IV. Environmental Impact Analysis
G. Noise

1. Introduction

This section of the Draft EIR analyzes potential noise and vibration impacts of the Project. Included in this section is a description of the existing noise environment within the Project Site area, an estimation of future noise and vibration levels at surrounding sensitive land uses associated with construction and operation of the Project, a description of the potential significant impacts, and the inclusion of mitigation measures to address any identified potential significant impacts. Additionally, this section of the Draft EIR evaluates the Project's incremental contribution to potential cumulative noise and vibration impacts resulting from past, present, and probable future projects. This section summarizes the noise and vibration information analyses provided in the Noise Calculation Worksheets included in Appendix G of this Draft EIR.

2. Environmental Setting

Due to the technical nature of noise and vibration impacts, a brief overview of basic noise principles and descriptors is provided below, followed by a discussion of the regulatory framework and the environmental setting.

a. Noise and Vibration Fundamentals

(1) Noise Principles and Descriptors

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air). Noise is generally defined as undesirable (i.e., loud, unexpected, or annoying) sound. Acoustics is defined as the physics of sound and addresses its propagation and control.[1] In acoustics, the fundamental scientific model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of the noise perceived by the receiver.

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

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement and reflects the way people perceive changes in sound amplitude.[2] The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 and 140 dB corresponding to the thresholds of feeling and pain, respectively. Pressure waves traveling through air exert a force registered by the human ear as sound.[3]

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all of the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.[4]

The typical human ear is not equally sensitive to the frequency range from 20 to 20,000 Hz. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted decibels (dBA), which is typically applied to community noise measurements.[5] Examples of various sound levels in different environments are shown in Figure IV.G-1 on page IV.G-3.

(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,

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[2] *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.*

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

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

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

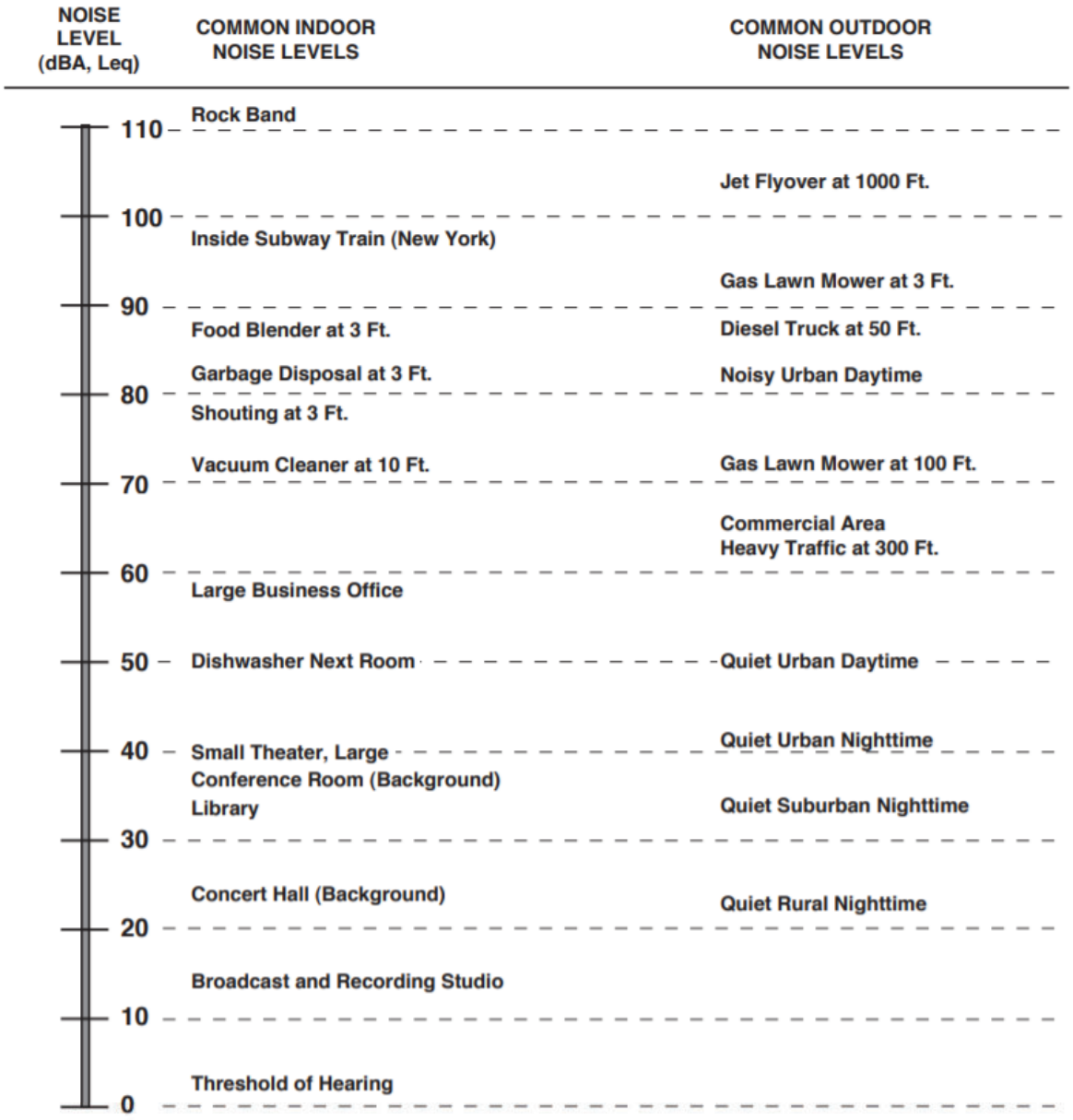

Figure IV.G-1
Decibel Scale and Common Noise Sources

Source: California DOT, September, 2013..

which constitute a relatively stable background noise exposure, with many unidentifiable individual contributors. Single-event noise sources, such as aircraft flyovers, sirens, etc., may cause sudden changes in background noise level.[6] However, generally, background noise levels change gradually throughout the day, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume.

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

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

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

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

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

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

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

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

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

(3) Effects of Noise on People

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

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

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

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

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

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

noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:[9]

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

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

(4) Noise Attenuation

When noise propagates over a distance, the noise level reduces, or attenuates, with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g., air conditioner) or idling vehicle (e.g., bulldozer), is 6 dBA per doubling of distance from the noise source to the receptor over acoustically "hard" sites and 7.5 dBA per doubling of distance from the noise source to

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

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

the receptor over acoustically "soft" sites.[11] Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance).[12] For example, an outdoor condenser fan that generates a sound level of 60 dBA at a distance of 50 feet from a point source at an acoustically hard site would attenuate to 54 dBA at a distance of 100 feet from the point source and attenuate to 48 dBA at 200 feet from the point source.

Roadways and highways consist of several localized noise sources on a defined path, and, hence, are treated as "line" sources, which approximate the effect of several point sources.[13] Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading."[14] Line sources (e.g., traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement.[15] Therefore, noise due to a line source attenuates less with distance than that of a point source with increased distance.

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

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

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

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

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

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

between the source and receiver) to an upper range of 20 dBA with a larger barrier.[16] Additionally, structures with closed windows can further attenuate exterior noise by a minimum of 20 dBA to 30 dBA.[17]

Receptors located downwind from a noise source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels.[18] Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances. Other factors such as air temperature, humidity, and turbulence can, under the right conditions, also have substantial effects on noise levels.[19]

(5) Vibration Fundamentals

Vibration can be interpreted as energy transmitted in waves through the ground or man-made structures, which generally dissipate with distance from the vibration source. Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Since energy is lost during its transfer from one particle to another, vibration becomes less perceptible with increasing distance from the source.

As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual*, groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard.[20] In contrast to airborne noise, groundborne vibration is not a common environmental problem, as it is unusual for vibration from sources such as rubber-tired buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, heavy trucks traveling on rough roads, and certain construction activities, such as blasting, pile-driving, and operation of heavy earth-moving equipment.[21] Groundborne vibration generated by

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

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

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

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

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

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

man-made activities (e.g., road traffic, construction operations) typically weakens with greater horizontal distance from the source of the vibration.

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

Groundborne noise specifically refers to the rumbling noise emanating from the motion of building room surfaces due to the vibration of floors and walls; it is perceptible only inside buildings.[26] The relationship between groundborne vibration and groundborne noise depends on the frequency of the vibration and the acoustical absorption characteristics of the receiving room. For typical buildings, groundborne vibration that causes low frequency noise (i.e., the vibration spectrum peak is less than 30 Hz) results in a groundborne noise level that is approximately 50 decibels lower than the velocity level. For groundborne vibration that causes mid-frequency noise (i.e., the vibration spectrum peak is 30 to 60 Hz), the groundborne noise level will be approximately 35 to 37 decibels lower than the velocity level.[27] Therefore, for typical buildings, the groundborne noise decibel level is lower than the groundborne vibration velocity level at low frequencies.

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

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

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

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

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

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

b. Regulatory Framework

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

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

(1) Federal

(a) Noise Control Act of 1972

Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (USEPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations (CFR) that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, USEPA issued guidance levels for the protection of public health and welfare in residential areas of an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA.[28] These guidance levels are not standards or 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

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

determine and evaluate intrusive noise sources and increases, this document utilizes the City of Los Angeles Noise Regulations, discussed below.

(b) Federal Transit Administration Vibration Standards

There are no federal vibration standards or regulations adopted by any agency that are applicable to evaluating vibration impacts from land use development projects such as the Project. However, the FTA has adopted vibration criteria for use in evaluating vibration impacts from construction activities.[29] The vibration damage criteria adopted by the FTA are shown in Table IV.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 ground-borne noise on the following three off-site land-use categories: Vibration Category 1—High Sensitivity, Vibration Category 2—Residential, and Vibration Category 3—Institutional.[30] The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but that still potentially involve activities that could be disturbed by vibration. The vibration thresholds associated with human annoyance for these three land-use categories are shown in Table IV.G-2 on page IV.G-13. No thresholds have been adopted or recommended for commercial or office uses.

(c) Occupational Safety and Health Act of 1970

Under the Occupational Safety and Health Act of 1970 (29 United States Code [USC] Sections 1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring noise to which workers are

[29] *Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, 2018, Table 7-5, p. 186.*

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

Table IV.G-1
FTA Construction Vibration Impact Criteria for Building Damage

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: Federal Transit Administration, 2018.

exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.[31]

(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 Table IV.G-3 on page IV.G-14,[32] *Guidelines for Noise Compatible Land Use*. The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise levels are divided into four general categories, which vary in range according to land use type: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." The City has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR Guidelines. California Government Code Section 65302 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(f) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise levels are divided into four general

[31] *United States Department of Labor, Occupational Safety and Health Act, 1970.*

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

Table IV.G-2
FTA Vibration Impact Criteria for Human Annoyance

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

[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: Federal Transit Administration, 2018.

categories, which vary in range according to land use type: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." The City has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR Guidelines. California Government Code Section 65302 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(f) requiring a noise element to be included in the general plan. The noise element must identify and appraise noise problems in the community and analyze and quantify current and projected noise levels.

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

(b) Caltrans Vibration/Groundborne Noise Standards

The State of California has not adopted Statewide standards or regulations for evaluating vibration or groundborne noise impacts from land use development projects

Table IV.G-3
Guidelines for Noise Compatible Land Use

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

A = Normally Acceptable: Specified land use is satisfactory, based upon assumption buildings involved are conventional construction, without any special noise insulation.

C = Conditionally Acceptable: New construction or development only after a detailed analysis of the noise mitigation is made and needed noise insulation features included in project design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

N = Normally Unacceptable: New construction or development generally should be discouraged. A detailed analysis of the noise reduction requirements must be made and noise insulation features included in the design of a project.

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

Source: California Department of Health Services (DHS).

such as the proposed Project. Although the State has not adopted any vibration standard, Caltrans in its *Transportation and Construction Vibration Guidance Manual* recommends the vibration thresholds shown in Table IV.G-4 on page IV.G-15. However, FTA guidelines set forth in FTA's *Transit Noise and Vibration Assessment Manuel,* discussed above, are used to evaluate potential impacts related to construction vibration for both potential building damage and human annoyance.

Table IV.G-4
Caltrans Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans, 2013.

(3) Regional

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

In Los Angeles County the Regional Planning Commission has the responsibility for acting as the Airport Land Use Commission (ALUC) and for coordinating the airport planning of public agencies within the county. The ALUC coordinates planning for the areas surrounding public use airports. The Comprehensive Land Use Plan provides for the orderly expansion of Los Angeles County's public use airports and the area surrounding them. It is intended to provide for the adoption of land use measures that will minimize the public's exposure to excessive noise and safety hazards. In formulating the Comprehensive Land Use Plan, the Los Angeles County ALUC has established provisions for safety, noise insulation, and the regulation of building height within areas adjacent to each of the public airports in the County.

(4) Local

(a) Los Angeles Municipal Code

The City of Los Angeles Noise Regulations are provided in Chapter XI of the Los Angeles Municipal Code (LAMC). LAMC Section 111.02 provides procedures and criteria for the measurement of the sound level of "offending" noise sources. In accordance with the LAMC, a noise source that causes a noise level increase of 5 dBA over the existing

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

The LAMC provides that in cases where the actual ambient conditions are not known, the City's presumed daytime (7:00 A.M. to 10:00 P.M.) and nighttime (10:00 P.M. to 7:00 A.M.) minimum ambient noise levels as defined in LAMC Section 111.03 should be used. The presumed ambient noise levels for these areas where the actual ambient conditions are not known as set forth in the LAMC Sections 111.03 are provided in Table IV.G-5 on page IV.G-17. For example, for residential-zoned areas, the presumed ambient noise level is 50 dBA during the daytime and 40 dBA during the nighttime.

LAMC Section 112.02 limits increases in noise levels from air conditioning, refrigeration, heating, pumping and filtering equipment. Such equipment may not be operated in such manner as to create any noise which would cause the noise level on the premises of any other occupied property, or, if a condominium, apartment house, duplex, or attached business, within any adjoining unit, to exceed the ambient noise level by more than 5 dB.

LAMC Section 112.05 sets a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard shall not apply where compliance therewith is technically infeasible.[34] LAMC Section 41.40 prohibits construction between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, 6:00 P.M. and 8:00 A.M. on Saturday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 A.M. to 9:00 P.M.; and Saturdays and National Holidays between 8:00 A.M. to 6:00 P.M.). In general, the City's Department of Building and Safety enforces Noise Ordinance provisions relative to equipment and the Los Angeles Police Department (LAPD) enforces provisions relative to noise generated by people.

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

[34] *In accordance with the City's Noise Ordinances, "technically feasible" means that the established noise limitations can be complied with at a project site, with the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques employed during the operation of equipment.*

Table IV.G-5
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, School, Hospitals, Hotels	50	40
Commercial	60	55
Manufacturing (M1, MR1, and MR2)	60	55
Heavy Manufacturing (M2 and M3)	65	65

Source: LAMC Section 111.03.

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

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

(b) City of Los Angeles General Plan Noise Element

The Noise Element of the City's General Plan policies include the CNEL guidelines for land use compatibility as shown in Figure IV.G-2 on page IV.G-18 and includes a number of goals, objectives, and policies for land use planning purposes. The overall purpose of the Noise Element is to guide policymakers in making land use determinations and in preparing noise ordinances that would limit exposure of citizens to excessive noise levels.[35] The following policies and objectives from the Noise Element apply to the Project.

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

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

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

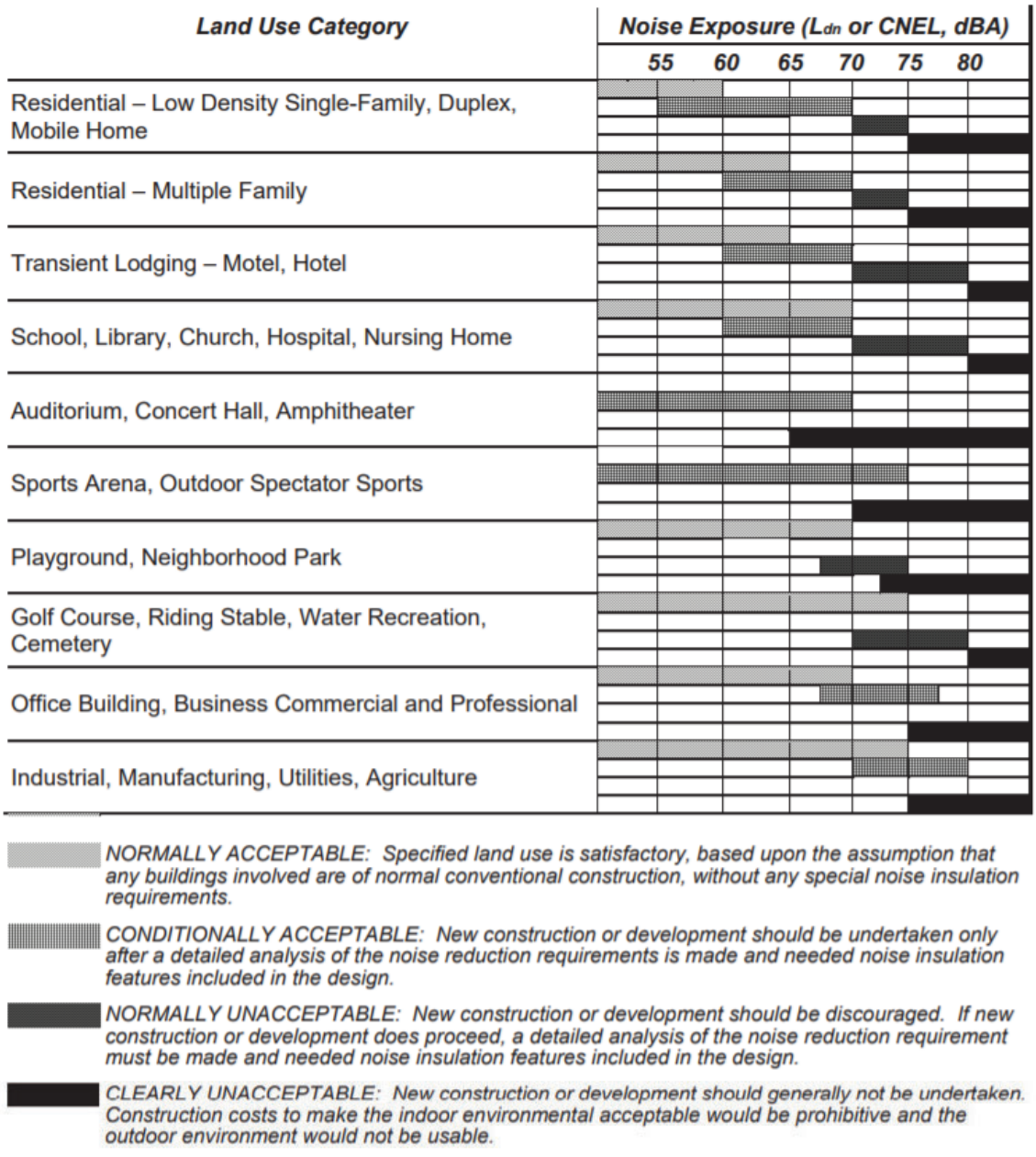

Figure IV.G-2
Guidelines for Noise Compatible Land Use

Source: California DOT, September, 2013..

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

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

Exhibit I of the Noise Element also contains guidelines for noise compatible land uses.[36] Figure IV.G-2 on page IV.G-19 summarizes these guidelines, which are based on OPR guidelines from 1990.

c. Existing Conditions

As discussed in Section II, Project Description, of this Draft EIR, the Project Site is located in a highly urbanized area in the Hollywood Community Plan area of the City of Los Angeles. The proposed 25-story building would be located within the northeast portion of the Project Site (Development Area), which is currently occupied by a surface parking area. The southern and western portions of the Project Site, which contain six existing commercial structures, would remain unchanged. Thus, construction and operation of the Project would occur entirely within the Development Area. The predominant source of noise in the vicinity of the Project Site is vehicular traffic on adjacent roadways, particularly along Cahuenga Boulevard, Sunset Boulevard, Ivar Avenue. and Selma Avenue. Other ambient noise sources in the vicinity of the Project Site include truck traffic, parking lot operations, landscaping activities, and other miscellaneous noise sources associated with typical urban activities.

(1) Noise-Sensitive Receptors

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

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

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

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

Based on a review of the land uses in the vicinity of the Project Site, seven off-site noise receptor locations were selected to represent noise-sensitive uses within 500 feet of the Project Site. These locations represent areas with land uses that could qualify as noise-sensitive uses according to the definition of such uses in the *L.A. CEQA Thresholds Guide* and the General Plan Noise Element. Although recording studio uses are not defined as noise sensitive receptors by the *L.A. CEQA Thresholds Guide*, potential noise impacts at the nearest recording studios, including the Goya Studios located at 1541 Cahuenga Boulevard (represented by receptor location R4) and the Sound Factory located at 6357 Selma Avenue (represented by receptor location R7), were also evaluated for informational purposes only. As discussed below, noise measurements were conducted at seven off-site locations around the Project Site to establish baseline noise conditions in the vicinity of the Project Site. The monitoring locations essentially surround the Project Site and thereby provide representative baseline measurements for uses in all directions. In addition, the monitoring locations provide an adequate basis to evaluate potential impacts at the monitoring locations and receptors beyond in the same direction, as impacts at these receptors would be further reduced due to distance attenuation and intervening building structures. The noise measurement locations are shown in Figure IV.G-3 on page IV.G-21 and described in Table IV.G-6 on page IV.G-22.

(2) Ambient Noise Levels

To establish baseline noise conditions, existing ambient noise levels were monitored at seven off-site receptor locations (identified as receptor locations R1 to R7) that are representative of noise sensitive uses in the vicinity of the Project Site. The baseline noise monitoring program was conducted on February 25, 2021, using a Larson-Davis Model 870 Integrating/Logging Sound Level Meter.[39] Two 15-minute measurement durations were conducted at the seven off-site receptor locations 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

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

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

Figure IV.G-3
Noise Measurement Locations

Source: AES, 2021.

Table IV.G-6
Description of Noise Measurement Locations

Receptor Location	Description	Approximate Distance from Measurement Location to Nearest Project Site Boundary (feet)[a]	Nearest Noise-Sensitive Land Use(s)
R1	Triangle Square Apartments at the northeast corner of Ivar Avenue and Selma Avenue, northeast of the Project Site	120	Residential
R2	Los Angeles Film School at the northeast corner of Ivar Avenue and Sunset Boulevard, southeast of the Project Site.	150	School
R3	Future Hotel use at the northwest corner of Ivar Avenue and Sunset Boulevard, south of the Project Site.	215	Hotel (Future)
R4	Goya Studios on the west side of Cahuenga Boulevard, west of the Project Site. R4 also represents the future hotel use south of the Goya Studio.	140	Recording Studio,[b] Hotel (Future)
R5	Dream Hollywood Hotel on the north side of Selma Avenue, northwest of the Project Site	310	Hotel
R6	Cosmo Lofts on the west side of Cosmo Street, north of the Project Site.	220	Residential
R7	Sound Factory (recording studio) on the north side of Selma Avenue, across from the Project Site to the north. R7 also represents the Ivar Theatre located adjacent to the Sound Factory to the north.	50	Recording Studio,[b] Theater

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

[b] *Recording studio uses are not considered noise sensitive uses by the L.A. CEQA Thresholds Guide. Therefore, the Goya Studios represented by receptor location R4 and the Sound Factory studio represented by receptor location R7 are included in the noise analysis for informational purposes only.*

Source: Acoustical Engineering Services (AES), 2021. See Appendix G of this Draft EIR.

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.[40]

Table IV.G-7 on page IV.G-23 provides a summary of the ambient noise measurements conducted at the seven off-site noise receptor locations. Based on field observations, the ambient noise at the Project measurement locations is dominated by

[40] *LAMC Section 111.01.*

Table IV.G-7
Existing Ambient Noise Levels

Receptor Location	Noise-Sensitive Land Use	Measured Noise Levels, L_{eq} (dBA)		CNEL[b] (24-hour)
		Daytime Hours[a] (7:00 A.M.–10:00 P.M.)	Nighttime Hours[a] (10:00 P.M.–7:00 A.M.)	
R1	Residential	59.8	54.6	62.9
R2	School	65.9	57.3	67.4
R3	Hotel (Future)	63.3	59.1	67.0
R4	Recording Studio, Hotel (Future)	67.0	62.9	70.7
R5	Hotel	65.9	52.1	66.1
R6	Residential	60.9	52.8	62.6
R7	Recording Studio, Theater	59.7	53.2	62.1

[a] *The range of hours for the daytime and nighttime periods shown herein are defined by the LAMC. Daytime ambient noise levels were measured between 10:00 A.M. and 1:00 P.M., and the nighttime ambient noise levels were measured between 10:00 P.M. and 1:00 A.M.*

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

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

local traffic (i.e., Cahuenga Boulevard, Sunset Boulevard, Ivar Avenue, and Selma Avenue) and, to a lesser extent, parking lots, helicopter flyovers, and other typical urban noises. As indicated in Table IV.G-7, the existing daytime ambient noise levels at the off-site noise receptor locations ranged from 59.7 dBA (L_{eq}) at receptor location R7 to 67.0 dBA (L_{eq}) at receptor location R4. The measured nighttime ambient noise levels ranged from 52.1 dBA (L_{eq}) at receptor location R5 to 62.9 dBA (L_{eq}) at receptor location R4. 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 and hotel uses, as presented above in Table IV.G-5 on page IV.G-17.

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

volume data from the Transportation Assessment and Transportation Addendum prepared for the Project.[41] 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 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-8 on page IV.G-25.

Table IV.G-9 on page IV.G-26 provides the calculated CNEL for the analyzed local roadway segments based on existing traffic volumes. As shown therein, the existing CNEL due to surface street traffic volumes ranges from 64.8 dBA CNEL along Selma Avenue (between Cahuenga Boulevard and Ivar Avenue) to 72.4 dBA CNEL along Sunset Boulevard (between Cahuenga Boulevard and Vine Street). Currently, the existing traffic-related noise levels along the roadway segments of Ivar Avenue (between Hollywood Boulevard and De Longpre Avenue) and Selma Avenue (between Cahuenga Boulevard and Vine street) fall within the conditionally acceptable noise levels for residential uses (i.e., between 60 and 70 dBA CNEL). The existing traffic noise levels along Sunset Boulevard (between Cahuenga Boulevard and Vine Street) are between 70 dBA CNEL and 75 dBA CNEL, which are considered normally unacceptable for residential uses.

(3) Existing Ground-Borne Vibration Levels

Based on field observations, the primary source of existing ground-borne vibration in the vicinity of the Project Site is vehicular travel (e.g., standard cars, refuse trucks, delivery trucks, construction trucks, school buses, and buses) on local roadways. According to the FTA technical study "Federal Transit Administration: Transit Noise and Vibration Impacts Assessments," typical road traffic-induced vibration levels are unlikely to be perceptible by people. Specifically, the FTA study reports that "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads."[42] Trucks and buses typically generate ground-borne vibration velocity levels of around

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[41] *The Transportation Assessment includes an addendum that consists of revised VMT Analysis Worksheets (Appendix D of the Transportation Assessment). The worksheet inputs were amended to more accurately account for current conditions with regard to existing floor area that has been vacant for several years. The revised worksheets were reviewed by LADOT and are included as part of LADOT's Assessment Letter dated March 9, 2021. The Transportation Assessment and the Addendum (herein collectively referred to as the Transportation Assessment) are included in Appendix I of this Draft EIR.*

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

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

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

[a] *Medium Truck—Trucks with 2 axles.*

[b] *Heavy Truck—Trucks with 3 or more axles.*

Source: AES, 2020. See Appendix G of this Draft EIR.

63 VdB (at 50 feet distance), and these levels could reach 72 VdB when trucks and buses pass over bumps in the road. Per the FTA, 75 VdB is the dividing line between barely perceptible (with regard to ground vibration) and distinctly perceptible.[43] Therefore, based on information from the FTA, existing ground vibration in the vicinity of the Project Site is generally less than 65 VdB and would be below the perceptible level of 75 VdB. However, ground vibration associated with heavy trucks traveling on road surfaces with irregularities, such as speed bumps and potholes, could reach the perceptible threshold.

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

Table IV.G-9
Existing Roadway Traffic Noise Levels

Roadway Segment	Adjacent Sensitive 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]
Ivar Avenue					
Between Hollywood Blvd. and Selma Ave.	Residential	33	66.0	Yes	Conditionally Acceptable
Between Selma Ave. and Sunset Blvd.	School, Hotel (Future)	33	66.7	Yes	Conditionally Acceptable
Between Sunset Blvd. and De Longpre Ave.	Hotel	33	65.4	Yes	Conditionally Acceptable
Selma Avenue					
Between Cahuenga Blvd. and Ivar Ave.	Studio	33	64.8	Yes	Conditionally Acceptable
Between Ivar Ave. and Vine St.	Residential	33	65.1	Yes	Conditionally Acceptable
Sunset Boulevard					
Between Cahuenga Blvd. and Ivar Ave.	Hotel (Future)	45	72.4	Yes	Normally Unacceptable
Between Ivar Ave. and Vine St.	Residential, School	45	72.4	Yes	Normally Unacceptable

[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 City's land use compatibility as provided in Table IV.G-3 on page IV.G-14.*

Source: AES, 2021.

3. Project Impacts

a. Thresholds of Significance

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

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

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

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

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

As discussed in the Initial Study prepared for the Project, included in Appendix A of this Draft EIR, the Project's potential impact related to a project's location 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 (Threshold (c), was determined to be less than significant and no further analysis was deemed necessary. A summary of the analysis included in the Initial Study is provided below for informational purposes.

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

(1) Construction Noise

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

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

- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA (hourly L_{eq}) or more at a noise-sensitive use; or

- Construction activities of any duration would exceed the ambient noise level by 5 dBA (hourly L_{eq}) at a noise-sensitive use between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, before 8:00 A.M. or after 6:00 P.M. on Saturday, or at any time on Sunday.

As discussed in Section II, Project Description, of this Draft EIR, construction of the Project is anticipated to occur over an approximately 26-month period and be completed in 2025. Since construction activities would occur over a period longer than 10 days for all phases, the corresponding significance criteria used in the construction noise analysis presented in this section of the Draft EIR is an increase in the ambient exterior noise levels by 5 dBA (hourly L_{eq}) or more at a noise-sensitive use.

(2) Operational Noise

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

- The project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category (see Table IV.G-3 on page IV.G-14 for a description of these categories); or

- The project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 5 dBA in CNEL or greater; or

- Project-related operational on-site (i.e., non-roadway) noise sources, such as outdoor building mechanical/electrical equipment, outdoor activities, loading, or parking facilities, increase the ambient noise level (hourly L_{eq}) at noise-sensitive uses by 5 dBA.

The significance criteria used in the noise analysis for on-site operations presented below is an increase in the ambient noise level of 5 dBA (hourly L_{eq}) at the noise-sensitive uses, in accordance with the City's Noise Regulations (LAMC Chapter XI). The Noise Regulations do not apply to off-site traffic (i.e., vehicles traveling on public roadways).[44] Therefore, based on the *L.A. CEQA Thresholds Guide*, the significance criteria 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 for composite noise levels (on-site and off-site sources) is also

[44] *LAMC Section 114.02 B*

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, FTA guidelines set forth in FTA's *Transit Noise and Vibration Assessment*, dated September 2018, are used to evaluate potential impacts related to construction vibration for both potential building damage and human annoyance. The FTA guidelines regarding construction vibration are the most current guidelines and are commonly used in evaluating construction vibration impacts.

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

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

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

- Project construction activities cause ground-borne vibration levels to exceed 72 VdB at off-site residential and hotel uses.
- Project construction activities cause ground-borne vibration levels to exceed 65 VdB at off-site recording studios.

b. Methodology

(1) On-Site Construction Activities

Construction noise impacts due to on-site construction activities associated with the Project were evaluated by calculating the construction-related noise levels at representative sensitive receptor locations and comparing these estimated construction-related noise levels associated with construction of the Project to the existing ambient noise levels (i.e., noise levels without construction noise from the Project). Construction noise associated with the Project was analyzed based on 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)."[45] The ambient noise levels at surrounding sensitive receptor locations were based on field measurement data (see Table IV.G-7 on page IV.G-23). The construction noise levels were then calculated for sensitive receptor locations based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance (as described above in Subsection 2.a(1)(b), Outdoor Sound Propagation). Additional noise attenuation was assigned to receptor locations where the acoustics line of sight to the Project Site was interrupted by the presence of intervening structures.

(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 plus ambient with that of the existing ambient noise levels along the Project's anticipated haul routes.

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

On-site stationary point-source noise impacts were evaluated by: (1) identifying the noise levels that would be generated by the Project's stationary noise sources, such as rooftop mechanical equipment, outdoor activities (e.g., use of the outdoor courtyard),

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

parking facilities, and loading area; (2) calculating the noise level from each noise source at surrounding sensitive receptor property line locations; and (3) comparing such noise levels to ambient noise levels to determine significance. The on-site stationary noise sources were calculated using the SoundPLAN (version 8.2) computer noise prediction model.[46] SoundPLAN is widely used by acoustical engineers as a noise modeling tool for environmental noise analysis.

(4) Off-Site Roadway Noise (Operation)

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

(5) Construction Vibration

Ground-borne vibration impacts due to the Project's construction activities were evaluated by identifying potential vibration sources (i.e., construction equipment), estimating the vibration levels at the potentially affected receptor, and comparing the Project's activities to the applicable vibration significance thresholds, as described below.

(6) Operational Vibration

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

c. Project Design Features

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

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

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

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

NOI-PDF-3: Project construction will not include the use of driven (impact) pile systems.

NOI-PDF-4: Outdoor amplified sound systems, if any, will be designed so as not to exceed the maximum noise level of 75 dBA (L_{eq-1hr}) at a distance of 15 feet from the amplified speaker sound systems at Level 4 amenity deck, and 80 dBA (L_{eq-1hr}) at a distance of 25 feet from the amplified speaker sound systems at Level 25 roof deck. 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

Construction of the Project would commence with demolition/removal of the existing surface parking areas, followed by grading and excavation for the subterranean parking. Building foundations would then be constructed, followed by building construction, paving/concrete installation, and landscape installation. It is estimated that approximately 69,333 cubic yards of export material would be hauled from the Project Site during the demolition and excavation phase. Construction delivery/haul trucks would travel on approved truck routes between the Project Site and the Hollywood Freeway (US-101). Incoming trucks would exit the US-101 onto Gower Street, travel south on Gower Street and west on Selma Avenue to the Project Site. Outgoing trucks would exit the Project Site onto Selma Avenue, head east on Selma Avenue, north on Argyle Avenue, and onto the US-101 south bound on-ramp.

(i) On-Site Construction Noise

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

As provided in Project Design Feature NOI-PDF-1 above, construction equipment will have proper noise muffling devices per the manufacturer's standards. Individual pieces of construction equipment anticipated to be used during construction of the Project could produce maximum noise levels (L_{max}) of 74 dBA to 90 dBA at a reference distance of 50 feet from the noise source, as shown in Table IV.G-10 on page IV.G-34. 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 part power. To more accurately characterize construction-period noise levels, the average noise level (hourly L_{eq}) associated with each construction phase is calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each construction phase.[47] These noise levels are typically associated with multiple pieces of equipment operating on part power, simultaneously.

Table IV.G-11 on page IV.G-35 provides the estimated construction noise levels for various construction phases at the seven off-site noise-sensitive receptor locations. To present a conservative impact analysis, the estimated noise levels were calculated for a scenario in which all pieces of construction equipment were assumed to operate

[47] *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 Equipment Noise Levels

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

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

simultaneously and be located at the construction area nearest to the affected receptors. These assumptions represent the worst-case noise scenario because construction activities would typically be spread out throughout the Project Site, and, thus, some equipment would be farther away from the affected receptors. In addition, the noise modeling assumes that construction noise is constant, when, in fact, construction activities and associated noise levels are periodic and fluctuate based on the construction activities.

As discussed above, since construction activities would occur over a period longer than 10 days for all phases combined, the corresponding significance criteria used in the construction noise analysis is when the construction-related noise exceeds the ambient L_{eq} noise level of 5 dBA at a noise-sensitive use. As indicated in Table IV.G-11 on page IV.G-35, the estimated noise levels during all stages of Project construction would be below the significance threshold at receptors R3, R4 and R5. However, the estimated construction-related noise would exceed the significance criteria at receptor locations R1,

Table IV.G-11
Construction Noise Impacts

Off-Site Receptor Location	Approximate Distance from Receptor to Project Construction Area (feet)	Estimated Construction Noise Levels by Construction Phases (L_{eq} (dBA))					Existing Daytime Ambient Noise Levels (L_{eq} (dBA))	Significance Criteria (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Criteria (L_{eq} (dBA))	Significant Impact Without Mitigation?
		Demo	Grading	Mat Foundation	Building Foundation	Building Construction Paving/ Landscape				
R1	120	78.0	79.5	78.4	78.6	78.2	59.8	64.8	14.7	**Yes**
R2	150	76.1	77.8	76.8	77.3	76.5	65.9	70.9	6.9	**Yes**
R3	215	63.1	65.1	64.0	64.7	63.7	63.3	68.3	0.0	No
R4	140	66.7	68.3	67.3	67.8	67.0	67.0	72.0	0.0	No
R5	310	60.1	62.3	61.2	62.0	60.8	65.9	70.9	0.0	No
R6	220	72.9	74.9	73.9	74.5	73.5	60.9	65.9	9.0	**Yes**
R7	50	85.1	85.8	84.9	85.3	85.0	59.7	64.7	21.1	**Yes**

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.G-7 on page IV.G-23) plus 5 dBA, per the L.A. CEQA Thresholds Guide for construction activities lasting longer than 10 days in a three-month period. If the estimated construction noise levels exceed those significance criteria, a construction-related noise impact is identified.*

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

R2, R6 and R7. The estimated construction-related noise would exceed the significance threshold by a range of 6.9 dBA at receptor location R4 to up to 21.1 dBA at receptor location R7, without implementation of mitigation. **Therefore, the Project's temporary noise impact associated with the Project's on-site construction would be significant without mitigation measures.**

(ii) Off-Site Construction Noise

In addition to on-site construction noise sources, other noise sources may include materials delivery, concrete mixing, and haul trucks (construction trucks), as well as construction worker vehicles accessing the Project Site during construction. Typically, construction trucks generate higher noise levels than construction worker vehicles. The major noise sources associated with off-site construction trucks would be from the delivery/concrete/haul trucks. As described above, construction delivery/haul trucks would travel between the Project Site and the US-101 Freeway via Gower Street, Selma Avenue, and Argyle Avenue.

It is assumed that the peak period of construction with the highest number of construction trucks would occur during the concrete mat foundation phase, which would include 335 concrete trucks (670 truck trips) per day for two days. To provide a conservative analysis, haul truck trips during the grading phase are based on 6 hours of hauling per day. Table IV.G-12 on page IV.G-37 provides the estimated number of construction-related truck trips for the various construction phases, including haul/concrete/material delivery trucks and worker vehicles, and the estimated noise levels along the anticipated truck routes. As indicated in Table IV.G-12, the hourly noise levels generated by construction trucks during all stages of Project construction would be consistent with the existing daytime ambient noise levels along Argyle Avenue and Gower Street, which would be below the significance criteria of 5-dBA increase over the ambient noise level. However, the estimated noise levels from the Project-related construction trucks along Selma Avenue (between Argyle Avenue and the Project Site and between Argyle Avenue and Gower Street would exceed the 5-dBA significance criteria. **Therefore, the Project's temporary noise impacts associated with off-site construction traffic would be significant without mitigation.**

(iii) Summary of Construction Noise Impacts

As discussed above, temporary noise impacts associated with the Project's on-site and off-site construction activities would be significant. **Therefore, without mitigation measures, Project construction activities would result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of significance criteria established by the City.**

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

Construction Phase	Estimated Number of Construction Truck/Worker Trips per Day	Estimated Number of Construction Truck/Worker Trips per Hour[b]	Estimated Truck Noise Levels Plus Ambient Along the Project Truck Routes,[a] (L_{eq} (dBA)) (Project/Project + Ambient)				
			Selma Ave. (between Argyle Ave. and Project Site)	Selma Ave. (between Gower St. and Argyle Ave.)		Gower St.	Argyle Ave.
Demolition	20/44	2/18	58.3/62.1	55.2/61		56.8/69.3	56.8/68.6
Grading	200/52	17/21	66.9/67.7	63.2/64.8		64.8/70.4	64.8/69.9
Mat Foundation	670/132	21/53	68/68.6	64.3/65.6		65.9/70.7	65.9/70.3
Building Construction	80/176	5/71	62.7/64.5	59.9/62.8		61.5/69.7	61.5/69.1
Const./Paving/Landscaping	40/176	3/71	60.7/63.2	58.7/62.2		60.3/69.5	60.3/68.9
Existing Ambient Noise Levels Along the Project Haul Routes, L_{eq} (dBA)[c]			59.7	59.7		69.0	68.3
Significance Criteria, L_{eq} (dBA)[d]			64.7	64.7		74.0	73.3
Significant Impact?			**Yes**	**Yes**		No	No

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

[b] *For construction trucks, the number of hourly trips is based on an hourly average, assuming a uniform distribution of trips over an 8-hour work day. Haul truck trips during grading phase were conservatively based on a 6-hour hauling period per day and concrete trucks for the mat pour are based on 16-hour work day (per pour). For worker vehicles, the number of hourly trips is based on 40 percent of the worker trips that would arrive in one hour to represent a conservative analysis.*

[c] *Ambient noise levels along the truck routes are based on nearby measurements: Selma Avenue is based in measurement at receptor R7, Argyle Avenue, and Gower Street are based on measurements along the roadway segments from the Hollywood Center Project Draft EIR (April 2020).*

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

Source: AES, 2022. See Appendix G of this Draft EIR.

(b) Operational Noise

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

(i) On-Site Stationary Noise Sources

Mechanical Equipment

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

As indicated in Table IV.G-13, the estimated noise levels from the mechanical equipment would range from 36.6 dBA (L_{eq}) at the uses represented by receptor location R7 to 53.2 dBA (L_{eq}) at the uses represented by receptor location R3, which would be below the existing ambient noise levels. As such, the estimated ambient noise levels at all off-site receptor locations with the addition of the Project's mechanical equipment would be below the significance criteria of 5 dBA (L_{eq}) above ambient noise levels (based on the lowest measured ambient). **Therefore, the Project's noise impact from mechanical equipment would be less than significant.**

Outdoor Spaces

As discussed in Section II, Project Description, of this Draft EIR, the Project would include outdoor spaces on Level 4 (amenity deck) and on Level 25 (roof deck). 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

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

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Mechanical Equipment, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Criteria, dBA (L_{eq})[a]	Exceedance over Significance Criteria	Significant Impact?
R1	54.6	37.8	54.7	59.6	0.0	No
R2	57.3	44.2	57.5	62.3	0.0	No
R3	59.1	53.2	60.1	64.1	0.0	No
R4	62.9	40.2	62.9	67.9	0.0	No
R5	52.1	45.3	52.9	57.1	0.0	No
R6	52.8	39.0	53.0	57.8	0.0	No
R7	53.2	36.6	53.3	58.2	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.G-7 on page IV.G-23) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a noise impact is identified.*

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

noise impacts from people gathering at the outdoor spaces.[48] 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. Table IV.G-14 on page IV.G-40 presents the anticipated number of people at each of the outdoor spaces.

An additional potential noise source associated with outdoor spaces would be the use of an outdoor sound system (e.g., music or other sounds broadcast through an outdoor mounted speaker system) at the outdoor spaces. As set forth in Project Design Feature NOI-PDF-4, if an amplified sound system is used in outdoor areas, it would be designed so as not to exceed the maximum noise level of 75 dBA L_{eq} on the Level 4 amenity deck and 80 dBA L_{eq} on the Level 25 roof deck, thereby ensuring that the amplified sound system would not exceed the significance criteria (i.e., an increase of 5 dBA L_{eq}) at any off-site noise-sensitive receptor location.

Table IV.G-15 on page IV.G-41 presents the estimated noise levels at the off-site sensitive receptors resulting from the use of outdoor areas. The estimated noise levels

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

Table IV.G-14
Outdoor Use Analysis Assumptions

Location	Estimated Total Number of People
Level 4—Amenity Deck	481
Level 25—Roof Deck	227

Source: Gensler, 2021; AES, 2021.

were calculated with the assumption that all of the outdoor spaces would be fully occupied pursuant to maximum building code capacity limits and operating concurrently to represent a worst-case noise analysis. As presented in Table IV.G-15 on page IV.G-41, the estimated noise levels from the outdoor spaces would range from 42.8 dBA (L_{eq}) at the uses represented by receptor location R7 to 56.0 dBA (L_{eq}) at the uses represented by receptor location R2. Thus, the estimated ambient noise levels with the addition of the noise levels generated by the Project's outdoor spaces would be below the significance criteria of 5 dBA (L_{eq}) above ambient noise levels at all off-site receptor locations. **As such, the Project's noise impact from the use of the outdoor spaces would be less than significant.**

Parking Facilities

As discussed in Section II, Project Description, of this Draft EIR, the Project would provide 320 vehicular parking spaces within four subterranean parking levels and two fully enclosed above grade parking levels. Sources of noise within the parking levels would primarily include vehicular movements and engine noise, doors opening and closing, and intermittent car alarms. Since the subterranean and above grade parking levels would be fully enclosed on all sides, noise generated within the parking levels would be effectively shielded from off-site sensitive receptor locations in the immediate vicinity of the Project Site. **Therefore, the Project's noise impact from the parking facilities would be less than significant.**

Loading

The Project would include a loading area located inside the building on Level 1. Noise sources associated with the new loading area would include delivery trucks. Based on measured noise levels from typical loading dock facilities could generate noise levels of approximately 71 dBA (L_{eq}) at a distance of 50 feet.[49] Table IV.G-16 on page IV.G-42

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

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

Receptor Location	Existing Ambient Noise Levels (dBA (L_{eq}))	Estimated Noise Levels from Outdoor Uses (dBA (L_{eq}))	Ambient + Project Noise Levels (dBA (L_{eq}))	Significance Criteria[a]	Exceedance over Significance Criteria	Significant Impact?
R1	54.6	47.1	55.3	59.6	0.0	No
R2	57.3	56.0	59.7	62.3	0.0	No
R3	59.1	54.8	60.5	64.1	0.0	No
R4	62.9	46.3	63.0	67.9	0.0	No
R5	52.1	53.9	56.1	57.1	0.0	No
R6	52.8	50.3	54.7	57.8	0.0	No
R7	53.2	42.8	53.6	58.2	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.G-7 on page IV.G-23) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a noise impact is identified.*

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

presents the estimated noise levels at the off-site receptor locations from operation of the loading area. As indicated in Table IV.G-16 on page IV.G-42, the estimated noise from the loading area would range from 9.3 dBA (L_{eq}) at the uses represented by receptor location R5 to 27.3 dBA (L_{eq}) at the uses represented by receptor location R1, which would be well below the significance criteria of 5 dBA (L_{eq}) above ambient noise levels at all off-site sensitive receptors. **Therefore, the Project's noise impact from loading operations would be less than significant.**

(ii) Off-Site Mobile Noise Sources

Future Plus Project

As discussed in the Transportation Assessment, the Project is expected to generate a net increase of 2,479 daily vehicle trips. As such, Project-related traffic would increase the existing traffic volumes along the roadway segments in the study area when compared with Future without Project conditions. This increase in roadway traffic volumes was analyzed to determine if any traffic-related noise impacts would result from operation of the Project. Table IV.G-17 on page IV.G-43 provides a summary of the roadway noise impact analysis under future plus project conditions (impact evaluated against the future baseline condition). The calculated CNEL levels are conservatively calculated in front of the roadways and do not account for the presence of any physical sound barriers or intervening structures. As shown in Table IV.G-17, the Project would result in a maximum

Table IV.G-16
Estimated Noise Levels from Loading Area

Receptor Location	Existing Ambient Noise Levels (dBA (L_{eq}))	Estimated Noise Levels from Loading Area (dBA (L_{eq}))	Ambient + Project Noise Levels (dBA (L_{eq}))	Significance Criteria[a]	Exceedance over Significance Criteria	Significant Impact?
R1	54.6	27.3	54.6	59.6	0.0	No
R2	57.3	20.0	57.3	62.3	0.0	No
R3	59.1	16.9	59.1	64.1	0.0	No
R4	62.9	13.2	62.9	67.9	0.0	No
R5	52.1	9.3	52.1	57.1	0.0	No
R6	52.8	12.9	52.8	57.8	0.0	No
R7	53.2	20.6	53.2	58.2	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.G-7 on page IV.G-23) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a noise impact is identified.*

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

noise increase of 0.4 dBA along the roadway segment of Ivar Avenue (between Selma Avenue and Sunset Boulevard). The estimated noise increase along all other analyzed roadway segments would be 0.2 dBA or lower. The estimated noise increase due to the Project-generated traffic would be well below the 5-dBA significance criteria along Ivar Avenue and Selma Avenue (as the estimated noise level is less than 70 dBA CNEL). The estimated increase in traffic-related noise levels along Sunset Boulevard would be well below the 3-dBA CNEL significance criteria (applicable to noise levels 70 dBA CNEL or higher). **Therefore, traffic noise impacts under Future Plus Project conditions would be less than significant.**

Existing Plus Project

The analysis of traffic noise impacts provided above was based on the incremental increase in traffic noise levels attributable to the Project as compared to Future Without Project conditions. An additional analysis was performed to determine the potential noise impacts based on the increase in noise levels due to Project-related traffic compared with the existing baseline traffic noise conditions. As shown in Table IV.G-18 on page IV.G-44, when compared with existing conditions, the Project would result in a maximum noise increase of 0.5 dBA along the roadway segment of Ivar Avenue (between Selma Avenue and Sunset Boulevard). The estimated noise increase along all other analyzed roadway segments would be 0.3 dBA or lower. The estimated noise increase due to the Project-generated traffic would be well below the 5-dBA significance criteria along Ivar Avenue and Selma Avenue (as the estimated noise level is less than 70 dBA CNEL). The

Table IV.G-17
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		
Ivar Avenue					
Between Hollywood Blvd. and Selma Ave.	Residential	69.7	69.8	0.1	No
Between Selma Ave. and Sunset Blvd.	School, Hotel (Future)	68.7	69.1	0.4	No
Between Sunset Blvd. and De Longpre Ave.	Hotel	65.6	65.6	0.0	No
Selma Avenue					
Between Cahuenga Blvd. and Ivar Ave.	Studio	68.0	67.9	0.0	No
Between Ivar Ave. and Vine St.	Residential	67.6	67.8	0.2	No
Sunset Boulevard					
Between Cahuenga Blvd. and Ivar Ave.	Hotel (Future)	73.8	73.8	0.0	No
Between Ivar Ave. and Vine St.	Residential, School	73.5	73.5	0.0	No

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

Source: AES, 2021.

Table IV.G-18
Roadway Traffic Noise Impacts—Existing Plus Project

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] (CNEL (dBA)) (Weekday/Weekend)		Increase in Noise Levels due to Project (CNEL (dBA))	Significant Impact?
		Existing Without Project	Existing Plus Project		
Ivar Avenue					
Between Hollywood Blvd. and Selma Ave.	Residential	66.0	66.2	0.2	No
Between Selma Ave. and Sunset Blvd.	School, Hotel (Future)	66.7	67.2	0.5	No
Between Sunset Blvd. and De Longpre Ave.	Hotel	65.4	65.4	0.0	No
Selma Avenue					
Between Cahuenga Blvd. and Ivar Ave.	Studio	64.8	64.6	0.0	No
Between Ivar Ave. and Vine St.	Residential	65.1	65.4	0.3	No
Sunset Boulevard					
Between Cahuenga Blvd. and Ivar Ave.	Hotel (Future)	72.4	72.4	0.0	No
Between Ivar Ave. and Vine St.	Residential, School	72.4	72.5	0.1	No

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

Source: AES, 2021.

estimated increase in traffic-related noise levels along Sunset Boulevard would be well below the 3-dBA CNEL significance criteria (applicable to noise levels 70 dBA CNEL or higher). **Therefore, traffic noise impacts under Existing Plus Project conditions would be less than significant.**

(iii) Composite Noise Level Impacts from Project Operations

In addition to considering the potential noise impacts to neighboring noise-sensitive receptors from each specific on-site and off-site noise source (e.g., mechanical equipment, outdoor areas, loading, and off-site traffic), an evaluation of potential composite noise level increases (i.e., noise levels from all on-site and off-site noise sources combined) at the analyzed sensitive receptor locations was also performed. The composite noise analysis uses the CNEL noise metric to determine the contributions at the noise-sensitive receptor locations in the vicinity of the Project Site.

Table IV.G-19 on page IV.G-46 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-19, the Project would result in an increase (relative to the existing ambient) in composite noise levels ranging from 0.5 dBA at the uses represented by receptor location R1 to 1.0 dBA at the uses represented by receptor location R3. The composite noise levels from Project operation at the off-site receptor locations would be below the 3-dBA significance criteria (applicable to receptor R4) as the composite (Project plus Ambient) noise level falls within the normally unacceptable (70 to 75 CNEL) land use category and the 5-dBA significance criteria (applicable to receptors R1, R2, R3, R5, R6 and R7) as the composite noise levels fall within the conditionally acceptable (60 to 70 CNEL) land use category. **As such, composite noise level impacts due to Project operations would be less than significant.**

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

Table IV.G-19
Composite Noise Impacts

Receptor Location	Existing Ambient Noise Levels (CNEL (dBA))	Calculated Project-Related Noise Sources (CNEL (dBA))				Project Composite Noise Levels (CNEL (dBA))	Ambient Plus Project Composite Noise Levels (CNEL (dBA))	Increase in Noise Levels due to Project (CNEL (dBA))	Sig. Criteria[a] (CNEL (dBA))	Sig. Impact?
		Traffic	Mechanical	Loading	Outdoor Spaces					
R1	62.9	49.3	37.3	23.3	51.0	53.3	63.4	0.5	67.9	No
R2	67.4	57.6	46.4	17.5	57.3	60.6	68.2	0.8	72.4	No
R3	67.0	57.6	47.2	14.7	58.7	61.3	68.0	1.0	72.0	No
R4	70.7	47.4	46.9	11.6	50.2	53.2	70.8	0.1	73.7	No
R5	66.1	48.6	44.8	9.1	57.8	58.4	66.8	0.7	71.1	No
R6	62.6	49.3	38.5	11.1	54.2	55.5	63.4	0.8	67.6	No
R7	62.1	51.8	43.3	18.0	46.7	53.4	62.7	0.6	67.1	No

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

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

(2) Mitigation Measures

(a) Construction Noise

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

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

- Along the northern property line of the Project Site between the construction areas and the Triangle Square Apartments (receptor location R1), the Cosmo Lofts (receptor location R6), and the Sound Factory recording studio (receptor location R7). The temporary sound barrier shall be designed to provide a minimum 15-dBA noise reduction at the ground level of receptor locations R1 and R7, and 10-dBA noise reduction at the ground level of receptor location R6.
- Along the eastern property line of the Project Site between the construction areas and the Triangle Square Apartments (receptor location R1) and the Los Angeles Film School (receptor location R2). The temporary sound barrier shall be designed to provide a minimum 15-dBA noise reduction at the ground level of receptor location R1 and 8-dBA noise reduction at the ground level of receptor location R2.

(b) Operational Noise

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

(3) Level of Significance After Mitigation

(a) On-Site Construction Noise

Implementation of Mitigation Measure NOI-MM-1 provided above would reduce the Project's construction noise levels to the extent feasible. Specifically, implementation of Mitigation Measure NOI-MM-1 (installation of temporary sound barrier) would reduce the noise generated by on-site construction activities at the off-site sensitive uses, by a minimum 15 dBA at the Triangle Square Apartments (residential use) adjacent to the Project Site to the northeast (receptor location R1) and the Sound Factory recording studio

to the north (receptor location R7); a minimum 8 dBA at the Los Angeles Film School to the southeast (receptor location R2), and a minimum 10 dBA at the Cosmo Lofts (receptor location R6). A 10 to 15 dBA noise reduction provided by Mitigation Measure NOI-MM-1 is a substantial reduction. However, as indicated in Table IV.G-20 on page IV.G-49, the estimated construction-related noise levels would still exceed the significance thresholds at receptor locations R1 and R7 with the implementation of NOI-MM-1. The temporary noise barrier specified for receptor location R1 would not be effective in reducing the on-site construction noise at the upper levels of the Triangle Square Apartments building (a five-story building) due to their higher elevation relative to the Project Site. In order to be effective, the temporary noise barrier would need to be as high as the building (i.e., five stories), which would not be feasible. There are no other feasible mitigation measures that could be implemented to reduce the temporary noise impacts from on-site construction at receptor locations R1 and R7. **Therefore, the Project's construction noise impact associated with on-site noise sources would remain significant and unavoidable.**

(b) Off-Site Construction Noise

As discussed above, the short-term noise impacts associated with off-site construction traffic would be significant without mitigation. There are no feasible mitigation measures that could be implemented to reduce this short-term impact because conventional mitigation measures, such as providing temporary noise barrier walls to reduce the off-site construction truck traffic noise impacts, would not be feasible as the barriers would obstruct the access and visibility to the properties along the anticipated haul routes. **Therefore, the Project's construction noise impact associated with off-site construction traffic would remain significant and unavoidable.**

(c) Operational Noise

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

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

Table IV.G-20
Construction Noise Impacts With Mitigation Measures

Off-Site Receptor Location	Noise Reduction Provided by Mitigation Measures[b] (dBA)	Estimated Construction Noise Levels by Construction Phases (L_{eq} (dBA))					Existing Daytime Ambient Noise Levels (L_{eq} (dBA))	Significance Criteria (L_{eq} (dBA))[a]	Maximum Noise Exceedance Above the Criteria (L_{eq} (dBA))	Significant Impact Following Mitigation?
		Demo	Grading	Mat Foundation	Building Foundation	Building Construction Paving/ Landscape				
R1	15	63.0	64.5	63.4	63.6	63.2	59.8	64.8	—[c]	**Yes**[c]
R2	8	68.1	69.8	68.8	69.3	68.5	65.9	70.9	0.0	No
R3	0	63.1	65.1	64.0	64.7	63.7	63.3	68.3	0.0	No
R4	0	66.7	68.3	67.3	67.8	67.0	67.0	72.0	0.0	No
R5	0	60.1	62.3	61.2	62.0	60.8	65.9	70.9	0.0	No
R6	10	62.9	64.9	63.9	64.5	63.5	60.9	65.9	0.0	No
R7	15	70.1	70.8	69.9	70.3	70.0	59.7	64.7	6.1	**Yes**

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.G-7 on page IV.G-23) plus 5 dBA, per the L.A. CEQA Thresholds Guide for construction activities lasting longer than 10 days in a three-month period. If the estimated construction noise levels exceed those significance criteria, a construction-related noise impact is identified.*

[b] *Noise Reduction Provided by Mitigation Measures (dBA).*

[c] *Noise barrier would not be effective in reducing the on-site construction noise at the upper levels of receptor location R1. Therefore, on-site construction noise impacts would remain significant and unavoidable. On-site construction noise levels shown for R1 are for the ground level of the building only.*

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

construction site often varies, depending on soil type, ground strata, and construction characteristics of the receptor buildings. The results from vibration can range from no perceptible effects at the lowest vibration levels to low rumbling sounds and perceptible vibration at moderate levels. However, ground-borne vibrations from construction activities rarely reach levels that damage structures.

(i) Building Damage Impacts from On-Site Construction

With regard to potential building damage, the Project would generate ground-borne construction vibration during demolition and site excavation/grading activities when heavy construction equipment, such as large bulldozers, drill rigs, and loaded trucks, would be used. The FTA has published standard vibration velocities for various construction equipment operations. As discussed in the Project's Historical Resources Technical Report included as Appendix C of this Draft EIR, there are no historical resources on the Project Site. There are eight historical resources (one designated and seven potential) identified in the vicinity of the Project Site.[50] Seven of the eight identified historical resources are located at minimum 150 feet from the Project Site. Due to the rapid attenuation of ground-borne vibration over this distance, these seven historical resources would not be impacted by the Project's on-site construction activities. The nearest off-site historical resource is the Moonglow Records building (Sound Factory) located at 6361 Selma Avenue, approximately 50 feet from the Project Site.

Therefore, the assessment of construction vibration provided below for potential building damage due to on-site construction compares the estimated vibration levels generated during construction of the Project to the 0.12 PPV significance criteria for buildings extremely susceptible to vibration damage (applicable to the historic structures), the 0.3 PPV significance criteria for engineered timber and masonry buildings (applicable to the off-site single-story commercial buildings north, south and west of the Project Site), and the 0.5 PPV significance criteria for engineered concrete and masonry buildings (applicable to the three-story parking structure across from the Project Site to the east).

Table IV.G-21 on page IV.G-51 provides the estimated ground vibration velocity levels (in terms of inch per second PPV) at the nearest off-site structures to the Project Site. It is noted that since impact pile driving methods would not be used during construction of the Project, in accordance with Project Design Feature NOI-PDF-3 provided above, impact pile driving vibration is not included in the on-site construction vibration analysis. Installation of piles for shoring and foundation would utilize drilling methods to minimize vibration generation. As indicated in Table IV.G-21, the estimated vibration levels

[50] *GPA Consulting, Artisan Hollywood Project Historical Resources Technical Report, 2020. Refer to Appendix C of this Draft EIR.*

Table IV.G-21
Construction Vibration Impacts—Building Damage

Nearest On-Site and Off-Site Building Structure[a]	Estimated Vibration Velocity Levels at the Outside of and Adjacent to the Nearest Off-Site Structures from the Project Construction Equipment (inch/second (PPV))[b]					Sig. Criteria (PPV)	Sig. Impact?
	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	0.089	0.089	0.076	0.035	0.003	—	—
Moonglow Records Building to the North (historic structure)	0.032	0.032	0.027	0.012	0.001	0.12[c]	No
Single-Story Commercial Buildings to the North	0.032	0.032	0.027	0.012	0.001	0.3[d]	No
Single-Story Commercial Building to the South	0.004	0.004	0.003	0.001	0.000	0.3[d]	No
Single-Story Commercial Building to the Northwest	0.523	0.523	0.446	0.206	0.018	0.3[d]	**Yes**
Three-Story Parking Structure to the East	0.019	0.019	0.016	0.008	<0.001	0.5[e]	No

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

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

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

[d] *FTA criteria for engineered timber and masonry buildings.*

[e] *FTA criteria for reinforced concrete and masonry buildings.*

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

from the construction equipment would be well below the 0.12 PPV building damage significance criteria for the historic Moonglow Records building to the north, the 0.3 PPV building damage significance criteria for the single-story commercial buildings to the north and south, and the 0.5 PPV building damage criteria for the three-story parking structure to the east. However, the estimated vibration levels would exceed the 0.3 PPV significance criteria for the single-story commercial building adjacent to the Project Site to the northwest. **Therefore, the on-site vibration impacts during construction of the Project, pursuant to the significance criteria for building damage, would be significant without mitigation measures.**

(ii) Human Annoyance Impacts from On-Site Construction

Table IV.G-22 on page IV.G-52 provides the estimated vibration levels at the off-site sensitive uses due to construction equipment operation and compares the estimated

Table IV.G-22
Construction Vibration Impacts—Human Annoyance

Off-Site Receptor Location	Estimated Vibration Velocity Levels at the Off-Site Sensitive Uses Due to On-Site Construction Equipment Operation[a] (VdB)					Significance Criteria (VdB)	Sig. Impact?
	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	87.0	87.0	86.0	79.0	58.0	—	—
R1	66.6	66.6	65.6	58.6	37.6	72	No
R2	63.7	63.7	62.7	55.7	34.7	65[b]	No
R3	59.0	59.0	58.0	51.0	30.0	72	No
R4	64.6	64.6	63.6	56.6	35.6	65	No
R5	54.2	54.2	53.2	46.2	25.2	72	No
R6	58.7	58.7	57.7	50.7	29.7	72	No
R7 – Sound Factory	78.0	78.0	77.0	70.0	49.0	65	**Yes**
– Ivar Theater	67.7	67.7	66.7	59.7	38.7	72	No

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

[b] *FTA criteria for institutional use (e.g., school) is 75 VdB; however, a 65 VdB criteria is used as a conservative analysis based on the potential for a recording studio being used inside the Los Angeles Film School.*

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

vibration levels to the specified significance criteria for human annoyance. Per FTA guidance, the significance criteria for human annoyance is 72 VdB for residential, hotel, and theater uses and 65 VdB for recording studios, assuming there are a minimum of 70 vibration events occurring during a typical construction day. As indicated in Table IV.G-22, the estimated ground-borne vibration levels from construction equipment would be below the significance criteria for human annoyance at off-site sensitive receptor locations R1 through R6. The estimated ground-borne vibration levels at receptor location R7 would exceed the 65-VdB significance criteria during the demolition and grading/ excavation phases with large construction equipment (i.e., large bulldozer, caisson drilling and loaded trucks) operating within 140 feet of receptor location R7. However, the Ivar Theater (also represented by receptor location R7) is located approximately 110 feet from the Project Site and would be exposed to a maximum vibration level of 67.7 VdB from the Project construction, which would be below the applicable 72 VdB significance criteria. **Therefore, on-site vibration impacts during construction of the Project, pursuant to the significance criteria for human annoyance, would be significant without mitigation measures.**

(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 US-101 via Gower Street, Selma Avenue, and Argyle Avenue. Heavy-duty construction trucks would generate ground-borne vibration as they travel along the Project's anticipated haul routes. Thus, an analysis of potential vibration impacts using the building damage and human annoyance criteria for ground-borne vibration along the anticipated local haul routes was conducted.

Regarding building damage, based on FTA data, the vibration generated by a typical heavy-duty truck would be approximately 63 VdB (0.00566 PPV) at a distance of 50 feet from the truck.[51] According to the FTA "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads." Nonetheless, there are existing buildings along the Project's anticipated haul routes that are situated approximately 20 feet from the right-of-way and would be exposed to ground-borne vibration levels of approximately 0.022 PPV, as provided in the noise calculation worksheets included in Appendix G of this Draft EIR. This estimated vibration generated by construction trucks traveling along the anticipated haul routes would be well below the most stringent building damage criteria of 0.12 PPV for buildings extremely susceptible to vibration. **Therefore, the Project's vibration impact (pursuant to the significance criteria for building damage) from off-site construction activities (i.e., construction trucks traveling on public roadways) would be less than significant**.

As discussed above, per FTA guidance, the significance criteria for human annoyance is 72 VdB for sensitive uses, including residential, hotel, and theater uses, and 65 VdB for recording studio uses. It should be noted that buses and trucks rarely create vibration that exceeds 70 VdB at 50 feet from the receptor unless there are bumps in the road.[52] To provide a conservative analysis, the estimated vibration levels generated by construction trucks traveling along the anticipated haul routes were assumed to be within 25 feet of the sensitive uses (residential, hotel, and recording studio uses) along Gower Street (residential), Selma Avenue (residential and recording studio), and Argyle Avenue (residential, hotel, and recording studio). As indicated in the noise calculation worksheets included in Appendix G of this Draft EIR, temporary vibration levels could reach approximately 72 VdB periodically as trucks pass sensitive receptors located within 25 feet from the anticipated haul routes. The vibration level generated by construction trucks at the Ivar Theater (located approximately 80 feet from the truck path on Selma Avenue) would be approximately 57 VdB, which would be well below the 72 VdB significance

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

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

threshold for theater uses. Therefore, the sensitive uses along anticipated construction truck routes (between the Project Site and US-101) would be exposed to ground-borne vibration up to 72 VdB, which would exceed the 65-VdB significance criteria (for recording studio use) and would be at the 72-VdB significance criteria (for residential and hotel uses) from the construction trucks. **As such, potential vibration impacts with respect to human annoyance that would result from temporary and intermittent off-site vibration from construction trucks traveling along the anticipated haul routes would be significant without mitigation.**

(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 for the nearest off-site buildings surrounding the Project Site to the north, south and east. However, the estimated vibration levels from on-site construction equipment would exceed the building damage significance criteria at the single-story commercial building adjacent to the Project Site to the northwest. In addition, the estimated vibration levels from on-site construction equipment would be below the human annoyance significance criteria of 72 VdB at receptor locations R1 through R6 and the Ivar Theater. However, the estimated vibration levels from the on-site construction equipment would exceed the human annoyance significance criteria of 65 VdB (applicable to the Sound Factory recording studios) at the off-site receptor location R7.

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 routes, including Gower Street, Selma Avenue, and Argyle Avenue (between the Project Site and US-101).

(b) Operation Vibration Impacts

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

the Project Site. As such, vibration impacts associated with operation of the Project would be less than significant.

(2) Mitigation Measures

(a) *Construction Vibration*

As discussed above, Project vibration levels generated from on-site construction activities would result in significant impacts with respect to building damage at one off-site building adjacent to the Project Site. Therefore, the following mitigation measure is provided to reduce vibration impacts:

NOI-MM-2: Prior to start of construction, the Applicant shall retain the services of a qualified structural engineer to visit the single-story building adjacent to the Project Site to the northwest, to inspect and document (video and/or photographic) the apparent physical condition of the building (i.e., any crack).

Prior to construction, the Applicant shall retain the services of a qualified acoustical engineer to review proposed construction equipment and develop and implement a vibration monitoring program capable of recording and documenting the construction-related ground vibration levels at the single-story commercial building (adjacent to the Project Site) during demolition, shoring and excavation phase, as follows:

a) The vibration monitoring system shall measure (in vertical and horizontal directions) and continuously store the peak particle velocity (PPV) in inch/second. The system shall also be programmed for two preset velocity levels: a warning level of 0.25 inch/second (PPV) and a regulatory level of 0.3 inch/second (PPV) for the single-story commercial building. The system shall also provide real-time alert when the vibration levels exceed the two preset levels.

b) The vibration monitoring program shall be submitted to the Department of Building and Safety, prior to initiating any construction activities.

c) In the event the warning level [0.25 inch/second (PPV)] is triggered, the contractor shall identify the source of vibration generation and provide feasible steps to reduce the vibration level, including but not limited to staggering concurrent activities (if doing so would not pose a safety risk to personnel or damage risk to buildings) and utilizing lower vibratory techniques.

d) In the event the regulatory level [i.e., 0.3 inch/second (PPV)] is triggered, the contractor shall halt the construction activities in the

vicinity of the building and visually inspect the building for any damage. Results of the inspection must be logged. The contractor shall identify the source of vibration generation and provide feasible steps to reduce the vibration level. Construction activities may then restart once the vibration level is re-measured and below the warning level.

e) In the event that the regulatory ground vibration level are exceeded and there is documented evidence including a visual inspection that no damage has occurred, the ground vibration levels can be increased to the criteria for the previous building structural category in increments as follows, subject to review and approval by the City, up to a maximum regulatory ground vibration level of 0.5 inch/second (PPV), or equivalent level.

   - From Category II to Category I [0.30 to 0.50 inch/second (PPV), or equivalent level].

   If the regulatory ground vibration level is increased, the warning level shall also be increased matching the corresponding Category as follows:

   - Category I: 0.45 inch/second (PPV)

f) If new regulatory and warning levels are set pursuant to Item "e" above, they can be exceeded and increased again pursuant to the same requirements in Item "e."

At the conclusion of vibration-causing construction, the qualified structural engineer shall issue a follow-up letter describing damage, if any, to immediately adjacent building and recommendations for repair, as may be necessary.

As analyzed above, vibration impacts from on-site and off-site construction activities would be significant pursuant to the significance criteria for human annoyance. Mitigation measures considered to reduce vibration impacts from on-site construction activities with respect to human annoyance included the installation of a wave barrier, which is typically a trench or a thin wall made of sheet piles installed in the ground (essentially a subterranean sound barrier to reduce noise). However, wave barriers must be very deep and long to be effective and are cost prohibitive for temporary applications such as construction, and therefore are considered infeasible.[53] In addition, constructing a wave barrier to reduce the Project's construction-related vibration impacts would, in and of itself, generate ground-borne vibration from the excavation equipment. In addition, it would not be feasible to install a wave barrier along the public roadways for the off-site construction vibration

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

impacts. As such, there are no feasible mitigation measures to reduce the potential vibration human annoyance impacts.

(b) Operation Vibration Impacts

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

(3) Level of Significance After Mitigation

(a) Construction Vibration

With implementation of Mitigation Measure NOI-MM-2, potential building damage impacts to the single-story commercial building adjacent to the Project Site to the northwest from on-site construction would be reduced to a less than significant level. Vibration impacts associated with off-site haul trucks would be less than significant without mitigation with regard to building damage. **Thus, the Project's vibration impacts from on-site and off-site construction activities associated with building damage would be less than significant (off-site construction) and less than significant with mitigation (on-site construction).**

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 associated with human annoyance to a less-than-significant level. In addition, it would not be feasible to install a wave barrier along the public roadways for the off-site construction vibration impacts. **Therefore, the Project's vibration impacts from on-site and off-site construction activities with respect to human annoyance would remain significant and unavoidable.**

(b) Operation Vibration

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

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

As evaluated in the Initial Study prepared for the Project, included in Appendix A of this Draft EIR, the Project Site is not located within the vicinity of a private airstrip or an

airport land use plan or within two miles of an airport. Thus, the Project would not expose people residing or working in the project area to excessive airport-related noise levels. The nearest airport is the Hollywood-Burbank Airport located approximately 6.7 miles northeast of the Project Site. Since the Project is not located within an airport land use plan, within two miles of a public airport or public use airport, or within the vicinity of a private airstrip, impacts with regard to airport-related noise would not occur. **Therefore, as determined in the Initial Study, no impacts with respect to Threshold (c) would occur and no further analysis is required.**

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, 46 related projects have been identified in the vicinity of the Project Site. Noise from construction of development projects is typically localized and has the potential to affect noise-sensitive uses within 500 feet from the construction site, based on the *L.A. CEQA Thresholds Guide* screening criteria. Thus, noise from construction activities for two projects within 1,000 feet of each other can contribute to a cumulative noise impact for receptors located midway between the two construction sites. Of the 46 related projects, 33 related projects are located more than 1,000 feet from the Project and with intervening building structures, which would not contribute to the cumulative on-site construction noise impacts. Five of the remaining 13 related projects located within 1,000 feet of the Project Site, including Related Project Nos. 1, 5, 6, 7, and 8 are currently under construction or substantially completed, which would not contribute to the cumulative construction noise impacts. Therefore, the following nine related projects within 1,000 feet of the Project Site were evaluated to determine if they could contribute to the cumulative construction noise impacts.

- Related Project No. 2 (Ivar Garden Hotel Project), is located at 6409 Sunset Boulevard, approximately 215 feet south of the Project Site. There are sensitive receptors located on Ivar Avenue (represented by receptor location R2), which is located between the Project Site and the Related Project No. 2. As indicated in Table IV.G-11 on page IV.G-35, the estimated noise from the Project

construction activities at receptor location R2 would be 6.9 dBA above the significance criteria. Since the Related Project No. 2 is located across the receptor location R2, receptor location R2 would also be exposed to construction noise from Related Project No. 2. As such, there is a potential for cumulative construction-related noise impacts at receptor location R2, in the event of concurrent construction with the Related Project No. 2, and noise impacts from the Project would be cumulatively considerable.

- Related Project No. 3 (residential development project), is located at 6400 Sunset Boulevard, approximately 460 feet south of the Project Site. There are sensitive receptors located on Ivar Avenue (represented by receptor location R2), which is located between the Project Site and the Related Project No. 3. As indicated in Table IV.G-11 on page IV.G-35, the estimated noise from the Project construction activities at receptor location R2 would be 6.9 dBA above the significance criteria. Since the Related Project No. 3 is located diagonally across Ivar Avenue to the southwest of receptor location R2, receptor location R2 would also be exposed to construction noise from Related Project No. 3. As such, there is a potential for cumulative construction-related noise impacts at receptor location R2, in the event of concurrent construction with the Related Project No. 3, and noise impacts from the Project would be cumulatively considerable.
- Related Project No. 9 (hotel and restaurant development project), is located at 6381 Hollywood Boulevard, approximately 750 feet north of the Project Site. There are sensitive receptors located on Cosmo Street (represented by receptor location R6), which is located between the Project Site and the Related Project No. 9. There are existing buildings located along Hollywood Boulevard and Cosmo Street, which would provide noise shielding for construction noise from the Related Project No. 9 to the sensitive receptor location R6. Therefore, based on distance attenuation and shielding provided by existing buildings, construction-related noise from the Related Project No. 9 would not contribute to cumulative construction-related noise impacts.
- Related Project No. 10 (hotel and restaurant development project), is located at 1600 Schrader Boulevard, approximately 810 feet northwest of the Project Site. There are sensitive receptors located on Selma Avenue (represented by receptor location R5), which is located between the Project Site and the Related Project No. 10. However, there are existing buildings located along Selma Avenue, which would provide noise shielding for construction noise from the Related Project No. 10 to the sensitive receptor location R5. Therefore, based on distance attenuation and shielding provided by existing buildings, construction-related noise from the Related Project No. 10 would not contribute to cumulative construction-related noise impacts.
- Related Project No. 20 (mixed-use development project), is located at 6430-6440 Hollywood Boulevard, approximately 530 feet northwest of the Project Site. There are sensitive receptors located on Selma Avenue (represented by receptor location R5), which is located between the Project Site and the Related Project No. 20. However, there are existing buildings located along Selma Avenue, which would provide noise shielding for construction noise from the Related

Project No. 20 to the sensitive receptor location R5. Therefore, based on distance attenuation and shielding provided by existing buildings, construction-related noise from the Related Project No. 20 would not contribute to cumulative construction-related noise impacts.

- Related Project No. 24 (mixed-use development project), is located at 1545 Wilcox Avenue, approximately 590 feet west of the Project Site. There are sensitive receptors located on Cahuenga Boulevard (represented by receptor location R4), which is located between the Project Site and the Related Project No. 24. However, there are existing buildings located along Wilcox Avenue, which would provide noise shielding for construction noise from the Related Project No. 24 to the sensitive receptor location R4. Therefore, based on distance attenuation and shielding provided by existing buildings, construction-related noise from the Related Project No. 24 would not contribute to cumulative construction-related noise impacts.
- Related Project No. 25 (mixed-use development project), is located at 1637 Wilcox Avenue, approximately 770 feet northwest of the Project Site. There are sensitive receptors located on Selma Avenue (represented by receptor location R5), which is located between the Project Site and the Related Project No. 24. However, there are existing buildings located along Wilcox Avenue, which would provide noise shielding for construction noise from the Related Project No. 25 to the sensitive receptor location R5. Therefore, based on distance attenuation and shielding provided by existing buildings, construction-related noise from the Related Project No. 25 would not contribute to cumulative construction-related noise impacts.
- Related Project No. 29 (hotel development project), is located at 6445 Sunset Boulevard, approximately 330 feet southwest of the Project Site. There are sensitive receptors located on Cahuenga Boulevard (represented by receptor location R4), which is located between the Project Site and the Related Project No. 29. However, there are existing buildings located along Cahuenga Boulevard, which would provide noise shielding for construction noise from the Related Project No. 29 to the sensitive receptor location R4. Therefore, based on distance attenuation and shielding provided by existing buildings, construction-related noise from the Related Project No. 29 would not contribute to cumulative construction-related noise impacts.

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. Nevertheless, 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 No. 2 and Related Project No. 3, in the event of concurrent

construction activities. **As such, cumulative noise impacts associated with on-site construction would be significant.**

(ii) Off-Site Construction Noise

In addition to the cumulative impacts of on-site construction activities, off-site construction haul trucks would have a potential to result in cumulative impacts if the trucks for the related projects and the Project were to utilize the same haul route. Based on the existing daytime ambient noise level of 68.3 dBA (L_{eq}) along Argyle Avenue, and 69.0 dBA (L_{eq}) along Gower Street (refer to Table IV.G-12 on page IV.G-37), it is estimated that up to 85 truck trips along Argyle Avenue, and 100 truck trips along Gower Street per hour would increase the ambient noise levels by 5 dBA and exceed the significance criteria.[54]

- Argyle Avenue (between Selma Avenue and US-101 southbound on-ramp)—There are four related projects located near Argyle Avenue, including Related Project No. 12, Related Project No. 18, Related Project 21, and Related Project No. 35. Related Project No. 12, Related Project No. 21, and Related Project No. 35 would contribute 21, 21, and 13 truck trips per hour during peak construction period, respectively.[55,56,57] There is no available information with respect to the truck trips associated with Related Project No. 18. However, truck trips associated with Related Project No. 18 would be minimal (less than 5 truck trips per hour), as the new construction would be built on top of the existing building, which would not include site grading/excavation. Therefore, the cumulative truck trips from the Project and the four related projects along Argyle Avenue would likely not reach 85 truck trips per hour, the level that would increase the ambient by more than 5 dBA.

- Gower Street (between US-101 northbound off-ramp and Selma Avenue)—There are five related projects that could utilize Gower Street, including Related Project No. 12, Related Project 21, Related Project No. 32, Related Project No. 34, and Related Project No. 35. Related Project No. 12, Related Project No. 21, Related Project 34, and Related Project No. 35 would contribute 21, 21, 44, and

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[54] *It is estimated that with 85 truck trips, the noise level along Argyle Avenue would be 71.6 dBA, when added to the existing ambient of 68.3 dBA the cumulative noise levels would be 73.3 dBA, which would increase the ambient by 5.0 dBA. Similarly, it is estimated that with 100 truck trips, the noise level along Gower Street would be 72.3 dBA, and when added to the existing ambient of 69.0 dBA the cumulative noise level would be 74.0 dBA, which would increase the ambient by 5.0 dBA.*

[55] *City of Los Angeles, Modera Argyle Draft Environmental Impact Report, April 2019, Chapter IV.E Noise.*

[56] *City of Los Angeles, Hollywood Center Project Draft Environmental Impact Report, April 2020, Chapter IV.I, Noise.*

[57] *City of Los Angeles, 6220 West Yucca Project Draft Environmental Impact Report, April 2020, Chapter IV.I, Noise.*

13 truck trips per hour during peak construction period, respectively.[58,59,60,61] There is no available information with respect to the truck trips associated with Related Project No. 32. However, the total truck trips from Related Project No. 12, Related Project No. 21, Related Project No. 34, and Related Project No. 35 would be 99 truck trips and together with the 21 Project truck trips, would exceed the 100 truck trips per hour, the level that would increase the ambient by more than 5 dBA along Gower Street (between the US-101 northbound off-ramp and Selma Avenue). Therefore, it is conservatively assumed that cumulative off-site construction noise impacts along Gower Street would be significant in the event of concurrent construction activities.

- Selma Avenue (between Cahuenga Boulevard and Gower Street)—As analyzed above (see Table IV.G-12 on page IV.G-37), the estimated off-site construction noise levels from the Project would exceed the significance criteria along Selma Avenue. Any addition of trucks from the related projects that would travel along Selma Avenue (between Cahuenga Boulevard and Gower Street), would increase the ambient noise and contribute to the cumulative impact. Although there are no related projects along Selma Avenue (between Cahuenga Boulevard and Gower Street), delivery trucks for other related projects may utilize this segment of Selma Avenue. Therefore, it is conservatively assumed that cumulative off-site construction noise impacts along Selma Avenue would be significant, in the event of concurrent construction activities.

Based on the above, there would be potential cumulative noise impacts along Gower Street (between US-101 and Selma Avenue) and Selma Avenue (between Cahuenga Boulevard and Gower Street), in the event of concurrent construction activities from Related Project No. 12, Related Project No. 21, Related Project No. 34, and Related Project No. 35. **As such, cumulative noise impacts associated with off-site construction would be significant.**

(iii) Summary of Cumulative Construction Noise Impacts

As discussed above, on-site construction activities from the Project and related projects have the potential to result in generation of noise levels in excess of standards

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58 *City of Los Angeles, Modera Argyle Project Draft Environmental Impact Report, April 2019, Chapter IV.E, Noise.*

59 *City of Los Angeles, Hollywood Center Project Draft Environmental Impact Report, April 2020, Chapter IV.I, Noise.*

60 *City of Los Angeles, Hollywood Gower Project Draft Environmental Impact Report, September 2018, Chapter IV.I, Noise.*

61 *City of Los Angeles, 6220 West Yucca Project Draft Environmental Impact Report, April 2020, Chapter IV.I, Noise.*

established by the City. **Therefore, cumulative noise impacts associated with on-site and off-site construction activities would be significant without mitigation measures.**

(b) Operational Noise

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

(i) On-Site Stationary Noise Sources

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

(ii) Off-Site Mobile Noise Sources

The Project and related projects in the area would produce traffic volumes (off-site mobile sources) that would generate roadway noise. Cumulative noise impacts due to off-site traffic were analyzed by comparing the projected increase in traffic noise levels from "Existing" conditions to "Future Plus Project" conditions to the applicable significance criteria. Future Plus Project conditions include traffic volumes from future ambient growth, related projects, and the Project. The calculated traffic noise levels under "Existing" and "Future Plus Project" conditions are presented in Table IV.G-23 on page IV.G-64 for a typical weekday and weekend. As shown therein, cumulative traffic volumes would result in an increase ranging from 0.2 dBA (CNEL) along the roadway segment of Ivar Avenue (between Sunset Boulevard and De Longpre Avenue) to up to 3.8 dBA (CNEL) along the roadway segment of Ivar Avenue (between Hollywood Boulevard and Selma Avenue). These increases would be below the 5-dBA significance criteria (applicable when noise levels fall within the normally acceptable or conditionally acceptable land use category)

Table IV.G-23
Cumulative Roadway Traffic Noise Impacts

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] (CNEL (dBA))		Increase in Noise Levels Due to Cumulative + Project (CNEL (dBA))	Significant Impact?
		Existing Conditions	Future Cumulative Plus Project		
Ivar Avenue					
Between Hollywood Blvd. and Selma Ave.	Residential	66.0	69.8	3.8	No
Between Selma Ave. and Sunset Blvd.	School, Hotel (Future)	66.7	69.1	2.4	No
Between Sunset Blvd. and De Longpre Ave.	Hotel	65.4	65.6	0.2	No
Selma Avenue					
Between Cahuenga Blvd. and Ivar Ave.	Studio	64.8	67.9	3.1	No
Between Ivar Ave. and Vine St.	Residential	65.1	67.8	2.7	No
Sunset Boulevard					
Between Cahuenga Blvd. and Ivar Ave.	Hotel (Future)	72.4	73.8	1.4	No
Between Ivar Ave. and Vine St.	Residential, School	72.4	73.5	1.1	No

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

Source: AES, 2021.

along Ivar Avenue (between Hollywood Boulevard and De Longpre Avenue) and Selma Avenue (between Cahuenga Boulevard and Vine Street), and below the 3-dBA significance criteria (applicable when noise levels fall within the normally unacceptable or clearly unacceptable land use category) along Sunset Boulevard (between Cahuenga Boulevard and Vine Street). **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 generation of noise levels in excess of the significance criteria established by the City or in a substantial permanent increase in ambient noise levels in the vicinity of the Project Site above levels existing without the Project and the related projects due to on-site or off-site (mobile) noise sources. **Therefore, cumulative operational noise impacts from on-site and off-site sources would be less 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 20 feet as related to building damage at historic structures, 80 feet as related to human annoyance at residential uses, and 145 feet for recording studio uses).[62] As indicated above, the closest related project to the Project Site is Related Project No. 1, which is under construction and would not contribute to the cumulative construction vibration impacts. The next closet related project would be Related Project No. 2, which is approximately 215 feet south of the Project Site. Therefore, based on distance attenuation, potential cumulative vibration impacts with respect to the building damage from the Project and Related Project No. 2 would be less than significant. **Therefore, the Project would not contribute to a cumulative construction vibration impact with respect to building damage associated with on-site construction and the cumulative impact would be less than significant.**

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

As discussed above, potential vibration impacts associated with Project-related on-site construction activities would be significant with respect to human annoyance at receptor location R7. Although receptor location R7 represents both the Sound Factory recording studios and the Ivar Theater, the significant vibration impacts associated with human annoyance would only occur at the Sound Factory recording studios. Vibration impacts at the Ivar Theater would be less than significant. Related Project No. 2 is approximately 500 feet from the receptor location R7. Due to the rapid attenuation characteristics of ground-borne vibration, Related Project No. 2 would not contribute to the cumulative construction vibration impact with respect to human annoyance at the uses represented by receptor location R7. **Therefore, the cumulative construction vibration impact with respect to human annoyance associated with on-site construction 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.[63] In addition, according to the FTA "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads." As discussed above, there are existing buildings that are approximately 20 feet from the right-of-way of the anticipated haul route for the Project (i.e., Gower Street, Selma Avenue, and Argyle Avenue). These buildings are anticipated to be exposed to ground-borne vibration levels of approximately 0.022 PPV. Trucks from the related projects are expected to generate similar ground-borne vibration levels. Therefore, the vibration levels generated from off-site construction trucks associated with the Project and other related projects along the anticipated haul routes would be below the most stringent building damage significance criteria of 0.12 PPV for buildings extremely susceptible to vibration. **Therefore, the potential cumulative vibration impact with respect to building damage from off-site construction would be less than significant.**

As discussed above, potential vibration impacts associated with temporary and intermittent vibration from project-related construction trucks traveling along the anticipated haul routes, including Gower Street, Selma Avenue, and Argyle Avenue would be significant. As the related projects would be anticipated to use similar trucks as the Project, it is anticipated that construction trucks would generate similar vibration levels along the anticipated haul routes. **Therefore, to the extent that other related projects use the same haul route as the Project, the cumulative vibration impact with respect to human annoyance associated with temporary and intermittent vibration from haul trucks traveling along the designated haul route would be significant.**

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

(iii) Summary of Cumulative Construction Vibration Impacts

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

Cumulative construction vibration impacts from on-site construction activities pursuant to the significance criteria for human annoyance would be less significant in the event concurrent construction of the Project and the related projects were to occur. 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 significant. **Therefore, on-site construction activities would not generate excessive ground-borne vibration levels with respect to human annoyance that would result in cumulative vibration impacts. However, cumulative vibration impacts with respect to human annoyance associated with off-site construction activities would be significant.**

(d) Operational Vibration

Vibration levels from project operation are generally limited to building mechanical equipment and vehicle circulations and would be limited to immediate vicinity of the project sites. The related projects (hotel, mixed-use, and commercial developments) would generate similar vibration levels as the Project. The nearest related project (Related Project No. 1) is approximately 150 feet from the Project Site. Since ground-borne vibration decreases rapidly with distance, operation of the related projects would not contribute to cumulative vibration impacts due to distance between the Project and the related projects. As analyzed above, 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 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. 2 and Related Project No. 3, in the event of concurrent construction activities. Noise associated with cumulative construction activities would be reduced to the degree reasonably and technically feasible through proposed mitigation measures (e.g., providing temporary noise barriers) for each individual related project and Mitigation Measure NOI-MM-1 would reduce the Project's on-site noise impacts to the extent feasible. As discussed above, the Project-related construction noise levels at receptor location R2 would be reduced by approximately 8 dBA, which would reduce the Project-related construction noise impacts to less than significant. Mitigation measures would likely be implemented, as required, to reduce the Related Project No. 2 and Related Project No. 3 construction-related noise at receptor location R2. However, even with these mitigation measures, the cumulative noise impact with respect to receptor location R2 would be significant (i.e., exceed the ambient by 5 dBA), due to the close proximity of receptor location R2 to the Related Project No. 2 and Related Project No. 3, and there are no other physical mitigation measures that would be feasible. **As such, cumulative on-site noise impacts associated with on-site construction would remain significant and unavoidable.**

As analyzed above, there would be potential cumulative noise impacts along Gower Street (between US-101 and Selma Avenue) and Selma Avenue (between Cahuenga Boulevard and Gower Street), in the event of concurrent construction activities from Related Project No. 12, Related Project No. 21, Related Project No. 34, and Related Project No. 35. Thus, cumulative noise impacts associated with off-site construction trucks from the Project and other related projects would result in a significant noise impact. As previously discussed, there are no feasible mitigation measures that could be implemented to reduce this short-term cumulative impact because conventional mitigation measures, such as providing temporary noise barrier walls to reduce the off-site construction truck traffic noise impacts, would not be feasible as the barriers would obstruct the access and visibility to the properties along the anticipated haul routes for Related Project No. 12, Related Project No. 21, Related Project No. 34, and Related Project No. 35. **Therefore, the cumulative construction noise impact associated with off-site construction traffic would remain significant and unavoidable.**

(b) Operational Noise

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

(c) Construction Vibration

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

(d) Operational Vibration

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

(3) Level of Significance after Mitigation

(a) Construction Noise

Cumulative construction noise impacts associated with on-site noise sources and off-site construction traffic would be significant and unavoidable.

(b) Operational Noise

Cumulative impacts associated with on-site and off-site noise sources would be less than significant without mitigation. Therefore, no mitigation measures were required, 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 would be less than significant without mitigation. Therefore, no mitigation measures were required, and the impact level remains less than significant. However, cumulative vibration impacts associated with human annoyance from off-site construction trucks would be significant and unavoidable.

(d) Operational Vibration

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