66.9	73.3[a]
R3	Multi-Family Residential (future)	69.9	62.9	70.1[a]
R4	Multi-Family Residential	58.9	55.1	60.8[a]
R5	School	68.8	61.9	69.0[a]
R6	Multi-Family Residential (future)	64.5[b]	66.2[b]	72.4
R6A[c]	Multi-Family Residential	64.5	66.2	72.4
R7	Multi-Family Residential	61.0	56.7	62.6[a]

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

[b] *Levels shown for R6 represent the average for the entire daytime and nighttime periods.*

[c] *Measured ambient noise levels at receptor location R6 is also used for receptor location R6A due to proximity of R6 and R6A.*

Source: AES, 2024. See Ambient Noise Measurements provided in Appendix G of this Draft EIR.

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 information provided in the Transportation Assessment prepared for the Project, which is included in Appendix I of this Draft EIR.[43] Thirteen (13) roadway segments were selected for the existing off-site traffic noise analysis included in this section based on proximity to the Project Site and potential increases in traffic volumes from the Project.

Traffic noise levels were calculated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) and traffic volume data provided by the transportation consultant for the Project.[44] The TNM 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 10:00 P.M.), and nighttime hours (10:00 P.M. to 7:00 A.M.). The TNM

[43] *Gibson Transportation Consulting, Inc., Transportation Assessment for the 6th and Alameda Studio Project, September 2023.*

[44] *Gibson Transportation Consulting, Inc., Transportation Assessment for the 6th and Alameda Studio Project, September 2023.*

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.G-7 on page IV.G-24.

Table IV.G-8 on page IV.G-25 provides the calculated CNEL for the analyzed local roadway segments based on existing traffic volumes. As shown therein, the existing CNEL due to surface street traffic volumes ranges from 55.1 dBA CNEL along Mill Street (between 6th Street and 7th Street) to 69.7 dBA CNEL along Alameda Street (between 4th Street and 6th Street). Currently, the existing traffic-related noise levels along the roadway segments of Alameda Street, Mateo Street, 6th Street, and 7th Street 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 during the noise measurements, the primary source of existing ground-borne vibration in the vicinity of the Project Site is vehicular travel (e.g., standard cars, refuse trucks, delivery trucks, construction trucks, school buses, and buses) on local roadways. According to the FTA technical study "Federal Transit Administration: Transit Noise and Vibration Impacts Assessments," typical road traffic-induced vibration levels are unlikely to be perceptible by people. Specifically, the FTA study reports that "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads."[45] Trucks and buses typically generate ground-borne vibration velocity levels of around 63 VdB (at a distance of 50 feet), and these levels could reach 72 VdB when trucks and buses pass over traffic speed bumps in the road. Per the FTA, 75 VdB is the dividing line between barely perceptible (with regards to ground vibration) and distinctly perceptible.[46] Therefore, existing ground-borne vibration in the vicinity of the Project Site is generally below the perceptible level. However, ground-borne 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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[45] *FTA, Transit Noise and Vibration Impact Assessment, September 2018, p. 112.*

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

Table IV.G-7
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.)	
Car	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 two axles.*

[b] *Heavy Truck—Trucks with three or more axles.*

Source: AES, 2024.

Table IV.G-8
Existing Roadway Traffic Noise Levels

Roadway Segment	Adjacent Land Use	Approximate Distance to Roadway Center Line (feet)	Calculated Traffic Noise Levels, CNEL (dBA)[a]	Noise-Sensitive Land Uses	Existing Noise Exposure Compatibility Category[b]
Alameda Street					
Between 4th St. and 6th St.	Residential	40	69.7	Yes	Conditionally Acceptable
Between 6th St. and 7th St.	Residential (future)	40	69.4	Yes	Conditionally Acceptable
Between 7th St. and 8th St.	Commercial	45	68.4	Yes	Conditionally Acceptable
Mill Street					
Between 6th St. and 7th St.	Residential (future)	30	55.1	Yes	Normally Acceptable
Mateo Street					
Between 4th St. and 6th St.	Residential	30	64.0	Yes	Conditionally Acceptable
Between 6th St. and 7th St.	Residential	30	63.4	Yes	Conditionally Acceptable
Between 7th St. and 8th St.	Residential (future)	30	64.2	Yes	Conditionally Acceptable
6th Street					
Between Central Ave. and Alameda St.	Commercial	35	68.4	Yes	Conditionally Acceptable
Between Alameda St. and Mateo St.	Residential	35	68.5	Yes	Conditionally Acceptable
Between Mateo St. and Santa Fe Ave.	Commercial	35	68.6	Yes	Conditionally Acceptable
7th Street					
Between Central Ave. and Alameda St.	Residential	35	68.8	Yes	Conditionally Acceptable
Between Alameda St. and Mateo St.	School	35	68.6	Yes	Conditionally Acceptable
Between Mateo St. and Santa Fe Ave.	Residential	35	68.7	Yes	Conditionally Acceptable

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

[b] *Noise compatibility is based on the most stringent land use, per the City's land use compatibility guidelines as provided in Table IV.G-4 on page IV.G-17.*

Source: AES, 2024. See Off-Site Traffic Noise Calculations for Existing Conditions provided in Appendix G of this Draft EIR.

3. Project Impacts

a. Thresholds of Significance

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

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 groundborne vibration or groundborne noise levels; or

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 factors below 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.

As discussed in Section II, Project Description, of this Draft EIR, construction of the Project is anticipated to begin in 2024 and be completed in 2026. Therefore, since

construction activities would occur over a period longer than 10 days for all stages, the corresponding significance criteria used in the construction noise analysis presented in this section of this Draft EIR is an increase in the ambient exterior noise levels by 5 dBA (hourly L_{eq}) or more at a noise-sensitive use.

(2) Operational Noise

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

- The Project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category (see Table IV.G-4 on page IV.G-17 for a description of these categories); or
- The Project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 5 dBA in CNEL or greater; or
- Project-related operational on-site (i.e., non-roadway) noise sources, such as outdoor building mechanical/electrical equipment, outdoor activities, loading docks, or parking facilities, increase the ambient noise level (hourly L_{eq}) at noise-sensitive uses by 5 dBA.

The significance criterion used in the noise analysis for on-site operations presented above 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., vehicles traveling on public roadways). Therefore, based on the *L.A. CEQA Thresholds Guide*, the significance criterion for off-site traffic noise associated with Project operations is an increase in the ambient noise level by 3 dBA or 5 dBA in CNEL (depending on the land use category) at noise-sensitive uses. In addition, the significance criterion 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) FTA Ground-borne Vibration Standards and Guidelines

The City currently does not have significance criteria to assess vibration impacts during construction. Thus, the FTA guidelines set forth in FTA's *Transit Noise and Vibration Impact Assessment Manual* 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 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 events were to occur:

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

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

- Project construction activities cause ground-borne vibration levels to exceed 72 VdB at off-site sensitive uses, including residential, hotel and theater uses.
- Project construction activities cause ground-borne vibration levels to exceed 75 VdB at off-site school use.

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 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 the Project'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)."[47] The ambient noise levels at surrounding sensitive receptor locations were based

[47] *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 U.S. Environmental Protection Agency report referenced in the L.A. CEQA Thresholds Guide (published in 1971).*

on field measurement data (see Table IV.G-6 on page IV.G-22). The construction noise levels were then calculated for the sensitive receptor locations based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance over hard surfaces (as described above in Subsection 2.a(4), Noise Attenuation). Additional noise attenuation was assigned to the 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. 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 I of this Draft EIR. The TNM calculates the hourly L_{eq} noise levels generated by construction-related haul trucks. Noise impacts were determined by comparing the predicted noise level of construction-related haul trucks plus the ambient noise levels with that of the existing ambient noise levels along the Project's anticipated haul route(s).

(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 outdoor spaces), parking facilities, outdoor studio production, and loading docks and trash compactors; (2) calculating the noise level from each noise source at the surrounding sensitive receptor property lines; and (3) comparing such noise levels to the ambient noise levels to determine significance. The on-site stationary noise sources were calculated using the SoundPLAN (version 8.2) computer noise prediction model.[48] SoundPLAN is widely used by acoustical engineers as a noise modeling tool for environmental noise analysis.

(4) Off-Site Roadway Noise (Operation)

Off-site roadway noise was analyzed using the FHWA TNM and traffic data from the Project's Transportation Assessment, included as Appendix I of this Draft EIR. Roadway noise levels were calculated for various roadway segments based on the intersection traffic volumes. Roadway noise conditions without the Project were calculated and compared to

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

noise levels that would occur with implementation of the Project to determine Project-related noise impacts for operational off-site roadway noise.

(5) Construction Vibration

Ground-borne vibration impacts due to the Project's construction activities were evaluated by identifying potential vibration sources (i.e., construction equipment), estimating the vibration levels at the receptor locations, 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. As discussed in the Initial Study, included as Appendix A in the Draft EIR, 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.

c. Project Design Features

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

Project Design Feature NOI-PDF-1: Outdoor mounted mechanical equipment will be enclosed or screened by the building design (e.g., a roof parapet) from view of off-site noise-sensitive receptors at the street level.

Project Design Feature NOI-PDF-2: Outdoor amplified sound systems, if any, will be designed so as not to exceed the maximum noise level of 75 dBA ($L_{eq\text{-}1hr}$) at a distance of 15 feet from the amplified speaker sound systems at the East and West Buildings Level 2 (Amenity level), and 80 dBA ($L_{eq\text{-}1hr}$) at a distance of 20 feet from the amplified speaker sound systems at the East and West Buildings roof level. A qualified noise consultant will provide written documentation that the design of the system complies with this maximum noise level.

d. Analysis of Project Impacts

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

(1) Impact Analysis

(a) Construction Noise

As discussed above, construction of the Project is anticipated to begin in 2024 and be completed in 2026. Thus, the corresponding significance threshold used in the construction noise analysis below is the exceedance of the ambient exterior noise levels by 5 dBA (hourly L_{eq}) or more at a noise-sensitive use. Construction of the Project would commence with the demolition of existing buildings, followed by grading/excavation, building foundations, building construction, and paving/landscape installation. In accordance with Los Angeles Municipal Code (LAMC) requirements, construction activities generally would be permitted to occur Monday through Friday from 7:00 A.M. to 9:00 P.M. and between 8:00 A.M. and 6:00 P.M. on Saturday or national holidays, or outside of these hours if an after-hours construction permit is approved by the Los Angeles Board of Police Commissioners. Construction delivery/haul trucks would travel on approved truck routes between the Project Site and the Santa Monica Freeway (I-10), via Alameda Street.

(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, grading and excavation, 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 require 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.G-9 on page IV.G-32. In

Table IV.G-9
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/Industrial Saw	20	90
Crane (mobile)	16	81
Crushing/Proc. Equipment	50	85
Excavator	40	81
Forklift/Aerial Lift	20	75
Generator	50	81
Dump/Haul Truck	40	76
Paver	50	77
Plate Compactor	20	83
Pump/Concrete Pump	50	81
Roller	20	80
Rubber Tired Dozer	40	82
Rubber Tired Loader	40	79
Scraper	40	84
Tractor/Loader/Backhoe	40	84
Trencher	50	80
Delivery Truck	40	74
Water Truck	10	82
Welders	40	74

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

addition, the Project would also utilize electric construction equipment, when available. 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 operates under less than full power conditions or partial power.

To more accurately characterize noise levels during construction, the average (hourly L_{eq}) noise levels associated with each construction stage was calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each

construction stage.[49] These noise levels are typically associated with multiple pieces of equipment operating on partial power, simultaneously.

Table IV.G-10 on page IV.G-34 provides the estimated construction noise levels for various construction stages at the off-site receptor locations (R1 to R7). To present a conservative impact analysis, the estimated noise levels were calculated for a scenario in which all pieces of construction equipment were assumed to operate simultaneously and be located at the construction area nearest to the affected receptors. These assumptions represent a conservative noise scenario because construction activities would typically be spread out throughout the Project Site, and, thus, some equipment would be farther away from the affected receptors. In addition, the noise modeling assumes that the construction noise would be constant, when, in fact, construction activities and associated noise levels are periodic and fluctuate based on the construction activities.

As indicated in Table IV.G-10, the estimated noise levels during all stages of Project construction would be below the significance criterion at off-site receptor locations R4 and R5. The estimated construction-related noise would exceed the significance threshold at receptor locations R1 through R3, R6, R6A, and R7, by a range of 0.5 dBA at the uses represented by receptor location R7 to up to 21.2 dBA at the uses represented by receptor location R6. However, the noise impacts identified at receptor locations R3 and R6 assumed the proposed mixed-use developments at those locations will be completed and occupied prior to or during Project construction. In the event the proposed mixed-use developments are not built and occupied by or during Project construction, the noise impact identified at receptor locations R3 and R6 would be less than significant, based on the current use (i.e., commercial building and vacant lot). Also included in Table IV.G-10 are the estimated noise levels at receptor location R6A, which represents the existing apartment building immediately south of receptor location R6. The estimated noise levels at receptor location R6A assume that the proposed mixed-use development at receptor location R6 is not built and occupied prior to or during Project construction, which is a possibility. Accordingly, including receptor location R6A represents a conservative analysis.

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.G-11 on page IV.G-35.

[49] *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.G-10
Construction Noise Impacts

Off-Site Receptor Location	Approximate Distance from Receptor to Project Construction Area(feet)	Estimated Construction Noise Levels by Construction Stage (L_{eq} (dBA))					Existing Daytime Ambient Noise Levels(L_{eq} (dBA))	Significance Threshold (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Criteria (L_{eq} (dBA))	Significant Impact Without Mitigation?
		Demolition	Grading/ Excavation	Foundation	Building Construction	Paving/ Landscape				
R1	80	83.9	80.3	80.5	84.5	83.1	71.1	76.1	8.4	Yes
R2	65	85.1	81.6	81.9	85.7	84.5	72.4	77.4	8.3	Yes
R3	60	85.6	82.1	82.4	86.2	85.1	69.9	74.9	11.3	Yes
R4	310	60.3	56.3	56.4	61.1	58.8	58.9	63.9	0.0	No
R5	430	57.9	53.9	54.0	58.8	56.4	68.8	73.8	0.0	No
R6	25	90.5	87.3	87.6	90.7	90.3	64.5	69.5	21.2	Yes
R6A[b]	245	76.9	72.9	73.1	77.7	75.5	64.5	69.5	8.2	Yes
R7	580	65.7	61.6	61.7	66.5	64.1	61.0	66.0	0.5	Yes

[a] *Significance thresholds are equivalent to the measured daytime ambient noise levels (see Table IV.G-6 on page IV.G-22) 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.*

[b] *Receptor location R6A represents the newly constructed apartment buildings (AVA Arts District) located south of receptor location R6, approximately 245 feet south of the Project Site. The estimated noise levels assumed the proposed mixed-use development (represented by receptor location R6) is not built during Project construction.*

Source: AES, 2024. See Appendix G of this Draft EIR.

Table IV.G-11
Construction Noise Impacts—Overlapping Construction

Off-Site Receptor Location	Approximate Distance from Receptor to Project Construction Area(feet)	Estimated Construction Noise Levels by Overlapping Construction(L_{eq} (dBA))				Existing Daytime Ambient Noise Levels(L_{eq} (dBA))	Significance Threshold (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Criteria (L_{eq} (dBA))	Significant Impact Without Mitigation?
		Demolition & Grading/ Excavation	Grading/ Excavation & Foundation	Foundation & Building Construction	Building Construction & Paving/ Landscape				
R1	80	85.5	83.4	86.0	86.9	71.1	76.1	10.8	Yes
R2	65	86.7	84.8	87.2	88.2	72.4	77.4	10.8	Yes
R3	60	87.2	85.3	87.7	88.7	69.9	74.9	13.8	Yes
R4	310	61.8	59.4	62.4	63.1	58.9	63.9	0.0	No
R5	430	59.4	57.0	60.0	60.8	68.8	73.8	0.0	No
R6	25	92.2	90.5	92.4	93.5	64.5	69.5	24.0	Yes
R6A[b]	245	78.4	76.0	79.0	79.7	64.5	69.5	10.2	Yes
R7	580	67.1	64.7	67.7	68.5	61.0	66.0	2.5	Yes

[a] *Significance thresholds are equivalent to the measured daytime ambient noise levels (see Table IV.G-6 on page IV.G-22) 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.*

[b] *Receptor location R6A represents the newly constructed apartment buildings (AVA Arts District) located south of receptor location R6, approximately 245 feet south of the Project Site. The estimated noise levels assumed the proposed mixed-use development (represented by receptor location R6) is not built during Project construction.*

Source: AES, 2024. See Appendix G of this Draft EIR.

As indicated in Table IV.G-11 on page IV.G-35, the estimated noise levels due to overlapping construction activities would exceed the significance thresholds at off-site receptor locations R1 through R3, R6, R6A, and R7, by a range of 2.5 dBA at the uses represented by receptor location R7 to up to 24.0 dBA at the uses represented by receptor location R6. **Therefore, as noted above, temporary noise impacts associated with the Project's on-site construction activities would be potentially significant.**

(ii) Off-Site Construction Noise

In addition to on-site construction noise sources, other noise sources may include materials delivery, concrete mixing, and haul trucks (construction trucks), as well as construction worker vehicles accessing the Project Site during construction. Typically, construction trucks generate higher noise levels than construction worker vehicles. The major noise sources associated with off-site construction trucks would be from the material delivery/concrete/haul trucks. With regard to haul routes, as described above, construction haul trucks would travel between the Project Site and I-10 Freeway via Alameda. The peak period (i.e., daily number of truck trips) of construction with the highest number of construction trucks would occur during the grading/excavation stage. During this construction stage, there would be a maximum of approximately 258 haul/delivery trucks coming to and leaving the Project Site (equal to 516 total trips) per day. In addition, there would be up to approximately 68 construction trucks during the foundation stage (total of 136 truck trips). There would also be approximately 35 to 225 construction worker trips traveling to and from the Project Site on a daily basis during the various construction stages. Construction workers are expected to arrive at the Project Site before construction starts and leave when construction ends. Therefore, construction worker vehicle noise would not overlap with Project construction equipment or trucks. In addition, the noise levels generated by construction worker vehicle trips would be lower than the construction truck trips.[50] Table IV.G-12 on page IV.G-37 provides the estimated number of construction-related truck trips, including haul/concrete/material delivery trucks and the estimated noise levels along the anticipated truck routes. As indicated in Table IV.G-12, the hourly noise levels generated by Project construction trucks would be below the 5-dBA significance threshold along the anticipated truck route, Alameda Street.

As indicated above, the construction phases of the Project would have the potential to overlap. Therefore, noise levels due to off-site construction trucks associated with overlapping construction were evaluated to determine the potential impacts. Off-site construction noise impacts associated with the overlapping construction (construction trucks) are provided in Table IV.G-13 on page IV.G-38. As indicated in Table IV.G-13, the estimated noise levels due to overlapping construction combined would be below the significance thresholds.

[50] *Based on TNM noise model, a truck generates approximately 14 dBA louder than an automobile.*

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

Construction Stage	Estimated Number of Construction Truck Trips per Day	Estimated Number of Construction Truck Trips per Hour[b]	Estimated Truck Noise Levels Plus Ambient Along the Project Truck Routes[a] (L_{eq} (dBA)) (Project/Project + Ambient)
			Alameda Street
Demolition	112	19	61.2/71.5
Grading/Excavation	516	86	67.7/72.7
Building Foundation	136	17	60.7/71.5
Building Construction	104	13	59.5/71.4
Paving/Landscape	40	5	55.4/71.2
Existing Ambient Noise Levels Along the Project Haul Routes, L_{eq} (dBA)[d]			71.1
Significance Threshold (L_{eq} (dBA))[e]			76.0
Maximum Exceedance Over Significance Threshold (L_{eq} (dBA))			0.0
Significant Impact?			**No**

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

[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 work day. Haul truck hourly trips during demolition are based on 6 hours of hauling per day.*

[d] *Ambient noise levels along Alameda Street is based on measurements at nearby receptor location R1 (along Alameda Street).*

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

Source: AES, 2024. See Construction Noise & Vibration Calculations provided in Appendix G of this Draft EIR.

In addition, there would be off-site utility connections along Alameda Street, 6th Street, and Mill Street. Construction associated with the off-site utility connections would involve a limited amount of equipment (e.g., a concrete saw, a loader and a dump truck) and would occur for a short duration (i.e., few days), during the daytime hours. Table IV.G-14 on page IV.G-39 provides the estimated construction noise levels associated with the off-site utility connections. As indicated in Table IV.G-14, the estimated noise levels due to the off-site utility connections would exceed the significance criteria at the off-site receptor locations R1, R2, R3, and R6 by 4.0 dBA, 14.2 dBA, 14.8 dBA, and 0.8 dBA, respectively. Therefore, temporary noise impacts associated with construction of the Project's off-site utility connections would be significant.

Table IV.G-13
Off-Site Construction Truck Noise Levels—Overlapping Construction

Overlapping Construction Stages	Estimated Number of Construction Truck Trips per Day	Estimated Number of Construction Truck Trips per Hour[b]	Estimated Truck Noise Levels Plus Ambient Along the Project Truck Routes[a] (L_{eq} (dBA)) (Project/Project + Ambient)
			Alameda Street
Demolition & Grading/Excavation	628	105	68.6/73.0
Grading/Excavation & Building Foundation	652	103	68.5/73.0
Building Foundation & Building Construction	240	30	63.2/71.8
Building Construction & Paving/Landscape	144	18	61.0/71.5
Existing Ambient Noise Levels Along the Project Haul Routes, L_{eq} (dBA)[d]			71.1
Significance Threshold (L_{eq} (dBA))[e]			76.0
Maximum Exceedance Over Significance Threshold (L_{eq} (dBA))			0.0
Significant Impact?			**No**

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

[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 work day. Haul truck hourly trips during demolition are based on 6 hours of hauling per day.*

[d] *Ambient noise levels along Alameda Street is based on measurements at nearby receptor location R1 (along Alameda Street).*

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

Source: AES, 2024. See Construction Noise & Vibration Calculations provided in Appendix G of this Draft EIR.

(iii) Summary of Construction Noise Impacts

As discussed above, Project off-site construction trucks would not result in the generation of a substantial temporary increase in ambient noise levels along the anticipated haul route, in excess of significance criterion established by the City. However, the Project on-site construction and off-site utility connections would result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the Project Site in excess of significance criterion established by the City. **Therefore, temporary noise impacts associated with the Project's on-site and off-site construction activities would be potentially significant.**

Table IV.G-14
Off-Site Utility Improvements Construction Noise Levels

Off-Site Receptor Location	Estimated Off-Site Utilities Construction Noise Levels (L_{eq} (dBA))	Existing Daytime Ambient Noise Levels (L_{eq} (dBA))	Significance Threshold (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Threshold (L_{eq} (dBA))	Significant Impact Without Mitigation?
R1	80.1	71.1	76.1	4.0	Yes
R2	91.6	72.4	77.4	14.2	Yes
R3	89.7	69.9	74.9	14.8	Yes
R4	49.0	58.9	63.9	0.0	No
R5	43.5	68.8	73.8	0.0	No
R6	70.3	64.5	69.5	0.8	Yes
R6A[b]	59.4	64.5	69.5	0.0	No
R7	57.6	61.0	66.0	0.0	No

[a] *Significance thresholds are equivalent to the measured daytime ambient noise levels (see Table IV.G-6 on page IV.G-22) 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.*

[b] *Receptor location R6A represents the newly constructed apartment buildings (AVA Arts District) located south of receptor location R6, approximately 245 feet south of the Project Site. The estimated noise levels assumed the proposed mixed-use development (represented by receptor location R6) is not built during Project construction.*

Source: AES, 2024. See Construction Noise & Vibration Calculations provided in Appendix G of this Draft EIR.

(b) Operational Noise

This section provides a discussion of potential operational noise impacts at nearby noise-sensitive receptors. Specific operational noise sources addressed herein are (a) on-site stationary noise sources, including outdoor-mounted mechanical equipment (e.g., heating, ventilation, and air conditioning [HVAC] equipment), activities associated with the proposed outdoor spaces (located at Level 2 and Roof Level), parking facilities, loading dock, and studio-related operation; and (b) off-site mobile (roadway traffic) noise sources.

(i) On-Site Stationary Noise Sources

Mechanical Equipment

As part of the Project, new mechanical equipment (e.g., air ventilation equipment) would be located at the roof level and/or within the building structure (e.g., garage exhaust fans). Although operation of mechanical equipment would generate noise, Project-related outdoor mechanical equipment would be designed so as not to increase the existing ambient

noise levels by 5 dBA in accordance with the City's Noise Regulations. Specifically, the Project would comply with LAMC Section 112.02, which prohibits noise from air conditioning, refrigeration, heating, pumping, and filtering equipment from exceeding the ambient noise levels on the premises of other occupied properties by more than 5 dBA. In addition, with implementation of Project Design Feature NOI-PDF-1, listed above, all outdoor mounted mechanical equipment will be enclosed or screened from off-site noise-sensitive receptors. Table IV.G-15 on page IV.G-41 presents the estimated noise levels at the off-site receptor locations from mechanical equipment during operation of the Project. As indicated in Table IV.G-15, the estimated noise levels from the mechanical equipment would range from 26.1 dBA (L_{eq}) at the uses represented by receptor location R5 to 58.6 dBA (L_{eq}) at the uses represented by receptor location R6, which would be well below the existing ambient noise levels. Further, the estimated ambient noise levels at all off-site receptor locations with the addition of the Project's mechanical equipment would be below the significance criterion of 5 dBA (L_{eq}) above ambient noise levels (based on the lowest measured ambient noise levels). **Therefore, noise impacts from mechanical equipment during Project operation would be less than significant.**

Outdoor Recreation Spaces

As discussed in Section II, Project Description, of this Draft EIR, the Project would include various outdoor recreation spaces (common open spaces for employees) throughout the Project Site, including within Level 2 (Amenity Deck) and Roof Level of the East and West Buildings. Noise sources associated with outdoor uses typically include noise from people gathering and conversing. For this operational noise analysis, reference noise levels of 65 dBA for a male and 62 dBA for a female speaking in a raised voice were used for analyzing potential noise impacts from people gathering at the outdoor spaces on Level 2 and Roof Level.[51] 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 areas were assumed to be from 7:00 A.M. to 2:00 A.M.

Additionally, to ensure that noise levels from the outdoor amplified sound system would not exceed the standards set forth in LAMC Section 112.01, Project Design Feature NOI-PDF-2, above, is included to require that if an amplified sound system is used in outdoor areas, it would be designed so as not to exceed the maximum noise level of 70 dBA L_{eq} at Level 2 and 80 dBA L_{eq} at the Roof Level, thereby ensuring that the amplified sound system would not exceed the significance criterion (i.e., an increase of 5 dBA L_{eq}) at any off-site noise-sensitive receptor location. Table IV.G-16 on page IV.G-41 presents the anticipated number of people and the amplified sound system levels at each of the outdoor spaces.

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

Table IV.G-15
Estimated Noise Levels from Mechanical Equipment

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Mechanical Equipment, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold dBA (L_{eq})[a]	Exceedance over Significance Criteria	Significant Impact?
R1	65.4	46.5	65.5	70.4	0.0	No
R2	66.9	43.5	66.9	71.9	0.0	No
R3	62.9	55.4	63.6	67.9	0.0	No
R4	55.1	49.0	56.1	60.1	0.0	No
R5	61.9	26.1	61.9	66.9	0.0	No
R6	64.5	58.6	65.5	69.5	0.0	No
R7	56.7	42.3	56.9	61.7	0.0	No

[a] *Significance thresholds are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.G-6 on page IV.G-22) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance thresholds, a potentially significant noise impact is identified.*

Source: AES, 2024. See Operation Noise Calculations provided in Appendix G of this Draft EIR.

Table IV.G-16
Outdoor Use Analysis Assumptions

Location	Estimated Total Number of People[a]	Amplified Sound System Levels dBA (L_{eq})
West Building – Level 2 Deck	811	75 dBA at 15 feet
East Building – Level 2 Deck	530	75 dBA at 15 feet
West Building – Roof Deck	1,400	80 dBA at 25 feet
East Building – Roof Deck	1,272	80 dBA at 25 feet

[a] *Based on worst case maximum capacity of 15 square feet per person, per the Building Code. The actual maximum number of people at any given time in these areas is likely to be somewhat less.*

Source: Grimshaw Architects LLP, 2023; AES, 2024

Table IV.G-17 on page IV.G-42 presents the estimated noise levels at the off-site sensitive receptors resulting from the use of outdoor spaces. As presented in Table IV.G-17, the estimated noise levels associated with use of the various outdoor areas would range from 30.0 dBA (L_{eq}) at the uses represented by receptor location R5 to 62.9 dBA (L_{eq}) at the uses represented by receptor location R3. With the addition of noise generated by use of the Project's outdoor gathering spaces, the resulting noise levels would be below

Table IV.G-17
Estimated Noise Levels from Outdoor Spaces

Receptor Location	Existing Ambient Noise Levels (dBA (L_{eq}))	Estimated Noise Levels from Outdoor Spaces (dBA (L_{eq}))	Ambient + Project Noise Levels (dBA (L_{eq}))	Significance Threshold[a]	Exceedance Over Significance Threshold	Significant Impact?
R1	65.4	53.7	65.7	70.4	0.0	No
R2	66.9	48.6	67.0	71.9	0.0	No
R3	62.9	62.9	65.9	67.9	0.0	No
R4	55.1	52.3	56.9	60.1	0.0	No
R5	61.9	30.0	61.9	66.9	0.0	No
R6	64.5	60.7	66.0	69.5	0.0	No
R7	56.7	48.3	57.3	61.7	0.0	No

[a] *Significance thresholds are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.G-6 on page IV.G-22) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance thresholds, a potentially significant noise impact is identified.*

Source: AES, 2024. See Operation Noise Calculations provided in Appendix G of this Draft EIR.

the significance criterion of 5 dBA (L_{eq}) above ambient noise levels (based on the lowest measured ambient noise level) at all off-site receptor locations. **As such, the Project's noise impact from the use of the outdoor spaces would be less than significant.**

Parking Facilities

As discussed in Section II, Project Description, of this Draft EIR, the Project would provide a minimum of 759 vehicular parking spaces and up to 800 spaces. These parking spaces would be located within a six-level parking garage (with 415 parking spaces) at the east side of the Project Site and up to 344 surface parking spaces at the interior of the Project Site. Sources of noise within the parking facilities would primarily include vehicular movements and engine noise, doors opening and closing, and intermittent car alarms. Noise levels within the parking facilities would fluctuate with the amount of automobile and human activity. The parking levels within the parking garage would be shielded from off-site sensitive receptor locations to the north, south, and west, based on the Project building layout. In addition, the surface parking level would be located at the interior of the building and would be shielded to the off-site sensitive receptors.

Table IV.G-18 on page IV.G-43 presents the estimated noise levels at the off-site sensitive receptors resulting from the parking facilities. As presented in Table IV.G-18, the estimated noise levels from the parking operations would range from 17.4 dBA (L_{eq}) at the uses represented by receptor location R5, to 46.2 dBA (L_{eq}) at the uses represented by

Table IV.G-18
Estimated Noise Levels from Parking Facilities

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Parking Operation, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceedance Over Significance Threshold	Significant Impact?
R1	65.4	27.6	65.4	70.4	0.0	No
R2	66.9	30.4	66.9	71.9	0.0	No
R3	62.9	46.2	63.0	67.9	0.0	No
R4	55.1	30.9	55.1	60.1	0.0	No
R5	61.9	17.4	61.9	66.9	0.0	No
R6	64.5	39.9	64.5	69.5	0.0	No
R7	56.7	34.0	56.7	61.7	0.0	No

[a] *Significance thresholds are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.G-6 on page IV.G-22) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance thresholds, a potentially significant noise impact is identified.*

Source: AES, 2024. See Operation Noise Calculations provided in Appendix G of this Draft EIR.

receptor location R3. The estimated ambient noise levels with the addition of the noise levels generated by the Project's parking operation would be below the significance criterion of 5 dBA (L_{eq}) above ambient noise levels at all off-site receptor locations. **Therefore, noise impacts from parking operations would be less than significant.**

Loading Dock and Trash Compactors

Loading docks and trash compactors would be located within the ground level of the building and mostly be shielded to the off-site sensitive receptors. Noise sources associated with the loading docks/areas and trash collection areas would include delivery/trash collection trucks and operation of the trash compactors. 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 70 dBA (L_{eq}) and 66 dBA (L_{eq}), respectively, at a distance of 50 feet.[52] Table IV.G-19 on page IV.G-44 presents the estimated noise levels at the off-site sensitive receptors resulting from the loading activities and operation of the trash compactor. As presented in Table IV.G-19, the estimated noise levels from the loading and trash compactors would range from 30.9 dBA (L_{eq}) at the uses represented by receptor location R5 to 60.6 dBA (L_{eq}) at the uses represented by receptor location R3. The estimated ambient noise levels with the addition of the noise levels generated by the Project's loading activities and trash compactors would be below the

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

Table IV.G-19
Estimated Noise Levels from Loading Dock and Trash Compactors

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Loading Dock and Trash Compactors Operation, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceedance Over Significance Threshold	Significant Impact?
R1	65.4	41.5	65.4	70.4	0.0	No
R2	66.9	44.2	66.9	71.9	0.0	No
R3	62.9	60.6	64.9	67.9	0.0	No
R4	55.1	38.2	55.2	60.1	0.0	No
R5	61.9	30.9	61.9	66.9	0.0	No
R6	64.5	54.5	64.9	69.5	0.0	No
R7	56.7	41.7	56.8	61.7	0.0	No

[a] *Significance thresholds are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.G-6 on page IV.G-22) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance thresholds, a potentially significant noise impact is identified.*

Source: AES, 2024. See Operation Noise Calculations provided in Appendix G of this Draft EIR.

significance criterion of 5 dBA (L_{eq}) above ambient noise levels at all off-site receptor locations. **Therefore, noise impacts from loading dock and trash compactor operations would be less than significant.**

Studio-Related Production

The Project would include sound stages and related production and production support activities. Due to industry requirements, sound stage shell structures are typically designed with high sound insulation to reduce the exterior noise sources (e.g., traffic, trucks, and helicopter fly over) to the interior, to meet a low noise environment for studio recordings. This is generally achieved by windowless concrete tilt-up walls and concrete ceilings that envelope the stages. Therefore, the sound stage would provide adequate sound insulation to ensure that any noise generated is contained within the sound stages. As a result, sound generation within the interior of the sound stages would be contained within the sound-insulated stage buildings, and noise impacts associated with the operation of sound stages would be less than significant.

Noise sources associated with outdoor studio production activities include, but are not limited to, basecamp activities, setup and takedown of production equipment, construction of sets, loading and unloading of production vehicles, vehicular circulation, and filming activities, etc. Reference noise levels for these activities were measured at an existing

studio.[53] Table IV.G-20 on page IV.G-46 presents the estimated noise levels at the off-site sensitive receptors resulting from the outdoor studio production.

As presented in Table IV.G-20, the estimated noise levels from the outdoor studio production would range from 25.8 dBA (L_{eq}) at the uses represented by receptor location R5 to 50.6 dBA (L_{eq}) at the uses represented by receptor location R3, which would be below the existing ambient noise levels. The estimated ambient noise levels with the addition of the noise levels generated by the outdoor studio production activities would be below the significance criterion of 5 dBA (L_{eq}) above ambient noise levels at all off-site receptor locations. **Therefore, noise impacts from the outdoor studio productions would be less than significant.**

(ii) Off-Site Mobile Noise Sources

Future Plus Project Mobile Noise

Future roadway noise levels were calculated along 13 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 I of this Draft EIR.

As discussed in the Transportation Assessment, the Project is expected to generate a net 4,288 daily trips, increasing the 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 the operation of the Project. Table IV.G-21 on page IV.G-47 provides a summary of the roadway noise impact analysis. The noise levels experienced along the 13 analyzed roadway segments are conservative as the calculated CNEL levels are used and do not account for the presence of any physical sound barriers or intervening structures.

As shown in Table IV.G-21, the Project would result in a maximum increase of up to 2.4 dBA (CNEL) in traffic noise along the roadway segment of Mill Street (between 6th Street and 7th Street). At other analyzed roadway segments, the increase in traffic-related noise levels would be 1.2 dBA or lower. The increase in traffic noise levels along analyzed roadway segments would be considered negligible and well below the 5-dBA CNEL significance criterion, which is applicable to noise levels that fall within the conditionally acceptable land use category (i.e., between 60 and 70 dBA CNEL). **Therefore, traffic noise impacts under Future Plus Project conditions would be less than significant.**

[53] *City of Los Angeles, TVC 2050 Project Final EIR, Appendix FEIR-16, 2023.*

Table IV.G-20
Estimated Noise Levels from Outdoor Studio Production Activities

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Studio Outdoor Production, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceedance Over Significance Threshold	Significant Impact?
R1	65.4	33.0	65.4	70.4	0.0	No
R2	66.9	34.3	66.9	71.9	0.0	No
R3	62.9	50.6	63.1	67.9	0.0	No
R4	55.1	34.7	55.1	60.1	0.0	No
R5	61.9	25.8	61.9	66.9	0.0	No
R6	64.5	49.1	64.6	69.5	0.0	No
R7	56.7	39.9	56.8	61.7	0.0	No

[a] *Significance thresholds are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.G-6 on page IV.G-22) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance thresholds, a potentially significant noise impact is identified.*

Source: AES, 2024. See Operation Noise Calculations provided in Appendix G of this Draft EIR.

Existing Plus Project Mobile Noise

The analysis of traffic noise impacts provided above for Future plus Project conditions was based on the incremental increase in traffic noise levels attributable to the Project as compared to Future Without Project conditions. An additional analysis was performed to determine the potential noise impacts based on the increase in noise levels due to Project-related traffic compared with the existing baseline traffic noise conditions.

As shown in Table IV.G-22 on page IV.G-48, when compared with existing conditions, the Project would result in a maximum increase of up to 2.5 dBA (CNEL) in traffic noise along the roadway segment of Mill Street (between 6th Street and 7th Street). At other analyzed roadway segments, the increase in traffic-related noise levels would be 1.3 dBA or lower. The increase in traffic noise levels along the analyzed roadway segments would be well below the 5-dBA CNEL significance criterion, which is applicable to noise levels that fall within the conditionally acceptable land use category (i.e., between 60 and 70 dBA CNEL). **Therefore, traffic noise impacts under Existing Plus Project conditions would be less than significant.**

Table IV.G-21
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		
Alameda Street					
Between 4th St. and 6th St.	Residential	69.9	70.0	0.1	No
Between 6th St. and 7th St.	Residential (future)	69.6	69.7	0.1	No
Between 7th St. and 8th St.	Commercial	68.6	68.8	0.2	No
Mill Street					
Between 6th St. and 7th St.	Residential (future)	55.3	57.7	2.4	No
Mateo Street					
Between 4th St. and 6th St.	Residential	64.2	64.4	0.2	No
Between 6th St. and 7th St.	Residential	63.6	64.8	1.2	No
Between 7th St. and 8th St.	Residential (future)	64.4	65.3	0.9	No
6th Street					
Between Central Ave. and Alameda St.	Commercial	68.6	68.7	0.1	No
Between Alameda St. and Mateo St.	Residential	68.8	69.3	0.5	No
Between Mateo St. and Santa Fe Ave.	Commercial	68.9	69.6	0.7	No
7th Street					
Between Central Ave. and Alameda St.	Residential	68.9	69.0	0.1	No
Between Alameda St. and Mateo St.	School	68.7	69.1	0.4	No
Between Mateo St. and Santa Fe Ave.	Residential	68.8	69.3	0.5	No

[a] *See Off-Site Traffic Noise Calculations for Future No Project Conditions and Future Plus Project Conditions provided in Appendix G of this Draft EIR.*

Source: AES, 2024.

Table IV.G-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	Existing Plus Project		
Alameda Street					
Between 4th St. and 6th St.	Residential	69.7	69.8	0.1	No
Between 6th St. and 7th St.	Residential (future)	69.4	69.6	0.2	No
Between 7th St. and 8th St.	Commercial	68.4	68.6	0.2	No
Mill Street					
Between 6th St. and 7th St.	Residential (future)	55.1	57.6	2.5	No
Mateo Street					
Between 4th St. and 6th St.	Residential	64.0	64.2	0.2	No
Between 6th St. and 7th St.	Residential	63.4	64.7	1.3	No
Between 7th St. and 8th St.	Residential (future)	64.2	65.2	1.0	No
6th Street					
Between Central Ave. and Alameda St.	Commercial	68.4	68.5	0.1	No
Between Alameda St. and Mateo St.	Residential	68.5	69.1	0.6	No
Between Mateo St. and Santa Fe Ave.	Commercial	68.6	69.3	0.7	No
7th Street					
Between Central Ave. and Alameda St.	Residential	68.8	68.8	0.0	No
Between Alameda St. and Mateo St.	School	68.6	69.0	0.4	No
Between Mateo St. and Santa Fe Ave.	Residential	68.7	69.1	0.4	No

[a] *See Off-Site Traffic Noise Calculations for Future No Project Conditions and Future Plus Project Conditions provided in Appendix G of this Draft EIR.*

Source: AES, 2024.

(iii) Composite Noise Level Impacts from Project Operations

In addition to considering the potential noise impacts to neighboring noise-sensitive receptors from each specific on-site and off-site noise source (e.g., mechanical equipment, outdoor areas, parking, loading and trash compactors, outdoor studio production, and off-site traffic), an evaluation of potential composite noise level increases (i.e., noise levels from all Project-related noise sources combined) at the analyzed sensitive receptor locations was also performed. This evaluation of composite noise levels from all Project-related noise sources, which was 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.G-23 on page IV.G-50 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.G-23, the Project would result in an increase in composite noise levels ranging from 0.3 dBA at the uses represented by receptor location R2 to 2.5 dBA at the uses represented by receptor location R3. The composite noise level from Project operation at off-site receptor locations, R1, R2, R3 and R6 would be below the 3-dBA significance criterion as the Ambient Plus Project Composite noise level falls within the normally unacceptable (70 to 75 CNEL) range for the residential and hotel land use categories. In addition, the composite noise levels from Project operation at off-site receptor locations R4, R5 and R7 would be below the 5-dBA significance criterion as the ambient plus Project composite noise levels fall within the conditionally acceptable (60 to 70 CNEL) range for the residential and hotel land use categories. As such, composite noise level impacts due to Project operations would be less than significant.

Based on the above, Project operations would not result in the substantial permanent increase in ambient noise levels in the vicinity of the Project Site in excess of standards established in the City's Noise Element or Noise Ordinance, or applicable standards of other agencies. **Therefore, the Project's operational noise impacts from on- and off-site sources would be less than significant.**

Table IV.G-23
Composite Operational Noise Impacts

Receptor Location	Existing Ambient Noise Levels (CNEL (dBA))	Calculated Project-Related Noise Sources (CNEL (dBA))						Project Composite Noise Levels (CNEL (dBA))	Ambient Plus Project Composite Noise Levels (CNEL (dBA))	Increase in Noise Levels due to Project (CNEL (dBA))	Signifi-cance Threshold[a] (CNEL (dBA))	Significant Impact?
		Traffic	Mechanical	Outdoor Spaces	Parking	Loading	Outdoor Studio Production					
R1	71.9	58.5	53.2	57.8	34.3	45.8	39.7	61.9	72.3	0.4	74.9	No
R2	73.3	60.2	50.2	52.7	37.1	50.9	41.0	61.7	73.6	0.3	76.3	No
R3	70.1	48.7	62.1	67.0	47.1	60.7	52.9	69.1	72.6	2.5	73.1	No
R4	60.8	40.1	55.7	56.4	37.6	44.9	41.4	59.4	63.2	2.4	65.8	No
R5	69.0	58.4	32.8	34.1	24.1	37.6	32.5	58.5	69.4	0.4	74.0	No
R6	72.4	47.4	65.3	64.8	46.6	61.2	55.8	69.1	74.1	1.7	75.4	No
R7	62.6	45.4	49.0	52.4	40.7	48.4	46.6	56.2	63.5	0.9	67.6	No

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

Source: AES, 2024. See Operations Noise Calculations provided in Appendix G of this Draft EIR.

(2) Mitigation Measures

(a) On-Site Construction Noise

As analyzed above, construction of the Project would have the potential to result in significant noise impacts at sensitive receptor locations from on-site construction activities. Therefore, the following mitigation measure is provided to reduce 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 north property line of the Project Site between the construction areas and the residential uses along the north side of 6th Street (receptor locations R1 and R2). The temporary sound barrier shall be designed to provide a minimum 11-dBA noise reduction at the ground level of receptors R1 and R2.
- Along the eastern property line of the Project Site between the construction areas and the potential future residential uses along the east side of Mill Street (receptor location R3), the temporary sound barrier shall be designed to provide a minimum 14-dBA noise reduction at the ground level of receptor location R3. In the event the proposed mixed-use conversion at receptor location R3 is not completed and occupied prior to or during Project construction, this mitigation measure shall not be required because impacts on the existing (i.e., non-residential non-sensitive use) would be less than significant without mitigation.
- In the event the proposed mixed-use development at receptor location R6 is completed and occupied prior to or during the course of Project construction - Along the southern property line of the Project Site between the construction areas and the potential future residential uses adjacent to the Project Site to the south, the temporary sound barrier shall be designed to provide a minimum 20-dBA noise reduction at the ground level of receptor location R6.
- In the event the proposed mixed-use development at receptor location R6 is not constructed, a temporary sound barrier shall be provided along the southern property line between the Project Site and the recently completed apartments building (AVA Arts District) (receptor location R6A). The temporary sound barrier at this location shall be designed to provide a minimum 11-dBA noise reduction at the ground level of receptor location R6A.
- Along the western property lines of the Project Site between the construction areas and the Produce Hotel Apartments located at the

northeast corner of Central Avenue and 7th Avenue (receptor location R7), the temporary sound barrier shall be designed to provide a minimum 5-dBA noise reduction at the ground level of receptor location R7.

(b) Off-Site Construction Noise

As analyzed above and summarized in Table IV.G-12 on page IV.G-37 and in Table IV.G-13 on page IV.G-38, noise impacts associated with off-site construction traffic, including due to overlapping construction were determined to be less than significant. However, construction of the Project would have the potential to result in significant noise impacts at sensitive receptor locations from off-site utility improvements. Therefore, the following mitigation measure is included to reduce construction-related noise impacts due to off-site improvements:

Mitigation Measure NOI-MM-2: A temporary and impermeable moveable sound barrier shall be provided at the locations listed below. At plan check, building plans shall include documentation prepared by a noise consultant verifying compliance with this measure.

- During construction of the off-site utility connections along Alameda Street, 6th Street, and Mill Street, the Project shall provide a temporary moveable noise barrier between the construction equipment and receptor locations R1, R2, R3, and R6, where feasible. The temporary noise barrier shall be designed to provide a minimum 5-dBA noise reduction at the ground levels of receptor locations R1 and R6, and a 10-dBA noise reduction at the ground level of receptor locations R2 and R3.

(c) Operational Noise

Noise impacts associated with on-site noise sources and off-site traffic during Project operation were determined to be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

(a) On-Site Construction Noise

Implementation of Mitigation Measure NOI-MM-1 provided above would reduce the Project's construction noise levels to the extent feasible. Specifically, implementation of Mitigation Measure NOI-MM-1 (installation of temporary sound barriers) would reduce the noise generated by on-site construction activities at the off-site sensitive uses by a minimum of 11 dBA at receptor locations R1, R2 and R6A, 14 dBA at receptor location R3, 20 dBA at receptor location R6, and a minimum of 5 dBA at receptor location R7.

As presented in Table IV.G-24 on page IV.G-54, the estimated construction-related noise levels at off-site sensitive receptor locations R1, R2, R3, and R7 would be reduced to below a level of significance with implementation of Mitigation Measure NOI-MM-1 at the ground level. The estimated noise levels at receptor location R6 would still exceed the 5-dBA significance threshold with the temporary sound barriers, as the temporary sound barrier would reach a maximum noise reduction of 20 dBA. In addition, the temporary sound barriers would not be effective in reducing the construction-related noise levels for the upper levels of the future multi-story residential buildings located along the east and south sides of Project, represented by receptor locations R3, R6 and R6A (in the event that the mixed-use development at receptor location R6 is not built). In order to be effective, the temporary noise barrier would need to be as high as the building, which would not be feasible (i.e., cost prohibitive and impractical).

Additionally, as previously discussed, the construction phases of the Project would have the potential to overlap. As provided in Table IV.G-25 on page IV.G-55, the estimated construction-related noise levels at receptor location R6 would continue to exceed the 5-dBA significance threshold with implementation of Mitigation Measure NOI-MM-1, due to the limitation of the temporary construction noise barrier. As discussed above, the temporary sound barriers would not be effective in reducing the construction-related noise levels at receptor locations R3 and R6 (or R6A), due to the high elevation of the receptors. There are no other feasible mitigation measures to further reduce the construction noise at receptor locations R3 and R6 (or R6A) to below the significance threshold. **Based on the above, construction noise impacts associated with on-site noise sources would be significant and unavoidable.**

(b) Off-Site Construction Noise

Noise impacts from off-site construction trucks were determined to be less than significant without mitigation. Therefore, no mitigation measures are required or included, and the impact would remain less than significant.

However, as analyzed above, noise impacts associated with the construction of off-site utility connections would be potentially significant. Temporary noise barriers, as specified in Mitigation Measure NOI-MM-2, above, would provide a minimum 5-dBA noise reduction at receptor locations R1 and R6, and 10-dBA noise reductions at receptor locations R2 and R3. As provided in Table IV.G-26 on page IV.G-56, the estimated construction noise levels would be reduced to less than significant at receptor locations R1 and R6. However, noise impacts would remain significant at receptor locations R2 and R3, as the temporary sound barrier for off-site utility construction would be limited to a 10-dBA noise reduction. **Therefore, construction noise impacts associated with the off-site utility connections would be significant and unavoidable.**

Table IV.G-24
Construction Noise Impacts—With Mitigation Measures

Off-Site Receptor Location	Minimum Noise Reduction (decrease) Provided by Mitigation Measures[b] dBA	Estimated Construction Noise Levels by Construction Stage (L_{eq} (dBA))					Existing Daytime Ambient Noise Levels(L_{eq} (dBA))	Significance Criteria (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Criteria (L_{eq} (dBA))	Significant Impact Without Mitigation?
		Demolition	Grading/ Excavation	Foundation	Building Construction	Paving/ Landscape				
R1	11	72.9	69.3	69.5	73.5	72.1	71.1	76.1	0.0	No
R2	11	74.1	70.6	70.9	74.7	73.5	72.4	77.4	0.0	No
R3	14	71.6	68.1	68.4	72.2	71.1	69.9	74.9	0.0	Yes[c]
R4	0	60.3	56.3	56.4	61.1	58.8	58.9	63.9	0.0	No
R5	0	57.9	53.9	54.0	58.8	56.4	68.8	73.8	0.0	No
R6	20	70.5	67.3	67.6	70.7	70.3	64.5	69.5	1.2	Yes[c]
R6A[d]	11	65.9	61.9	62.1	66.7	64.5	64.5	69.5	0.0	Yes[c]
R7	5	60.7	56.6	56.7	61.5	59.1	61.0	66.0	0.0	No

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.G-6 on page IV.G-22) 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.*

[b] *Noise reduction provided by temporary noise barrier along the Project boundaries.*

[c] *Noise barriers would not be effective in reducing the on-site construction noise at the upper levels of receptor locations R3, R6 and R6A. Therefore, on-site construction noise impacts would remain significant and unavoidable. On-site construction noise levels shown for R3 and R6 are for the ground level of the building only.*

[d] *Receptor location R6A represents the newly constructed apartment buildings (AVA Arts District) located south of receptor location R6, approximately 245 feet south of the Project Site. The estimated noise levels assumed the proposed mixed-use development (represented by receptor location R6) is not built during Project construction.*

Source: AES, 2024. See Appendix G of this Draft EIR.

Table IV.G-25
Construction Noise Impacts—Overlapping Construction with Mitigation Measures

Off-Site Receptor Location	Minimum Noise Reduction Provided by Mitigation Measures[b] dBA	Estimated Construction Noise Levels by Construction Stage (L_{eq} (dBA))				Existing Daytime Ambient Noise Levels(L_{eq} (dBA))	Significance Criteria (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Criteria (L_{eq} (dBA))	Significant Impact Without Mitigation?
		Demolition & Grading/ Excavation	Grading/ Excavation & Foundation	Foundation & Building Construction	Building Construction & Paving/ Landscape				
R1	11	74.5	72.4	75.0	75.9	71.1	76.1	0.0	No
R2	11	75.7	73.8	76.2	77.2	72.4	77.4	0.0	No
R3	14	73.2	71.3	73.7	74.7	69.9	74.9	0.0	Yes[c]
R4	0	61.8	59.4	62.4	63.1	58.9	63.9	0.0	No
R5	0	59.4	57.0	60.0	60.8	68.8	73.8	0.0	No
R6	20	72.2	70.5	72.4	73.5	64.5	69.5	4.0	Yes[c]
R6A	11	67.4	65.0	68.0	68.7	64.5	69.5	0.0	Yes[c]
R7	5	62.1	59.7	62.7	63.5	61.0	66.0	0.0	No

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.G-6 on page IV.G-22) 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.*

[b] *Noise reduction provided by temporary noise barrier along the Project boundaries.*

[c] *Noise barriers would not be effective in reducing the on-site construction noise at the upper levels of receptor locations R3, R6 and R6A. Therefore, on-site construction noise impacts would remain significant and unavoidable. On-site construction noise levels shown for R3 and R6 are for the ground level of the building only.*

[d] *Receptor location R6A represents the newly constructed apartment buildings (AVA Arts District) located south of receptor location R6, approximately 245 feet south of the Project Site. The estimated noise levels assumed the proposed mixed-use development (represented by receptor location R6) is not built during Project construction.*

Source: AES, 2024. See Appendix G of this Draft EIR.

Table IV.G-26
Off-Site Utility Improvements Construction Noise Levels with Mitigation Measures

Off-Site Receptor Location	Minimum Noise Reduction Provided by Mitigation Measures[b] (dBA)	Estimated Off-Site Utilities Construction Noise Levels (L_{eq} (dBA))	Existing Daytime Ambient Noise Levels (L_{eq} (dBA))	Significance Threshold (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Threshold (L_{eq} (dBA))	Significant Impact With Mitigation?
R1	-5	75.1	71.1	76.1	0.0	No
R2	-10	81.6	72.4	77.4	4.2	Yes
R3	-10	79.7	69.9	74.9	4.8	Yes
R4	0	49.0	58.9	63.9	0.0	No
R5	0	43.5	68.8	73.8	0.0	No
R6	-5	65.3	64.5	69.5	0.0	No
R6A	0	59.4	64.5	69.5	0.0	No
R7	0	57.6	61.0	66.0	0.0	No

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.G-6 on page IV.G-22) 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.*

[b] *Noise reduction provided by temporary noise barrier along the off-site utility connections areas.*

Source: AES, 2024. See Construction Noise & Vibration Calculations provided in Appendix G of this Draft EIR.

(c) Operational Noise

Noise impacts associated with on-site noise sources and off-site traffic during operation of the Project were determined to be less than significant without mitigation. Therefore, no mitigation measures are required or included, and the impacts would remain less than significant.

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 effects of 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. It is noted that impact pile driving methods would not be used during construction of the Project as installation of piles for shoring and foundation would utilize drilling methods to minimize vibration generation.

Vibration impacts associated with potential building damage were evaluated for the nearest off-site buildings to the north, south, east, and west. The assessment of construction vibration provided below for potential building damage due to on-site construction compares the estimated vibration levels generated during construction of the Project to the 0.12-PPV significance criterion for buildings extremely susceptible to vibration damage (applicable to the off-site historic buildings), the 0.3-PPV significance criterion for engineered timber and masonry buildings (applicable to the off-site buildings surrounding the Project Site to the north, east and west), and the 0.5-PPV significance criterion for reinforced-concrete, steel or timber buildings (applicable the future multi-family building south of the Project Site).

Table IV.G-27 on page IV.G-58 provides the estimated ground vibration velocity levels (in terms of inch per second PPV) at the nearest off-site structures, including historic structures, to the Project Site. As indicated in Table IV.G-27, the estimated vibration levels from the construction equipment would be well below the 0.12-PPV building damage criterion for the existing historic buildings located on the north side of 6th Street and south of the Project Site, the 0.3-PPV building damage significance criterion for the residential and commercial buildings to the north, east and west of the Project Site, and the 0.5-PPV building damage criterion of the future multi-family building south of the Project Site. **Therefore, the on-site vibration impacts during construction of the Project, pursuant to the Project applicable significance criteria for building damage, would be less than significant.**

(ii) Human Annoyance Impacts from On-Site Construction

Table IV.G-28 on page IV.G-59 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 criterion for human annoyance. Per FTA guidance, the significance criteria for human annoyance are 72 VdB for residential (receptor locations R1 through R4, R6 and R7) and 75 VdB for school uses (receptor location R5),

Table IV.G-27
Construction Vibration Impacts—Building Damage

Nearest Off-Site Buildings[a]	Approximate Distance Between the Off-Site Buildings and the Construction Equipment (feet)	Estimated Vibration Velocity Levels at the Outside of and Adjacent to the Nearest Off-Site Structures from the Project Construction Equipment (inch/second (PPV))[b]						Significance Criteria (PPV)	Significant Impact?
		Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	25	0.210	0.089	0.089	0.076	0.035	0.003	—	—
1205, 1235, 1269, 1275, 1281, and 1291 E. 6th St. (Historic)	80	0.037	0.0156	0.016	0.013	0.006	<0.001	0.12[c]	No
1309 E 6th St. (Historic)	65	0.050	0.021	0.021	0.018	0.008	<0.001	0.12[c]	No
1340 E 6th St. (Historic)	60	0.057	0.024	0.024	0.020	0.009	0.001	0.12[c]	No
1567 Industrial St. (Historic)	45	0.087	0.037	0.037	0.032	0.015	0.001	0.12[c]	No
Buildings on North Side of E 6th St.	80	0.037	0.016	0.016	0.013	0.006	0.001	0.3[d]	No
Building on East side of Mill St.	60	0.057	0.024	0.024	0.020	0.009	0.001	0.3[d]	No
Multi-Residential Bldg. South of PS	15	0.368	0.156	0.156	0.133	0.061	<0.001	0.5[e]	No
Commercial Bldg. West of PS	130	0.018	0.008	0.008	0.006	0.003	<0.001	0.3[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 25-foot distance.*

[c] *FTA criterion for buildings extremely susceptible to vibration damage.*

[d] *FTA criterion for engineered concrete and masonry buildings.*

[e] *FTA criterion for reinforced-concrete, steel or timber buildings.*

Source: FTA, 2018; AES, 2024. See Construction Noise & Vibration Calculations provided in Appendix G of this Draft EIR.

Table IV.G-28
Construction Vibration Impacts—Human Annoyance

Off-Site Receptor Location	Approximate Distance Between the Off-Site Buildings and the Construction Equipment (feet)	Estimated Vibration Velocity Levels at the Off-Site Sensitive Uses Due to On-Site Construction Equipment Operation[a] (VdB)						Significance Criteria (VdB)	Significant Impact?
		Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	25	94	87	87	86	79	58	--	--
R1	80	79	72	72	71	64	43	72	**Yes**
R2	80	79	72	72	71	64	43	72	**Yes**
R3	60	83	76	76	75	68	47	72	**Yes**
R4	310	61	54	54	53	46	25	72	No
R5	430	57	50	50	49	42	21	75	No
R6	15	99	92	92	91	84	63	72	**Yes**
R6A	245	64	57	57	56	49	28	72	No
R7	580	53	46	46	45	38	17	72	No

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

Source: FTA, 2018; AES, 2024. See Construction Noise & Vibration Calculations provided in Appendix G of this Draft EIR.

assuming there is a minimum of 70 vibration events occurring during a typical construction day. As indicated in Table IV.G-28 on page IV.G-59, the estimated ground-borne vibration levels from construction equipment would be below the significance criteria for human annoyance at off-site sensitive receptor locations R4, R5, R6A, and R7. The estimated ground-borne vibration would exceed the 72 VdB significance threshold at receptor locations R1, R2, R3 and R6. **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 travel between the Project Site and the Santa Monica Freeway (I-10), via Alameda Street. Heavy-duty construction trucks would generate ground-borne vibration as they travel along the Project's anticipated haul route(s). Thus, an analysis of potential vibration impacts using the building damage and human annoyance criteria for ground-borne vibration along the anticipated local haul routes was conducted.

Regarding building damage, based on FTA data, the vibration generated by a typical heavy-duty truck would be approximately 63 VdB (0.00566 PPV) at a distance of 50 feet from the truck.[54] According to 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 that are situated approximately 20 feet from the right-of-way and would be exposed to groundborne vibration levels of approximately 0.022 PPV, as provided in the noise calculation worksheets included in Appendix G of this 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 criterion of 0.12 PPV for buildings extremely susceptible to vibration. **Therefore, vibration impacts with respect to building damage from off-site construction activities (i.e., construction trucks traveling on public roadways) would be less than significant.**

As discussed above, per FTA guidance, the significance criterion for human annoyance is 72 VdB for 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.[55] There are future residential uses along Alameda Street between the Project Site and I-10 Freeway to the south. The future multi-family residential buildings are located approximately 20 feet from the truck travel path. As indicated in the noise calculation

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

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

worksheets included in Appendix G of this Draft EIR, the temporary vibration levels could reach approximately 75 VdB periodically as trucks pass by the residences along Alameda Street, which would exceed the 72-VdB significance threshold for residential uses. **Therefore, potential vibration impacts with respect to human annoyance from construction trucks traveling along the anticipated haul route would be potentially significant**

(iv) Summary of Construction Vibration Impacts

As discussed above, the estimated vibration levels from on-site construction equipment would be below the building damage significance criteria of 0.12 PPV for the off-site historic buildings north and south of the Project Site, the 0.3 PPV for the off-site residential and commercial buildings near the Project Site to the north, east and west, and the 0.5-PPV for the future multi-family building adjacent to the Project Site to the south.

With regard to the human annoyance significance criteria, the estimated vibration levels from on-site construction equipment would be below the human annoyance significance criterion at receptor locations R4, R5, R6A and R7. However, the estimated vibration levels from the on-site construction equipment would exceed the human annoyance significance criteria at receptor locations R1, R2, R3, and R6. **Therefore, vibration impacts from on-site construction activities (pursuant to the significance criteria for human annoyance) would be significant.**

Vibration impacts associated with temporary and intermittent vibration from off-site construction activities (i.e., construction trucks traveling along the anticipated truck routes) would be less than significant with respect to building damage. **However, vibration impacts from off-site construction activities would be significant with respect to the significance criteria for human annoyance along the anticipated truck route, Alameda Street (between the Project Site and the I-10 Freeway).**

(b) Operational Vibration Impacts

As evaluated in the Initial Study prepared for the Project, included as Appendix A of this Draft EIR, the Project would not result in operational vibration impacts due to the proposed land uses and vibration characteristics. As described above, sources of vibration related to operation of the Project would include vehicle circulation, delivery trucks, and building mechanical equipment. As discussed above, it is unusual for vibration from sources, such as rubber-tired buses and trucks to be perceptible, even in locations close to major roads. As such, vehicular-induced vibration, including vehicle circulation within the surface and above-grade parking facilities, would not generate perceptible vibration levels at off-site sensitive uses. Building mechanical equipment installed as part of the Project would include typical commercial-grade stationary mechanical equipment, such as air-condenser units

(mounted at the roof level), that would include vibration-attenuation mounts to reduce vibration transmission to ensure that vibration would not be perceptible at the off-site sensitive receptors. **As such, operation of the Project would not result in the generation of excessive ground-borne vibration levels that would be perceptible in the vicinity of the Project Site. Therefore, vibration impacts associated with operation of the Project would be less than significant.**

(2) Mitigation Measures

(a) *Construction Vibration*

As discussed above, Project vibration levels generated from on-site and off-site construction activities would result in a less than significant impact with respect to building damage. However, as evaluated above, vibration impacts (pursuant to the significance criterion for human annoyance) from on-site construction activities and off-site construction activities (i.e., construction trucks) would be significant. Mitigation measures considered to reduce vibration impacts from construction activities with respect to human annoyance included the installation of a wave barrier, which is typically a trench, or a thin wall made of sheet piles installed in the ground (essentially a subterranean sound barrier to reduce noise). However, wave barriers must be very deep and travel long distances to be effective; therefore, use of such vibration mitigation measures is cost prohibitive for temporary applications, such as construction, and is considered infeasible.[56] Additionally, 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. Furthermore, it would not be feasible to install a wave barrier along the public roadways for the off-site construction vibration impacts, as an open trench would block access to and from the sensitive receptor locations. In addition, the applicant does not have a right to construct a wave barrier on properties they do not own; consequently, the wave barrier would need to be installed on the public sidewalk, which the City would not permit due to disruption of streets and sidewalks. As such, there are no feasible mitigation measures to reduce the potential vibration human annoyance impacts.

(b) Operational Vibration

As discussed above, vibration impacts during operation of the Project would be less than significant. Therefore, no mitigation measures are required.

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

(3) Level of Significance After Mitigation

(a) Construction Vibration

Vibration impacts associated with on-site construction equipment and off-site haul trucks would be less than significant without mitigation with regard to building damage.

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

(b) Operational Vibration

Vibration impacts associated with Project operation were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

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

As summarized in Section VI, Other CEQA Considerations, of this Draft EIR, and evaluated in the Initial Study, included as Appendix A of this Draft EIR, the Project Site is not located within the vicinity of a private airstrip. Therefore, the Project would not expose people residing or working in the Project area to airstrip or excessive airport-related noise levels. **Thus, the Project would have no impact with respect to Thresholds (c).**

e. 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 Draft EIR, 21 related projects have been identified in the vicinity of the Project Site. Noise from the construction of related 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 a substantial distance (greater than 1,000 feet) from the Project Site, the following six related projects are within 1,000 feet of the Project Site:

- Related Project No. 1 (Camden Arts Mixed-Use) is a mixed-use development located at 1525 Industrial Street, adjacent to the Project Site to the south. There are noise sensitive receptors (residential) in the vicinity of Related Project No. 1 and the Project Site, including receptor locations R1, R3, and R7. As analyzed above (see Table IV.G-13 on page IV.G-38), the estimated Project-related construction noise levels at the uses represented by receptor locations R1, R3, and R7 would exceed the significance criteria by up to 10.8 dBA, 13.8 dBA, and 2.5 dBA, respectively. Since Related Project No. 1 has direct line-of-sight to receptor locations R1, R3, and R7, there is a potential for cumulative construction noise impacts to occur at the uses represented by receptor locations R1, R3, and R7 in the event Project construction occurs concurrently with construction of Related Project No. 1.

- Related Project No. 2 is a mixed-use development located at 1340 6th Street, across the Project Site to the east. There are noise sensitive receptors (residential) in the vicinity of Related Project No. 2 and the Project Site, including receptor locations R2 and R6. As analyzed above (see Table IV.G-13 on page IV.G-38), the estimated Project-related construction noise levels at the uses represented by receptor locations R2 and R6 would exceed the significance criteria by up to 10.8 dBA and 24 dBA, respectively. Since Related Project No. 2 has direct line-of-sight to receptor locations R2 and R6, there is a potential for cumulative construction noise impacts to occur at the uses represented by receptor locations R2 and R6 in the event Project construction occurs concurrently with construction of Related Project No. 2.

- Related Project No. 3 is a mixed-use development located at 668 Alameda Street, approximately 220 feet south of the Project Site. There are noise sensitive receptors (residential) located between the Project Site and Related Project No. 3, including the future residential development at receptor location R6. However, Related Project No. 3 is under construction and substantially completed. Therefore, Related Project No. 3 would not contribute to cumulative construction-related noise impacts.

- Related Project No. 4 (Palmetto) is a mixed-use development located at 527 Colyton Street, approximately 740 feet north of the Project Site. There are noise sensitive receptors located between Related Project No. 4 and the Project Site, as represented by receptor locations R1 and R2. However, there are buildings located between Related Project No. 4 and the Project Site, along Palmetto Street, Factory Place, and 6th Street, which would provide shielding of construction-related noise between the two projects. Therefore, the Project would not contribute to cumulative construction-related noise impacts in the event of concurrent construction with Related Project No. 4.

- Related Project No. 5 is a mixed-use development located at 1800 7th Street, approximately 660 feet south of the Project Site. There are noise sensitive receptors located between Related Project No. 5 and the Project Site, as represented by receptor locations R5 and R6. However, there are buildings located between Related Project No. 5 and the Project Site, along Industrial Street and 7th Street, which would provide shielding of construction-related noise between the two projects. Therefore, the Project would not contribute to cumulative construction-related noise impacts in the event of concurrent construction with Related Project No. 5.

- Related Project No. 7 is a mixed-use development located at 676 Mateo Street, approximately 750 feet southeast of the Project Site. There are noise sensitive receptors located between Related Project No. 7 and the Project Site, as represented by receptor location R4. However, there are buildings located between Related Project No. 7 and the Project Site, along Mill Street and Mateo Street, which would provide shielding of construction-related noise between the two projects. Therefore, the Project would not contribute to cumulative construction-related noise impacts in the event of concurrent construction with Related Project No. 7.

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 to the degree reasonably and technically feasible through proposed mitigation measures for each individual related project and compliance with locally adopted and enforced noise ordinances. Based on the above, there would be potential cumulative noise impacts at the nearby sensitive uses (e.g., residential uses) located in proximity to the Project Site and Related Project Nos. 1 and 2, in the event of concurrent construction activities. Because the Project would have a significant and unavoidable impact related to on-site construction noise, the Project's contribution to construction noise impacts would be cumulatively considerable. **As such, the Project's cumulative noise impacts from on-site construction would be significant.**

(ii) Off-Site Construction Noise

Off-site construction haul trucks would have the potential to result in cumulative impacts if the trucks for the related projects and the Project were to utilize the same haul routes. As analyzed above (see Table IV.G-12 and Table IV.G-13 on pages IV.G-37 and IV.G-38), the estimated off-site construction noise levels for the Project would be below the significance thresholds along the anticipated truck routes, including Alameda Street. Any additional number of trucks from the Project and related projects would incrementally increase the noise levels, which would contribute to cumulative impacts. Based on the existing ambient noise levels along the anticipated truck routes, it is estimated that cumulative off-site construction noise impacts could occur (i.e., increase the ambient by 5 dBA or more) if the total truck trips per hour along Alameda Street would exceed 393 truck trips per hour, respectively. Therefore, if the total number of trucks from the Project and related projects were to add up to 394 truck trips per hour along Alameda Street, the estimated noise level from the truck trips plus the ambient would increase the ambient noise levels by 5 dBA and exceed the significance criteria.[57]

Based on a review of the locations of the related projects, there are related projects in the vicinity of the Project Site, including Related Project No. 1 (1525 Industrial Street), Related Project No. 3 (668 Alameda Street), and Related Project No. 19 (2000 8th Street), which could potentially utilize the same truck routes as the Project. As indicated above, Related Project No. 3 is substantially completed and would likely be completed prior to the start of Project construction, which would not contribute to the cumulative truck traffic. Construction trucks associated with Related Project No. 19 would be on Alameda Street, south of 8th Street, of which there are no sensitive uses. Therefore, in order to result in a cumulative off-site construction noise impact, Related Project No. 1 would need to generate 308 truck trips per hour, which would result in a cumulative 394 truck trips (when added to the Project trucks). However, Related Project No. 1 would likely not generate 308 truck trips per hour as Related Project No. 1 has an estimated 51,044 cubic yards of export, which is less than the Project's estimated 75,000 cubic yard of export (with 86 truck trips per hour).[58] Therefore, cumulative noise due to construction truck traffic from the Project and other related projects would not increase the ambient noise levels along the truck route by 5 dBA along Alameda Street. **As such, cumulative noise impacts from off-site construction truck traffic would be less than significant.**

Cumulative impacts due to off-site construction associated with utility improvements could occur if the related projects were to require construction along the same extent of the

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[57] *It is estimated that the noise level along Alameda Street (with 394 truck trips per hour) would be 74.4 dBA, respectively. When added to the existing noise levels (71.1 dBA), the cumulative noise levels would equal to 76.1, which would exceed the ambient noise levels by 5.0 dBA.*

[58] *City of Los Angeles, Industrial Street Lofts Project Sustainable Communities Environmental Analysis, 2017.*

proposed utility improvements for the Project. As described in Section IV.H.1, Public Services—Fire Protection, of this Draft EIR, off-site construction associated with utility improvements could potentially be required along Alameda Street, 6th Street, and Mill Street. Generally, utility improvements such as for the Project are limited to the streets surrounding a particular project site. As such, the related projects located closest to the Project Site could potentially require utility improvements along the same roads as the Project which could potentially result in a cumulative impact. As illustrated in Section III, Environmental Setting, of this Draft EIR, the majority of the related projects are located a substantial distance from the Project Site and do not front along the same roadways as the Project. However, Related Project Nos. 1, 2, and 3 are located adjacent to the Project Site and along the same roadways as the Project Site.

- Related Project No. 1 (Camden Arts Mixed-Use) is a mixed-use development located at 1525 Industrial Street, adjacent to the Project Site to the south, which also fronts along Alameda Street. There are noise sensitive receptors in the vicinity of Related Project No. 1 and the Project Site, including receptor locations R1 and R3, which are located along Alameda Street and Mill Street. As indicated above, the estimated noise levels due to the off-site utility connections associated with the Project would exceed the significance criteria at off-site receptor locations R1, R2, R3, and R6. With incorporation of the Project's mitigation, the estimated construction noise levels would be reduced to less than significant at receptor locations R1 and R6. However, noise impacts would remain significant at receptor locations R2 and R3. Therefore, in the event construction of Related Project No. 1 requires utility improvements along the surrounding streets and such improvements occur during the same time as the Project, the noise levels could potentially combine with the Project to result in a potentially significant cumulative impact.

- Related Project No. 2 is located at 1340 East 6th Street, across the Project Site to the east and along Mill Street, and involves the conversion of an existing building into a mixed-use building. There are noise sensitive receptors (residential) in the vicinity of Related Project No. 2 and the Project Site, including receptor locations R2 and R6. However, since Related Project No. 2 would involve the conversion of an existing building it is not anticipated that this related project would require off-site utility improvements since the building is already currently served by existing utilities and the related project would merely convert the existing space within the building.[59] Therefore, it is not anticipated that Related Project No. 2 could combine with the Project to result in cumulative impacts due to off-site construction associated with utility improvements.

- Related Project No. 3 is a mixed-use development located at 668 Alameda Street, approximately 220 feet south of the Project Site. There are noise sensitive

[59] *City of Los Angeles. Los Angeles City Planning. Case Summary and Documents: https://planning.lacity.gov/pdiscaseinfo/search/casenumber/ZA-2018-3405-ZAD-SPR, accessed July 15, 2024.*

receptors (residential) located between the Project Site and Related Project No. 3, including the future residential development at receptor location R6. However, Related Project No. 3 is under construction and substantially completed. Therefore, Related Project No. 3 would likely be completed prior to the start of Project construction; as such, any potential utility work along the roadways surrounding the Project Site would have already been completed, and this related project would not contribute to cumulative construction-related noise impacts.

(iii) Summary of Cumulative Construction Noise Impacts

As discussed above, on-site and off-site (utility improvement) construction activities from the Project and related projects have the potential to result in the temporary generation of noise levels in excess of standards established by the City. **Therefore, cumulative noise impacts from on-site and off-site construction activities would be significant.**

(b) Operational Noise

The Project Site and surrounding area have been developed with uses that have previously generated, and would 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 equipment, such as rooftop mechanical equipment, noise levels from stationary sources would be less than significant at the property line for each related project. In addition, as discussed above, noise impacts associated with operations within the Project Site would be less than significant. **Therefore, based on the distance of the related projects from the Project Site, mandatory compliance with the LAMC, 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 "Cumulative Future Plus Project" conditions to the applicable significance criteria. Cumulative Future Plus Project conditions include traffic volumes from future ambient growth, related projects, and the Project. The calculated traffic noise levels under "Existing" and "Cumulative Future Plus Project" conditions are presented in Table IV.H-29 on page IV.G-70. As shown therein, cumulative traffic volumes would result in increases in noise levels ranging from 0.2 dBA (CNEL) along the roadway segments of 7th Street (between Central Avenue and Alameda Street) to 2.6 dBA (CNEL) along the roadway segment of Mill Street (between 6th Street and 7th Street). The estimated cumulative roadway traffic noise level increases along the analyzed roadway segments would be below the 5-dBA significance criterion (applicable when noise levels fall within the conditionally acceptable land use category, i.e., between 60 and 70 dBA CNEL). **Therefore, cumulative noise impacts due to off-site mobile noise sources associated with the Project, future growth, and related projects would be less than significant.**

(iii) Summary of Cumulative Operational Noise Impacts

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

(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 as related to building damage and 80 feet as related to human annoyance at residential uses). As indicated above, the closest related project, Related Project No. 1, is adjacent to the Project Site to the south. Related Project No. 2 is a conversion project, and likely would not include heavy construction equipment, (i.e., large bulldozer, drill rig, or excavator), generating high vibration levels. Other related projects are located more than 660 feet from the Project Site.

Table IV.H-29
Cumulative Roadway Traffic Noise Impacts

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] (CNEL (dBA))		Increase in Noise Levels due to Project (CNEL (dBA))	Significant Impact?
		Existing Conditions	Future Cumulative Plus Project		
Alameda Street					
Between 4th St. and 6th St.	Residential	69.7	70.0	0.3	No
Between 6th St. and 7th St.	Residential (future)	69.4	69.7	0.3	No
Between 7th St. and 8th St.	Commercial	68.4	68.8	0.4	No
Mill Street					
Between 6th St. and 7th St.	Residential (future)	55.1	57.7	2.6	No
Mateo Street					
Between 4th St. and 6th St.	Residential	64.0	64.4	0.4	No
Between 6th St. and 7th St.	Residential	63.4	64.8	1.4	No
Between 7th St. and 8th St.	Residential (future)	64.2	65.3	1.1	No
6th Street					
Between Central Ave. and Alameda St.	Commercial	68.4	68.7	0.3	No
Between Alameda St. and Mateo St.	Residential	68.5	69.3	0.8	No
Between Mateo St. and Santa Fe Ave.	Commercial	68.6	69.6	1.0	No
7th Street					
Between Central Ave. and Alameda St.	Residential	68.8	69.0	0.2	No
Between Alameda St. and Mateo St.	School	68.6	69.1	0.5	No
Between Mateo St. and Santa Fe Ave.	Residential	68.7	69.3	0.6	No

[a] *See Off-Site Traffic Noise Calculations for Future No Project Conditions and Future Plus Project Conditions provided in Appendix G of this Draft EIR.*

Source: AES, 2024.

The nearest off-site historic structure is located at 1567 Industrial Street, which is adjacent to both the Project Site and Related Project No. 1. As analyzed above, (see Table IV.G-27 on page IV.G-58), the estimated Project-related construction vibration levels at the 1567 Industrial Street building would be below the 0.12-PPV significance threshold. In addition, the estimated vibration levels at the 1567 Industrial Street building from Related Project No. 1 would be 0.089 PPV. **Therefore, cumulative construction vibration impacts with respect to building damage associated with on-site construction would be less than significant.**

There are no sensitive receptor locations within 80 feet of both the Project Site and the related projects. **Therefore, based on distance attenuation, potential cumulative vibration impacts associated with on-site construction with respect to human annoyance from the Project and the related projects would be less than significant.**

(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 (0.00566 PPV) at a distance of 50 feet from the truck.[60] 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 truck routes for the Project (i.e., Alameda Street). 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 groundborne vibration levels. Therefore, the vibration levels generated from off-site construction trucks associated with the Project and other related projects along the anticipated truck route(s) would be below the most stringent building damage significance criterion 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 truck route(s) would be potentially significant with respect to human annoyance. As Related Project No. 1 could use similar trucks and the same haul route(s) as the Project, it is anticipated that construction trucks would generate similar vibration levels along Alameda Street. As analyzed above, there are sensitive uses (i.e., residential) along Alameda Street, where temporary vibration levels could reach 75 VdB as the trucks pass by within 20 feet of the sensitive receptors. **Therefore, to the extent that Related Project No. 1 uses the same haul route as the Project, potential cumulative vibration impacts with respect to**

[60] *FTA, Transit Noise and Vibration Impact Assessment, September 2018, Figure 5-w4.*

human annoyance associated with temporary and intermittent vibration from haul trucks used by the Project and related projects would be potentially 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. 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, and impacts would be less than significant**.

Cumulative construction vibration impacts from on-site construction activities with respect to human annoyance would be less than significant. **However, to the extent that other related projects use the same haul route as the Project, potential cumulative human annoyance impacts associated with temporary and intermittent vibration from haul trucks traveling along the designated haul route would be potentially significant.**

(d) Operational Vibration

Vibration levels from project operation are generally limited to building mechanical equipment and vehicle circulation and would be limited to the immediate vicinity of the project sites. The related projects (mixed-use and commercial developments) would generate similar vibration levels as the Project. The nearest related project is located adjacent to the Project Site and is located approximately 50 feet from the nearest sensitive receptor, the future residential use located at 668 Alameda Street. However, this receptor is located approximately 220 south of the Project Site. Since ground-borne vibration decreases rapidly with distance, operation of the Project would not contribute to cumulative vibration impacts due to the distance between the Project and the nearest sensitive receptor. As analyzed above, the Project operation would not result in the generation of excessive ground-borne vibration levels that would be perceptible in the vicinity of the Project Site. **Therefore, based on the distance of the related projects from the Project Site and sensitive receptors 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 (e.g., residential uses) located in proximity to the Project Site and Related Project No. 1 and Related Project No. 2 in the event of concurrent construction activities. Similar to the Project, 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. However, beyond these temporary noise barriers, there are no other physical mitigation measures that may be feasible.

As analyzed above, cumulative noise impacts associated with off-site construction trucks from the Project and other related projects would be less than significant. As such no mitigation measures are required.

(b) Operational Noise

As discussed above, operation of the Project and related projects would result in a less-than-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. Therefore, no mitigation measures are required.

Cumulative construction vibration impacts from on-site construction activities with respect to human annoyance would be less than significant. However, vibration levels from off-site construction trucks would exceed the significance criterion for human annoyance at vibration sensitive receptors along the anticipated haul routes. There are no feasible mitigation measures to reduce the potential vibration human annoyance impacts.

(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

The Project's proposed mitigation measures would reduce the Project's contribution to on-site cumulative noise to the extent feasible. However, even with these mitigation measures, cumulative noise impacts would continue to occur, and there are no other physical mitigation measures that would be feasible. Because the Project would have a significant and unavoidable impact related to construction noise and contribute to the number of truck trips that would generate noise level increases exceeding the 5-dBA significance criterion, the Project's contribution to construction noise impacts would be cumulatively considerable. Therefore, cumulative construction noise impacts associated with on-site noise sources and off-site construction traffic would be significant and unavoidable.

(b) Operational Noise

Cumulative impacts related to operational noise were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

(c) Construction Vibration

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

With respect to human annoyance, cumulative vibration impacts from off-site construction would be significant and unavoidable. Impacts would be temporary, intermittent, and limited to daytime hours when haul trucks are traveling within 20 feet of a sensitive receptor.

(d) Operational Vibration

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