IV. Environmental Impact Analysis
F. Noise

1. Introduction

This section of the Draft EIR analyzes the potential noise and vibration impacts that would result from the Project. Specifically, the analysis describes the existing noise environment in the vicinity of the Project Site, estimates future noise and vibration levels at surrounding sensitive land uses resulting from construction and operation of the Project, identifies the potential for significant impacts, and provides mitigation measures to address significant impacts. In addition, this section of the Draft EIR evaluates the potential cumulative noise and vibration impacts resulting from the Project together with related projects and other future growth. Noise calculation worksheets are included in Appendix H of this Draft EIR.

2. Environmental Setting

a. Noise and Vibration Fundamentals

(1) Noise

(a) Fundamentals of Sound and Environmental Noise

Noise is commonly defined as sound that is undesirable because it interferes with speech communication and hearing, causes sleep disturbance, or is otherwise annoying (unwanted sound). The decibel (dB) is a conventional unit for measuring the amplitude of sound as it accounts for the large variations in sound pressure amplitude and reflects the way people perceive changes in sound amplitude.[1] Human hearing is not equally sensitive to sound at all frequencies. Therefore, to approximate this human frequency-dependent response, the A-weighted filtering system is used to adjust measured sound levels (dBA). The term "A-weighted" refers to filtering the noise signal in a manner that corresponds to the way the human ear perceives sound. Examples of various sound levels in different environments are shown in Table IV.F-1 on page IV.F-2.

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

Table IV.F-1
Typical Noise Levels

Common Outdoor Activities	Noise Levels (dBA)	Common Indoor Activities
	110	Rock Band
Jet Fly-Over at 1000 feet		
	100	
Gas Lawn Mower at 3 feet		
	90	
Diesel Truck at 50 feet at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
Gas Lawn Mower at 100 feet	**70**	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	**60**	
		Large Business Office
Quiet Urban Daytime	**50**	Dishwasher Next Room
Quiet Urban Nighttime	**40**	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
	0	

Source: Caltrans, Technical Noise Supplement (TeNS), Table 2-5, 2013.

People commonly judge the relative magnitude of sound sensation using subjective terms, such as “loudness” or “noisiness.” A change in sound level of 3 dB is considered “barely perceptible,” a change in sound level of 5 dB is considered “readily perceptible,” and a change (increase) of 10 dB is typically recognized as “two times as loud.”[2]

(b) Outdoor Sound Propagation

In an outdoor environment, sound energy attenuates through the air as a function of distance. Such attenuation is called “distance loss” or “geometric spreading” and is based on the type of source configuration (i.e., a point source or a line source). The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g.,

[2] *Caltrans, Technical Noise Supplement, Table 2.10, 2013.*

air conditioner or bulldozer), is 6 dBA per doubling of distance from the noise source.[3] For example, an outdoor condenser fan that generates a sound level of 60 dBA at a distance of 50 feet from a point source at an acoustically hard site would attenuate to 54 dBA at a distance of 100 feet from the point source and attenuate to 48 dBA at 200 feet from the point source. The rate of sound attenuation for a line source, such as a constant flow of traffic on a roadway, is 3 dBA per doubling of distance from the point source to the receptor. Additional sound attenuation can be provided by ground absorption. The amount of excess ground attenuation depends on the height of the noise path and characteristics of the intervening ground or site. Excess ground attenuation may vary from 0 to 8 dBA per doubling of distance.[4]

In addition, 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), some 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 reflects noise back to the receptor, thereby compounding the noise. Noise barriers can provide noise level reductions ranging from approximately 5 dBA (where the barrier just breaks the line-of-sight between the source and receiver) to an upper range of 20 dBA with a more substantial barrier.[5] Additionally, structures with closed windows can further attenuate exterior noise by a minimum of 20 dBA to 30 dBA.[6]

(c) Environmental Noise Descriptors

Several rating scales have been developed to analyze the adverse effect of community noise on people. Since environmental noise fluctuates over time, these scales consider that the effect of noise is dependent upon the total acoustical energy content, as well as the time and duration of occurrence. The most frequently used noise descriptors, including those used by the City of Los Angeles (City), are summarized below.

Equivalent Sound Level (L_{eq}). L_{eq} is a measurement of the acoustic energy content of noise averaged over a specified time period. Thus, the L_{eq} of a time-varying sound and that of a steady sound are the same if they deliver the same amount of energy to the

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[3] *Caltrans, Technical Noise Supplement (TeNS), 2013, Chapter 2.1.4.1*.

[4] *Caltrans, Technical Noise Supplement (TeNS), 2013, Chapter 2.1.4.2*.

[5] *Caltrans, Technical Noise Supplement (TeNS), 2013, Chapter 2.1.4.4*.

[6] *FHWA, Highway Traffic Noise Analysis and Abatement Policy and Guidance, 1995.*

receptor's ear during exposure. L_{eq} for one-hour periods, during the daytime or nighttime hours, and 24-hour periods are commonly used in environmental assessments. For evaluating community impacts, this rating scale does not vary regardless of whether the noise occurs during day or night.

Maximum Sound Level (L_{max}). L_{max} represents the maximum sound level measured during a measurement period.

Community Noise Equivalent Level (CNEL). CNEL is the time average of all A-weighted sound levels for a 24-hour period with a 10-dBA adjustment (upward) added to the sound levels that occur between the hours of 10:00 P.M. and 7:00 A.M. (nighttime), and a 5-dBA adjustment (upward) added to the sound levels which occur between the hours of 7:00 P.M. and 10:00 P.M. (evening). These penalties attempt to account for increased human sensitivity to noise during the nighttime and evening periods, particularly where sleep is the most probable activity. CNEL has been adopted by the State of California to define the community noise environment for development of the community noise element of a General Plan and is also used by the City for land use planning and to describe noise impacts in the *L.A. CEQA Thresholds Guide*.[7]

Day/Night Average Sound Level (L_{dn}). L_{dn} is the time average of all A-weighted sound levels for a 24-hour period, similar to the CNEL. L_{dn} includes a 10 dBA adjustment (upward) added to the sound levels that occur between the hours of 10:00 P.M. and 7:00 A.M. (nighttime). Unlike CNEL, L_{dn} does not include the 5 dBA adjustment (upward) to the sound levels which occur between the hours of 7:00 P.M. and 10:00 P.M. (evening). L_{dn} is typically within one dBA of CNEL and the two measurements are often used interchangeably for the purposes of defining the community noise environment and measuring A-weighted sound levels for a 24-hour period.

(2) Ground-Borne Vibration

Vibration is commonly defined as an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or the root-mean square (RMS) velocity is usually used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal and is typically used for evaluating potential building damage.[8] The RMS velocity is defined as the square-root of the average of the squared amplitude of the vibration signal and is typically more suitable for evaluating

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[7] *State of California, General Plan Guidelines, 2017.*

[8] *Vibration levels are described in the noise calculation worksheets included in Appendix H of this Draft EIR and in this section of the Draft EIR in terms peak particle velocity level in the unit of inches per second.*

human response to ground-borne vibration.[9] The RMS vibration velocity level can be presented in inch per second or in VdB (a decibel unit referenced to 1 micro-inch per second).[10] Ground-borne vibration generated by man-made activities (e.g., road traffic, construction operations) typically weakens with greater horizontal distance away from the source of the vibration.

b. Regulatory Framework

Various government agencies have established noise regulations and policies to protect citizens from adverse effects associated with noise and ground-borne vibration. The City has adopted a number of regulations and policies, which are based in part on federal and state regulations and are intended to control, minimize, or mitigate environmental noise effects. There are no City-adopted regulations or policies that relate to ground-borne vibration; therefore, the ground-borne vibration standards and guidelines from the Federal Transit Administration (FTA) are used for this analysis. The regulations and policies that are relevant to project construction and operation noise are discussed below.

(1) State

The State of California, Governor's Office of Planning and Research (OPR) has adopted noise compatibility guidelines for general land use planning (refer to Table IV.F-2 on page IV.F-6) and used by the City for Noise Compatible Land Use guidelines. The types of land uses addressed by the state and the acceptable noise categories for each land use are included in the *State of California General Plan Guidelines,* which is published and updated by the OPR. The level of acceptability of the noise environment is dependent upon the activity associated with the particular land use. For example, according to the State, an exterior noise environment up to 65 dBA CNEL is "normally acceptable" for multi-family residential uses, without special noise insulation requirements. In addition, noise levels up to 70 dBA CNEL are "conditionally acceptable" with noise insulation requirements, while noise levels at 75 dBA CNEL and above are "clearly unacceptable" for

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[9] *Federal Transit Administration (FTA), "Transit Noise and Vibration Impact Assessment," Section 5.1, 2018.*

[10] *VdB (velocity level in decibel) = 20 x Log (V / V_{ref}), where V is the RMS velocity amplitude in micro-inch per second and V_{ref} is the reference velocity amplitude of $1x10^{-6}$ inch per second (1 micro-inch per second). All vibration levels described in decibel (VdB) in the noise calculation worksheets included in Appendix H of this Draft EIR and in this section of the Draft EIR are RMS and referenced to 1 micro-inch per second.*

Table IV.F-2
City of Los Angeles 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: Office of Noise Control of the California Department of Health Services.

residential and hotel uses.[11] In addition, the 2019 California Building Standards Code (Section 1206 Sound Transmission) requires that where the ambient noise environment exceeds 65 dBA CNEL, measures should be implemented to achieve an interior noise environment of a residential use (habitable room) not to exceed 45 dBA CNEL. The 2019 California Green Building Standards Code (Section 5.507 Environmental Comfort) also requires that where the ambient noise environment exceeds 65 dBA CNEL or 65 dBA L_{eq}, measures should be implemented to achieve an interior noise environment of a non-residential use that would not exceed 50 dBA $L_{eq\ (1\text{-}hour)}$. The City of Los Angeles

[11] *State of California, Governor's Office of Planning and Research, General Plan Guidelines, 2017, p. 374.*

adopted both the 2019 California Building Standards Code and the 2019 California Green Building Standards Code.

(2) City of Los Angeles Regulations and Policies

The Noise Element of the City of Los Angeles General Plan (General Plan) establishes CNEL guidelines for land use compatibility and includes a number of goals, objectives, and policies for land use planning purposes. The City also has regulations to control unnecessary, excessive, and annoying noise, as set forth in the Los Angeles Municipal Code (LAMC) Chapter XI, Noise Regulation. In addition, the *L.A. CEQA Thresholds Guide* provides thresholds for determining noise impacts of a project. These regulations and policies are described further below.

(a) Noise Element

The overall purpose of the Noise Element of the General Plan (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. The following policies and objectives from the Noise Element are applicable to the Project:[12]

- Objective 2 (Non-airport): Reduce or eliminate non-airport related intrusive noise, especially relative to noise-sensitive uses.
- Policy 2.2: Enforce and/or implement applicable City, State, and federal regulations intended to mitigate proposed noise producing activities, reduce intrusive noise and alleviate noise that is deemed a public nuisance.
- Objective 3 (Land Use Development): Reduce or eliminate noise impacts 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.

The City's noise compatibility guidelines are provided in Table IV.F-2 on page IV.F-6.

(b) City of Los Angeles Noise Regulations (Chapter XI of the LAMC)

Chapter XI, Noise Regulation, of the LAMC (referred to herein as the Noise Regulations) establishes acceptable ambient sound levels to regulate intrusive noises (e.g., stationary mechanical equipment and vehicles other than those traveling on public streets)

[12] *Noise Element of the Los Angeles City General Plan, adopted February 3, 1999.*

within specific land use zones and provides procedures and criteria for the measurement of the sound level of noise sources. These procedures recognize and account for differences in the perceived level of different types of noise and/or noise sources. In accordance with the Noise Regulations, a noise level increase from certain regulated noise sources of 5 dBA over the existing or presumed ambient noise level at an adjacent property line is considered a violation of the Noise Regulations. The 5-dBA increase above ambient is applicable to City-regulated noise sources (e.g., mechanical equipment), and it is applicable any time of the day.[13]

The Noise Regulations state that the baseline ambient noise shall be the actual measured ambient noise level or the City's presumed ambient noise level, whichever is greater. The actual ambient noise level is the measured noise level averaged over a period of at least 15 minutes, L_{eq} (15-minute). The Noise Regulations indicate that in cases where the actual measured 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.) ambient noise levels defined in LAMC Section 111.03 should be used. The City's presumed ambient noise levels for specific land use zones, as set forth in LAMC Section 111.03, are provided in Table IV.F-3 on page IV.F-9.

To account for people's increased tolerance for short-duration noise events, the Noise Regulations provide a 5-dBA allowance for noise sources occurring more than 5 minutes but less than 15 minutes in any 1-hour period (for a total of 10 dBA above the ambient), and an additional 5-dBA allowance (total of 15 dBA above the ambient) for noise sources occurring 5 minutes or less in any 1-hour period. These additional allowances for short-duration noise sources are applicable to noise sources occurring between the hours of 7:00 A.M. and 10:00 P.M. (daytime hours). Furthermore, the Noise Regulations provide a reduction of 5 dBA for steady high-pitched noise or repeated impulsive noises.[14,15]

The LAMC also provides noise regulations with respect to vehicle-related noise, including Section 114.02, which prohibits the operation of any motor driven vehicles upon any property within the City in a manner that would cause the noise level on the premises of any occupied residential property to exceed the ambient noise level by more than 5 dBA; Section 114.03, which prohibits loading and unloading operating between the hours of 10:00 P.M. and 7:00 A.M., which causes any impulsive sound, raucous or unnecessary

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[13] *Los Angeles Municipal Code, Chapter XI, Section 112.02.*

[14] *LAMC, Chapter XI, Article I, Section 111.02 (b).*

[15] *Impulsive sound as defined in the LAMC Section 111.01 (e) is sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of impulsive sound shall include, but are not limited to, explosion, musical bass drum beats, or the discharge of firearms.*

Table IV.F-3
City of Los Angeles Presumed Ambient Noise Levels

Zone	Daytime (7:00 A.M. to 10:00 P.M.) dBA (L_{eq})	Nighttime (10:00 P.M. to 7:00 A.M.) dBA (L_{eq})
Residential, 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.		

noise within 200 feet of any residential building; and Section 114.06, which requires vehicle theft alarm systems shall be silenced within five minutes.

In addition, the Noise Regulations (LAMC Section 112.05) set a maximum noise level from construction equipment (powered equipment or powered hand tools) operating between the hours of 7:00 A.M. and 10:00 P.M., in any residential zone of the City or within 500 feet thereof, of 75 dBA, measured at a distance of 50 feet from the source, unless compliance with this limitation is technically infeasible.[16] LAMC Section 41.40 prohibits construction noise that disturbs persons occupying sleeping quarters in any dwelling, hotel, or apartment or other place of residence between the hours of 9:00 P.M. and 7:00 A.M. Monday through Friday, before 8:00 A.M. and after 6:00 P.M. on Saturday or national holiday, and at any time on Sunday. Construction hours may be extended with approval from the Executive Director of the Board of Police Commissioners. In general, the City of Los Angeles Department of Building and Safety enforces noise ordinance provisions relative to noise generated by operation of equipment, and the Los Angeles Police Department enforces provisions relative to noise generated by people.

(3) Ground-Borne Vibration

The City currently does not have any adopted standards, guidelines, or thresholds relative to ground-borne vibration. As such, available guidelines from the FTA are utilized to assess impacts due to ground-borne vibration. As discussed above, in most circumstances common ground-induced vibrations related to roadway traffic and construction activities pose no threat to buildings or structures.[17,18]

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

[17] *FTA, "Transit Noise and Vibration Impact Assessment," Chapter 5, September 2018.*

The FTA has published a technical manual titled, "Transit Noise and Vibration Impacts Assessment," which provides ground-borne vibration impact criteria with respect to building damage during construction activities.[19] As discussed above, building vibration damage is measured in PPV described in the unit of inches per second. Table IV.F-4 on page IV.F-11 provides the FTA vibration criteria applicable to construction activities. According to FTA guidelines, a vibration criterion of 0.20 PPV should be considered as the significant impact level for non-engineered timber and masonry buildings. Structures or buildings constructed of reinforced concrete, steel, or timber, have a vibration damage criterion of 0.50 PPV pursuant to the FTA guidelines.

In addition to the FTA Construction Vibration Impact Criteria for Building Damage, the FTA guidance manual also provides vibration criteria for human annoyance for various uses. These criteria were established primarily for rapid transit (rail) projects and, as indicated in Table IV.F-5 on page IV.F-12, are based on the frequency of vibration events. Specific criteria are provided for three land use categories: (1) Vibration Category 1—High Sensitivity; (2) Vibration Category 2—Residential; and (3) Vibration Category 3—Institutional.

c. Existing Conditions

As discussed in Section II, Project Description, of this Draft EIR, the Project Site is located in an urbanized area. The predominant source of noise in the vicinity of the Project Site is vehicular traffic on adjacent roadways, particularly along Sunset Boulevard and Western Avenue along the northern and western boundaries of the Project Site, respectively, which have high volumes of traffic. Ambient noise sources in the vicinity of the Project Site include automobile and truck traffic; buses; commercial activities; surface parking lot activities; construction noise from developing properties in the area; 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.[20] Similarly, the Noise Element defines

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[18] *Caltrans, "Transportation and Construction Vibration Guidance Manual," April 2020, Appendix A, page 10.*

[19] *FTA, "Transit Noise and Vibration Impact Assessment," September 2018.*

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

Table IV.F-4
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

As discussed on page IV.F-4, PPV is defined as the maximum instantaneous peak of the vibration signal and is typically used for evaluating potential building damage.

Source: Federal Transit Administration, Transit Noise and Vibration Impacts Assessment, Table 7-5, 2018.

noise-sensitive land uses as single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodging, and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves; and parks.[21] These uses are generally considered more sensitive to noise than commercial and industrial land uses.

Based on a review of the land uses in the vicinity of the Project Site, five noise receptor locations 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. As discussed below, noise measurements were conducted at the five off-site locations around and adjacent to 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 baseline measurements for uses in all directions. In addition, the monitoring locations provide an adequate basis to evaluate potential impacts at the monitoring locations and receptors beyond in the same direction. The noise measurement locations are shown in Figure IV.F-1 on page IV.F-13 and described in Table IV.F-6 on page IV.F-14.

(2) Ambient Noise Levels

To establish baseline noise conditions, existing ambient noise levels were monitored at five representative receptor locations (identified as R1 to R5) in the vicinity of the Project

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

Table IV.F-5
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

As discussed on page IV.F-5, VdB, a decibel unit referenced to one micro-inch per second, is used to measure vibration velocity.

[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, Table 6-3, 2018.

Site. The baseline noise monitoring program was conducted on January 11, 2018, using a Quest Technologies Model 2900 Integrating/Logging Sound Level Meter.[22] Two 15-minute measurements were conducted at each of the receptor locations during daytime and nighttime hours. The daytime ambient noise levels were measured between 10:00 A.M. and 12:00 P.M., and the nighttime ambient noise levels were measured between 10:00 P.M. and 12:00 A.M. The ambient noise measurements were measured in accordance with the City's standards, which require ambient noise to be measured over a period of at least 15 minutes.[23]

Table IV.F-7 on page IV.F-15 provides a summary of the ambient noise measurements conducted at the five noise receptor locations. Based on field observations, the ambient noise at the measurement locations is dominated by local traffic and, to a lesser extent, helicopter flyovers and other typical urban noises. As indicated in

[22] *This sound meter meets and exceeds the minimum industry standard performance requirements for "Type 2" standard instruments as defined in the American National Standard Institute (ANSI) S1.4. It also meets the requirement specified in Section 111.01(l) of the LAMC that instruments be "Type S2A" standard instruments or better. The sound meter was calibrated and operated according to the manufacturer's written specifications.*

[23] *LAMC Section 111.01.*

Figure IV.F-1
Noise Measurement Locations

Source: Acoustical Engineering Services, 2018.

Table IV.F-6
Description of Noise Measurement Locations

Receptor Location	Description	Approximate Distance from Measurement Location to Nearest Project Site Boundary (feet)[a]	Nearest Noise-Sensitive Land Use(s)
R1	Residential use on east side of Serrano Avenue across from the Project Site	60	Residential
R2	Residential use on east side of Serrano Avenue north of the Project Site	270	Residential
R3	Hotel and Residential use on north side of Sunset Boulevard across from the Project Site	100	Residential, Hotel
R4	Theater use (Nine O'Clock Players) at the southeast corner of Saint Andrews Place and De Longpre Avenue, west of the Project Site	390	Theater
R5	Apartments building on north side of Fernwood Avenue, south of the Project Site. Receptor location R5 also represents the Holy Transfiguration Russian Orthodox church located on the south side of Fernwood Avenue.	330	Residential, Religious

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

Source: Acoustical Engineering Services (AES), 2018. See Appendix H of this Draft EIR.

Table IV.F-7 on page IV.F-15, the existing daytime ambient noise levels at the off-site noise receptor locations ranged from 56.1 dBA (L_{eq}) at receptor location R2 to 67.8 dBA (L_{eq}) at receptor location R3. The measured nighttime ambient noise levels ranged from 56.5 dBA (L_{eq}) at receptor location R5 to 66.0 dBA (L_{eq}) at receptor location R3. Thus, the existing ambient noise levels at all off-site locations are above the City's presumed daytime and nighttime ambient noise levels of 50 dBA (L_{eq}) and 40 dBA (L_{eq}), respectively, for residential uses, as presented above in Table IV.F-3 on page IV.F-9.

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 by the Traffic Study prepared for the Project and included as Appendix P of this Draft EIR. Twenty-nine (29) 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 Traffic Study prepared for the Project. The TNM traffic noise prediction model calculates the hourly L_{eq} noise levels based on specific information

Table IV.F-7
Existing Ambient Noise Levels

Receptor Location	Noise-Sensitive Land Use	Measured Noise Levels, L_{eq} (dBA)		CNEL (24-hour)[a]
		Daytime Hours (7:00 A.M.–10:00 P.M.)	Nighttime Hours (10:00 P.M.–7:00 A.M.)	
R1	Residential	59.6	57.6	62.7
R2	Residential	56.1	58.4	62.7
R3	Residential, Hotel	67.8	66.0	71.1
R4	Theater	63.2	56.6	63.5
R5	Residential, Religious	61.9	56.5	62.9

[a] *Estimated based on short-term (15-minute) noise measurement based on FTA procedures.*
Source: AES, 2018. See Appendix H of this Draft EIR.

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 traffic noise prediction model calculates the 24-hour CNEL noise levels based on specific information, including Average Daily Traffic (ADT); percentages of day, evening, and nighttime traffic volumes relative to ADT; vehicle speed; and distance between the noise receptor and the roadway. Vehicle mix/distribution information used in the noise calculations is shown in Table IV.F-8 on page IV.F-16.

Table IV.F-9 on page IV.F-17 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 66.0 dBA CNEL along Serrano Avenue (between Sunset Boulevard and Fountain Avenue) to 73.5 dBA CNEL along Sunset Boulevard (between Bronson Avenue and Wilton Place). Currently, the existing traffic-related noise levels along the roadway segment of Serrano Avenue (between Hollywood Boulevard and Fountain Avenue), fall within the conditionally acceptable noise levels for residential uses (i.e., between 60 and 70 dBA CNEL). The existing traffic noise levels along Wilton Place, Western Avenue, Normandie Avenue, Franklin Avenue, Hollywood Boulevard, Sunset Boulevard, Fountain Avenue, and Santa Monica Boulevard are between 70 dBA CNEL and 75 dBA CNEL, which are considered normally unacceptable for residential uses.

Table IV.F-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, 2018. See Appendix H of this Draft EIR.

(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."[24] Trucks and buses typically generate ground-borne vibration velocity levels of around 63 VdB (at 50 feet distance), and these levels could reach 72 VdB when trucks and buses pass over bumps in the road. Per the FTA, 75 VdB is the dividing line between barely perceptible (with regards to ground vibration) and distinctly perceptible.[25] Therefore, existing ground vibration in the vicinity of the Project Site is generally below the perceptible level. However, ground vibration associated with heavy trucks traveling on road surfaces with irregularities, such as speed bumps and potholes, could reach the perceptible threshold.

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

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

Table IV.F-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]
Wilton Place					
Between Hollywood Blvd. and Sunset Blvd.	Residential, School	30	70.9	Yes	Normally Unacceptable
Between Sunset Blvd. and Fountain Ave.	School, Religious	30	71.5	Yes	Normally Unacceptable
Between Fountain Ave. and Santa Monica Blvd.	Religious	30	72.5	Yes	Normally Unacceptable
Western Avenue					
Between Franklin Ave. and Hollywood Blvd.	Residential, Motel, Religious	40	72.2	Yes	Normally Unacceptable
Between Hollywood Blvd. and Sunset Blvd.	Residential, Hotel	40	72.2	Yes	Normally Unacceptable
Between Sunset Blvd. and Fountain Ave.	Homeless Shelter, Commercial	40	71.7	Yes	Normally Unacceptable
Between Fountain Ave. and Santa Monica Blvd.	Commercial	40	72.4	No	Conditionally Acceptable
Normandie Avenue					
Between Hollywood Blvd. and Sunset Blvd.	Residential, Religious	30	70.1	Yes	Normally Unacceptable
Between Sunset Blvd. and Santa Monica Blvd.	Residential	30	72.4	Yes	Normally Unacceptable
Serrano Avenue					
Between Hollywood Blvd. and Sunset Blvd.	Residential	30	66.5	Yes	Conditionally Acceptable
Between Sunset Blvd. and Fountain Ave.	Residential, Nursing Home	30	66.0	Yes	Conditionally Acceptable
Franklin Avenue					
Between Wilton Ave. and Western Ave.	Residential, School	40	73.4	Yes	Normally Unacceptable
Between Western Ave. and Normandie Ave.	Residential	40	71.5	Yes	Normally Unacceptable
Hollywood Boulevard					
Between Bronson Ave. and Wilton Pl.	Residential	40	72.9	Yes	Normally Unacceptable
Between Wilton Pl. and Western Ave.	Residential, Motel	40	72.4	Yes	Normally Unacceptable
Between Western Ave. and Normandie Ave.	Hotel	40	72.2	Yes	Normally Unacceptable
Between Normandie Ave. and Vermont Ave.	School	40	72.2	Yes	Normally Unacceptable

Table IV.F-9 (Continued)
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]
Sunset Boulevard					
Between Bronson Ave. and Wilton Pl.	Residential	45	73.5	Yes	Normally Unacceptable
Between Wilton Pl. and Western Ave.	Hotel	45	73.4	Yes	Normally Unacceptable
Between Western Ave. and Serrano Ave.	Residential	45	73.2	Yes	Normally Unacceptable
Between Serrano Ave. and Normandie Ave.	Hotel	45	72.9	Yes	Normally Unacceptable
Fountain Avenue					
Between Van Ness Ave. and Wilton Pl.	Residential, School	30	70.4	Yes	Normally Unacceptable
Between Wilton Pl. and Western Ave.	Residential	30	71.6	Yes	Normally Unacceptable
Between Western Ave. and Serrano Ave.	Nursing Home, Religious, Hotel	30	71.5	Yes	Normally Unacceptable
Between Serrano Ave. and Normandie Ave.	Residential	30	71.5	Yes	Normally Unacceptable
Santa Monica Boulevard					
Between Van Ness Ave. and Wilton Pl.	School	40	72.4	Yes	Normally Unacceptable
Between Wilton Pl. and Western Ave.	Residential	40	72.5	Yes	Normally Unacceptable
Between Western Ave. and Normandie Ave.	Residential, School	40	72.5	Yes	Normally Unacceptable
Between Normandie Ave. and Vermont Ave.	Residential, School	40	72.4	Yes	Normally Unacceptable

[a] *Detailed calculation worksheets are included in Appendix H 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.F-2 on page IV.F-6.*

Source: AES, 2020.

3. Project Impacts

a. Thresholds of Significance

(1) State CEQA Guidelines Appendix G

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; or

Threshold (b): Generation of excessive groundborne vibration or groundborne noise levels; or

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

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

(2) 2006 L.A. CEQA Thresholds Guide

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

(a) 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 take approximately 48 months and be completed in 2026. Therefore, 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.

(b) 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.F-2 on page IV.F-6 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, trash compactor, 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 LAMC. The LAMC does not apply to off-site traffic (i.e., vehicles traveling on public roadways). Therefore, based on the *L.A. CEQA Thresholds Guide*, the significance 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 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.

(c) Airport Noise

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

- Noise levels at a noise sensitive use attributable to airport operations exceed 65 dB CNEL and the project increases ambient noise levels by 1.5 dB CNEL or greater.

(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 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 sensitive uses, including residential, hotel and theater uses.

b. Methodology

(1) On-Site Construction Activities

Construction noise impacts due to on-site construction activities associated with the Project were evaluated by calculating the construction-related noise levels at representative sensitive receptor locations and comparing these estimated construction-related noise levels associated with construction of the Project to the existing ambient noise levels (i.e., noise levels without construction noise from the Project). Construction noise associated with the Project was analyzed based on 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)."[26] The ambient noise levels at surrounding sensitive receptor locations were based on field measurement data (see Table IV.F-7 on page IV.F-15). 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 line-of-sight to the Project Site was interrupted by the presence of intervening structures.

(2) Off-Site Construction Haul Trucks

Off-site construction noise impacts from haul trucks associated with the Project were analyzed using the FHWA's TNM computer noise model. The TNM is the current Caltrans standard computer noise model for traffic noise studies. The model allows for the input of roadway, noise receivers, and sound barriers, if applicable. The construction-related off-site truck volumes were obtained from the Traffic Study prepared for the Project, which is included in Appendix P of this Draft EIR. The TNM noise model calculates the hourly L_{eq} noise levels generated by construction-related haul trucks. Noise impacts were determined by comparing the predicted noise level plus ambient with that of the existing ambient noise levels along the Project's anticipated haul route(s).

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

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

[26] *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 trash compactor; (2) calculating the noise level from each noise source at surrounding sensitive receptor property line locations; and (3) comparing such noise levels to ambient noise levels to determine significance. The on-site stationary noise sources were calculated using the SoundPLAN (version 8.2) computer noise prediction model.[27] 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, Existing Conditions, above, off-site roadway noise was analyzed using the FHWA TNM model and traffic data from the Project's Traffic Study, included as Appendix P of this Draft EIR. Roadway noise levels were calculated for various roadway segments, based on the intersection traffic volumes.[28] Roadway noise conditions without the Project were calculated and 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 subterranean parking garage and off-site vehicular trips. However, as discussed above, vehicular-induced vibration is unlikely to be perceptible by people. In addition, vibration levels associated with Project delivery trucks would be similar to the delivery trucks for the existing supermarket at the Project Site. 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.

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[27] *SoundPLAN GmbH, SoundPLAN version 8.2, 2020*

[28] *The noise calculation also takes into account traffic volume mid-block. Roadway segment volumes are derived from the intersection volumes. The mid-block traffic volume is calculated by averaging the traffic volumes at the two intersection ends.*

c. Project Design Features

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

Project Design Feature NOI-PDF-1: Power construction equipment (including combustion engines), fixed or mobile, will be equipped with state-of-the-art noise shielding and muffling devices (consistent with manufacturers' standards). All equipment will be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated. The construction contractor will keep documentation on-site demonstrating that the equipment has been maintained in accordance with manufacturer's specifications.

Project Design Feature NOI-PDF-2: All outdoor mounted mechanical equipment will be enclosed or screened from off-site noise-sensitive receptors as defined in the LA CEQA Thresholds Guide.

Project Design Feature NOI-PDF-3: Outdoor amplified sound systems, if any, will be designed so as not to exceed the maximum noise level of 71 dBA (L_{eq-1hr}) at a distance of 25 feet from the amplified speaker sound systems at the Ground Level (Outdoor Dining, Plaza, and Paseo) and 85 dBA (L_{eq-1hr}) at the Levels 2 and 3 (Courtyards at Buildings 1, 2, 3, and 4, and Paseo) and at the Recreation Building Roof Level Terrace. A qualified noise consultant will provide written documentation that the design of the system complies with these maximum noise levels.

Project Design Feature NOI-PDF-4: All loading docks will be acoustically screened from off-site noise-sensitive receptors.

Project Design Feature NOI-PDF-5: Project construction will not include the use of driven (impact) pile systems.

d. Project Impacts

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

(1) Impact Analysis

(a) Construction Noise

As discussed above, Project construction is anticipated to take approximately 48 months and be completed in 2026. As such, 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 below is when the Project-related construction noise exceeds the ambient exterior noise levels by 5 dBA (hourly L_{eq}) or more at a noise-sensitive use.

Construction of the Project would commence with demolition of the existing buildings and parking areas, followed by grading and excavation for the subterranean parking levels. Building foundations would then be constructed, followed by building construction, paving/concrete installation, and landscape installation. It is estimated that approximately 380,000 cubic yards of soil and demolition debris would be hauled from the Project Site during the excavation phase. Construction delivery/haul trucks would travel on approved truck routes between the Project Site and the Hollywood Freeway (US-101) to and from Sunshine Canyon Landfill north of the Project Site. Haul trucks would access US-101 via Western Avenue and Lexington Avenue.

(i) On-Site Construction Noise

Noise impacts from Project-related construction activities occurring within or adjacent to the Project Site would be a function of the noise generated by construction equipment, the location of the equipment, the timing and duration of the noise-generating construction activities, and the relative distance to noise-sensitive receptors. Construction activities for the Project would 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 excavators, concrete saws, front-end loaders, generators, and heavy-duty trucks. Grading and excavation typically require the use of earth-moving equipment, such as drill rigs, excavators, front-end loaders, concrete pumps, cranes, welders, generators, and heavy-duty trucks. Building construction typically involves the use of cranes, forklifts, concrete trucks, pumps, and delivery trucks. Noise from construction equipment would generate both steady-state and episodic noise that could be heard within and adjacent to the Project Site.

As provided in Project Design Feature NOI-PDF-1 above, construction equipment is reasonably assumed to 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.F-10 on page IV.F-26. These maximum noise levels would occur when equipment is operating under full power conditions (i.e., the equipment engine at maximum speed). However, equipment used on construction sites often operate under less than full power conditions, or part power. To more accurately characterize construction-period noise levels, the

Table IV.F-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
Asphalt Concrete Grinder	20	90
Cement and Mortar Mixer	50	80
Concrete Mixer Truck	40	79
Concrete Saw	20	90
Crane	16	81
Drill Rig	20	84
Forklift	10	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.

average (Hourly L_{eq}) noise level associated with each construction phase is calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each construction phase.[29] These noise levels are typically associated with multiple pieces of equipment operating on part power, simultaneously.

Table IV.F-11 on page IV.F-27 provides the estimated construction noise levels for various construction phases at the off-site noise-sensitive receptors. To present a conservative impact analysis, the estimated noise levels were calculated for a scenario in

[29] *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.F-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))	Sig. Impact?
		Demolition	Grading	Mat Foundation	Building Construction	Finishing	Paving				
R1	60	83.1	80.1	78.5	82.9	76.4	75.7	59.6	64.6	18.5	**Yes**
R2	270	71.4	69.8	68.8	71.1	65.4	63.5	56.1	61.1	10.3	**Yes**
R3	100	79.5	77.4	76.2	79.1	73.1	72.1	67.8	72.8	6.7	**Yes**
R4	395	68.2	66.9	66.0	68.1	62.5	60.2	63.2	68.2	0.0	No
R5	145	71.5	69.7	68.6	71.2	65.3	63.9	61.9	66.9	4.6	**Yes**

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.F-7 on page IV.F-15) 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, 2020. See Appendix H of this Draft EIR.

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

As discussed above, since construction activities would occur over a period longer than 10 days for all phases, 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 presented in Table IV.F-11 on page IV.F-27, construction activities would generate the highest noise during the demolition phase, as it is anticipated to have the highest noise generating construction equipment in the construction area compared to the Project's other construction stages. Therefore, the potential noise impacts (i.e., noise increase over the ambient level) would be highest during the demolition phase. As indicated in Table IV.F-11, the estimated noise levels during all stages of Project construction would exceed the significance criteria at all off-site receptor locations, with the exception of receptor location R4. The estimated construction-related noise would exceed the significance threshold from 4.6 dBA at receptor R5 to 18.5 dBA at receptor R1, without implementation of mitigation. **Therefore, temporary noise impacts 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 associated with delivery/haul trucks. As described above, construction delivery/haul trucks would travel between the Project Site and US-101 via Western Avenue and Lexington Avenue.

Based on the anticipated time frame for construction activity provided within the analysis for the Project, the peak period of construction with the highest number of construction trucks would occur during the mat foundation phase. During this phase, there would be a maximum of 200 construction trucks (200 concrete trucks) coming to and leaving the Project Site (equal to 400 total trips) per day. In addition, there would be a total of 40 worker trips to and from the Project Site on a daily basis during the matt foundation phase. There would also be construction haul/delivery truck trips (up to 228 truck trips per

day) during other construction phases of the Project, but such trips would be less than the 400 truck trips under the mat foundation phase.

Table IV.F-12 on page IV.F-30 provides the estimated number of construction-related trips, including haul/delivery trucks and worker vehicles, and the estimated noise levels along the anticipated haul route(s). As indicated in Table IV.F-12, the noise levels generated by construction trucks during all stages of Project construction would be consistent with the existing daytime ambient noise levels along the anticipated haul route(s). The Project-related construction traffic would result in a maximum 2.9 dBA increase along Western Avenue and 3.6 dBA increase along Lexington Avenue over the existing ambient, which would be below significance criteria of 5-dBA above ambient noise level (based on the measured ambient at R3). **Therefore, temporary noise impacts from off-site construction traffic would be less than significant.**

(iii) Summary of Construction Noise Impacts

As discussed above, temporary noise impacts associated with the Project's on-site construction would be significant at four of the off-site receptor locations. The temporary noise impacts from off-site construction traffic would be less than significant. Therefore, without mitigation measures Project construction would result in the exposure of persons to or generation of noise levels in excess of standards established by the City.

(b) Operational Noise

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

(i) On-Site Stationary Noise Sources

<u>Mechanical Equipment</u>

As part of the Project, new mechanical equipment (e.g., air ventilation equipment) would be located at the roof level and within the building structure (e.g., garage exhaust fans). 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,

Table IV.F-12
Off-Site Construction Haul Truck Noise Levels

Construction Phase	Estimated Number of Construction Truck/Worker Trips per Day	Estimated Number of Construction Truck/Worker Trips per Hour[a]	Estimated Haul Truck Noise Levels Along the Project Haul Routes (L_{eq} (dBA)) (Project/Project + Ambient)	
			Western Avenue	Lexington Avenue
Demolition	10/100	2/40	56.6/68.1	58.2/67.0
Grading	228/62.5	29/25	66.3/70.1	66.2/69.3
Matt Foundation	400/100	50/40	67.5/70.7	67.5/70.0
Building Construction	110/100	14/40	62.5/68.9	62.8/68.0
Building Construction (Finishing)	40/1000	5/400	64.7/69.5	67.1/69.8
Paving	4/20	1/8	52.0/67.9	54.7/66.7
Existing Ambient Noise Levels Along the Project Haul Routes, L_{eq} (dBA)[b]			67.8	66.4
Significance Criteria, L_{eq} (dBA)[c]			72.8	71.4
Maximum Exceedance Over Significance Criteria, L_{eq} (dBA)			0.0	0.0
Significant Impact?			**No**	**No**

[a] *For construction trucks, the number of hourly trips is based on an hourly average, assuming a uniform distribution of trips over an 8-hour work day. Haul truck hourly trips are conservatively distributed over a 6-hour hauling day. Truck trips for Lexington Avenue equal to one-half of the truck trips shown, as Lexington Avenue is only used for trucks coming to the Project Site. 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.*

[b] *Ambient noise levels along the haul routes (Western Avenue) are based on measurements at nearby receptor locations (i.e., receptors R3 along Sunset Boulevard). Ambient along Lexington Avenue is estimated based on existing traffic volumes.*

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

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

refrigeration, heating, pumping, and filtering equipment from exceeding the ambient noise levels on the premises of other occupied properties by more than 5 dBA. In addition, as provided above in Project Design Feature NOI-PDF-2, all outdoor mounted mechanical equipment would be enclosed or screened from off-site noise-sensitive receptors. Table IV.F-13 on page IV.F-31 presents the estimated noise levels at the off-site receptor locations from operation of the Project mechanical equipment. As indicated in Table IV.F-13, the estimated noise levels from the mechanical equipment would range from 34.4 dBA (L_{eq}) at receptor location R2 to 37.3 dBA (L_{eq}) at receptor location R1, which

Table IV.F-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	57.6	37.3	57.6	62.6	0.0	No
R2	56.1	34.4	56.1	61.1	0.0	No
R3	66.0	35.9	66.0	71.0	0.0	No
R4	56.6	34.8	56.6	61.6	0.0	No
R5	56.5	35.7	56.5	61.5	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.F-7 on page IV.F-15) 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, 2020. See Appendix H of this Draft EIR.

would be well below the existing ambient noise levels. As such, the estimated noise levels at all off-site receptor locations would be below the significance criteria of 5 dBA (L_{eq}) above ambient noise levels (based on the lowest measured ambient). **Therefore, noise impacts 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 various outdoor open space areas, including: (1) a pedestrian paseo and plaza at the ground level; (2) an open space courtyard with various amenities at the podium level of each of the four buildings; (3) an outdoor pool area at Level 3; and (4) a roof terrace above the recreation building. Noise sources associated with outdoor uses typically include noise from people gathering and conversing. For this operational noise analysis, reference noise levels of 65 dBA for a male and 62 dBA for a female speaking in a raised voice were used for analyzing potential noise impacts from people gathering at the outdoor spaces.[30] 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 8:00 A.M. to 10:00 P.M.

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

An additional potential noise source associated with outdoor uses would be the use of an outdoor sound system (e.g., music or other sounds broadcast through an outdoor mounted speaker system). As set forth in Project Design Feature NOI-PDF-3, the amplified sound system used in outdoor areas would be designed so as not to exceed the maximum noise levels of 71 to 85 dBA L_{eq} as indicated in Table IV.F-14 on page IV.F-33, 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.F-14 presents the anticipated number of people at each of the outdoor spaces and the Project's maximum amplified sound levels.

Table IV.F-15 on page IV.F-33 presents the estimated noise levels at the off-site sensitive receptors resulting from the use of outdoor areas. The estimated noise levels were calculated with the assumption that all of the outdoor spaces would be fully occupied and operating concurrently to represent a worst-case noise analysis. As presented in Table IV.F-15, the estimated noise levels from the outdoor spaces would range from 49.1 dBA (L_{eq}) at receptor R2 to 63.6 dBA (L_{eq}) at receptor R3 and would be below the significance criteria of 5 dBA (L_{eq}) above ambient noise levels (based on the lowest measured ambient noise level). **As such, noise impacts from the use of the outdoor areas would be less than significant.**

Parking Facilities

As discussed in Section II, Project Description, of this Draft EIR, the Project would provide 1,463 vehicular parking spaces. Parking would be provided in two levels of subterranean and one level of at-grade parking. Sources of noise within the parking garage would primarily include vehicular movements (including tire squealing) and engine noise, doors opening and closing, and intermittent car alarms. Noise levels within the parking garage would fluctuate with the amount of automobile and human activity. Since the subterranean parking levels would be fully enclosed on all sides, noise generated within the subterranean parking garage would be effectively shielded from off-site sensitive receptor locations in the immediate vicinity of the Project Site. The at-grade parking level would be located at the south side of the Project Site, behind Buildings 1 and 2, which would be shielded to sensitive receptors to the north, east, and west (by the Project buildings). Table IV.F-16 on page IV.F-34 presents the estimated noise levels from the at-grade parking levels at the off-site receptor locations. As indicated in Table IV.F-16, the estimated noise levels from the Project parking garage would be well below the significance criteria of 5 dBA (L_{eq}) above the ambient noise levels (based on the lowest measured ambient). **Therefore, noise impacts from the parking garage would be less than significant.**

Table IV.F-14
Outdoor Use Analysis Assumptions

Outdoor Space	Approximate Area (sf)	Estimated Total Number of People[a]	Amplified Sound System Levels, dBA (L_{eq})
Level 1—Plaza (northwest corner)	4,160	277	71 dBA at 25 feet
Level 1—Plaza (north side)	4,600	307	71 dBA at 25 feet
Level 1—North/South Paseo	18,400	1,227	71 dBA at 25 feet
Level 2—Building 3 Courtyard	13,240	883	85 dBA at 25 feet
Level 2—Building 4 Courtyard	10,820	721	85 dBA at 25 feet
Level 3—Pool Area	26,270	1,751	85 dBA at 25 feet
Level 3—Building 1 Courtyard	5,990	399	85 dBA at 25 feet
Level 3—Building 2 Courtyard	9,600	640	85 dBA at 25 feet
Roof Terrace	12,570	838	85 dBA at 25 feet

[a] *Based on maximum 15 square feet per person, per Building Code (2019 California Standards Building Code, Chapter 10, Table 1004.5).*

Source: Van Tilburg, Banvard & Soderbergh, AIA, 2020; AES, 2020.

Table IV.F-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	57.6	53.4	59.0	62.6	0.0	No
R2	56.1	49.1	56.9	61.1	0.0	No
R3	66.0	63.6	68.0	71.0	0.0	No
R4	56.6	49.8	57.4	61.6	0.0	No
R5	56.5	55.0	58.8	61.5	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.F-7 on page IV.F-15) 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, 2020. See Appendix H of this Draft EIR.

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

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Parking Facilities, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Criteria[a]	Exceedance over Significance Criteria	Significant Impact?
R1	57.6	47.5	58.0	62.6	0.0	No
R2	56.1	30.5	56.1	61.1	0.0	No
R3	66.0	41.3	66.0	71.0	0.0	No
R4	56.6	40.5	56.7	61.6	0.0	No
R5	56.5	34.3	56.5	61.5	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.F-7 on page IV.F-15) 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, 2020. See Appendix H of this Draft EIR.

Loading Dock and Trash Collection Areas

The Project would include two loading dock areas at Level 1, one of which would be located under Building 1 and the other located at the east side of Building 2. Delivery trucks would access the loading docks through the entrance driveway from Serrano Avenue (from the east). The Project trash rooms would be located in the subterranean parking Level P1 and within a fully enclosed area of the loading dock on Level 1. Noise sources associated with the loading dock and trash collection area would include delivery/trash collection trucks and operation of the trash compactor. Based on measured noise levels from typical loading dock facilities and trash compactors, delivery/trash collection trucks and trash compactors could generate noise levels of approximately 71 dBA (L_{eq}) and 66 dBA (L_{eq}), respectively, at a distance of 50 feet.[31] The trash rooms (trash compactors) would be effectively buffered from the off-site sensitive receptors as they are located within the subterranean parking level and within a fully enclosed area of the loading dock located on Level 1. As provided above in Project Design Feature NOI-PDF-4, all loading docks would be screened from off-site noise-sensitive receptors. The loading docks would also be shielded to the off-site sensitive receptors by the Project buildings (for the interior loading dock) and noise-shielding wall (for the east side loading dock). Table IV.F-17 on page IV.F-35 presents the estimated noise levels at the off-site receptor locations from operation of the loading dock and trash compactor. As indicated in Table IV.F-17, the estimated noise from the loading dock and trash compactor range from 40.2 dBA (L_{eq}) at receptor location R5 to 53.6 dBA (L_{eq}) at receptor location R3. The

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

Table IV.F-17
Estimated Noise Levels from Loading Dock and Trash Compactor

Receptor Location	Existing Ambient Noise Levels (dBA (L_{eq}))	Estimated Noise Levels from Loading Dock and Trash Compactor (dBA (L_{eq}))	Ambient + Project Noise Levels (dBA (L_{eq}))	Significance Criteria[a]	Exceedance over Significance Criteria	Significant Impact?
R1	57.6	53.4	59.0	62.6	0.0	No
R2	56.1	50.4	57.1	61.1	0.0	No
R3	66.0	53.6	66.2	71.0	0.0	No
R4	56.6	51.3	57.7	61.6	0.0	No
R5	56.5	40.2	56.6	61.5	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.F-7 on page IV.F-15) 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, 2020. See Appendix H of this Draft EIR.

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

(ii) Off-Site Mobile Noise Sources

Future Plus Project

Future roadway noise levels were calculated along 29 roadway segments in the vicinity of the Project Site. The roadway noise levels were calculated using the traffic data provided in the Transportation Analysis prepared for the Project, which is included in Appendix N of this Draft EIR. As discussed in the Transportation Analysis, the Project is expected to generate 8,655 daily 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 was analyzed to determine if any traffic-related noise impacts would result from operation of the Project. Table IV.F-18 on page IV.F-36 provides a summary of the roadway noise impact analysis. 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.F-18, the Project would result in a maximum of a 0.1 dBA (CNEL) increase in traffic noise along the roadway segments of Western Avenue (between Hollywood Boulevard and Santa Monica Boulevard), Hollywood Boulevard (between Wilton Place and Western Avenue), and Sunset Boulevard (between Bronson Avenue and

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

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels (CNEL (dBA))		Increase in Noise Levels due to Project (CNEL (dBA))	Significant Impact?
		Future Without Project	Future Plus Project		
Wilton Place					
Between Hollywood Blvd. and Sunset Blvd.	Residential, School	71.5	71.5	0.0	No
Between Sunset Blvd. and Fountain Ave.	School, Religious	71.9	71.9	0.0	No
Between Fountain Ave. and Santa Monica Blvd.	Religious	72.9	72.9	0.0	No
Western Avenue					
Between Franklin Ave. and Hollywood Blvd.	Residential, Motel, Religious	72.7	72.7	0.0	No
Between Hollywood Blvd. and Sunset Blvd.	Residential, Hotel	72.6	72.7	0.1	No
Between Sunset Blvd. and Fountain Ave.	Homeless Shelter, Commercial	72.4	72.5	0.1	No
Between Fountain Ave. and Santa Monica Blvd.	Commercial	73.1	73.2	0.1	No
Normandie Avenue					
Between Hollywood Blvd. and Sunset Blvd.	Residential, Religious	70.5	70.5	0.0	No
Between Sunset Blvd. and Santa Monica Blvd.	Residential	72.8	72.8	0.0	No
Serrano Avenue					
Between Hollywood Blvd. and Sunset Blvd.	Residential	66.9	66.8	0.0	No
Between Sunset Blvd. and Fountain Ave.	Residential, Nursing Home	66.4	66.4	0.0	No
Franklin Avenue					
Between Wilton Ave. and Western Ave.	Residential, School	73.9	73.9	0.0	No
Between Western Ave. and Normandie Ave.	Residential	72.1	72.1	0.0	No
Hollywood Boulevard					
Between Bronson Ave. and Wilton Pl.	Residential	73.9	73.9	0.0	No
Between Wilton Pl. and Western Ave.	Residential, Motel	73.4	73.5	0.1	No
Between Western Ave. and Normandie Ave.	Hotel	73.2	73.2	0.0	No
Between Normandie Ave. and Vermont Ave.	School	73.3	73.3	0.0	No

Table IV.F-18 (Continued)
Roadway Traffic Noise Impacts—Future Plus Project

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels (CNEL (dBA))		Increase in Noise Levels due to Project (CNEL (dBA))	Significant Impact?
		Future Without Project	Future Plus Project		
Sunset Boulevard					
Between Bronson Ave. and Wilton Pl.	Residential	74.7	74.8	0.1	No
Between Wilton Pl. and Western Ave.	Hotel	74.4	74.5	0.1	No
Between Western Ave. and Serrano Ave.	Residential	74.0	74.0	0.0	No
Between Serrano Ave. and Normandie Ave.	Hotel	73.7	73.8	0.1	No
Fountain Avenue					
Between Van Ness Ave. and Wilton Pl.	Residential, School	70.9	70.8	0.0	No
Between Wilton Pl. and Western Ave.	Residential	72.1	72.1	0.0	No
Between Western Ave. and Serrano Ave.	Nursing Home, Religious, Hotel	71.9	71.9	0.0	No
Between Serrano Ave. and Normandie Ave.	Residential	72.0	72.0	0.0	No
Santa Monica Boulevard					
Between Van Ness Ave. and Wilton Pl.	School	73.8	73.8	0.0	No
Between Wilton Pl. and Western Ave.	Residential	74.0	74.0	0.0	No
Between Western Ave. and Normandie Ave.	Residential, School	73.7	73.7	0.0	No
Between Normandie Ave. and Vermont Ave.	Residential, School	73.1	73.1	0.0	No

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

Western Avenue; and between Serrano Avenue and Normandie Avenue). At other analyzed roadway segments, the increase in traffic-related noise levels would be less than 0.1 dBA. The increase in traffic noise levels would be well below the relevant 3 dBA CNEL significance criteria. **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.F-19 on page IV.F-39, when compared with existing conditions, the Project would result in a maximum increase of up to 0.1 dBA (CNEL) in traffic-related noise levels along the roadway segments of Western Avenue (between Franklin Avenue and Hollywood Boulevard; and between Sunset Boulevard and Santa Monica Boulevard) and Sunset Boulevard (between Bronson Avenue and Western Avenue). At other analyzed roadway segments, the increase in traffic-related noise levels would be 0.1 dBA or lower. The estimated increase in traffic noise levels as compared to existing conditions would be well below the relevant 3 dBA CNEL significance criteria. **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, parking facilities, loading dock and trash compactor, and off-site traffic), an evaluation of potential composite noise level increases (i.e., noise levels from all on-site noise sources combined) at the analyzed sensitive receptor locations was also performed. This evaluation of composite noise levels from all on-site Project-related noise sources, evaluated using the CNEL noise metric, was conducted to determine the contributions at the noise-sensitive receptor locations in the vicinity of the Project Site.

Table IV.F-20 on page IV.F-41 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.F-20, the Project would result in an increase in composite noise levels ranging from 0.5 dBA at receptor locations R2 and R4 to 1.4 dBA at receptor location R1. The composite noise levels from Project operation at the off-site receptor locations would be below the 3-dBA significance criteria (applicable to receptor

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

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels (CNEL (dBA))		Increase in Noise Levels due to Project (CNEL (dBA))	Significant Impact?
		Existing	Existing Plus Project		
Wilton Place					
Between Hollywood Blvd. and Sunset Blvd.	Residential, School	70.9	70.9	0.0	No
Between Sunset Blvd. and Fountain Ave.	School, Religious	71.5	71.5	0.0	No
Between Fountain Ave. and Santa Monica Blvd.	Religious	72.5	72.5	0.0	No
Western Avenue					
Between Franklin Ave. and Hollywood Blvd.	Residential, Motel, Religious	72.2	72.3	0.1	No
Between Hollywood Blvd. and Sunset Blvd.	Residential, Hotel	72.2	72.2	0.0	No
Between Sunset Blvd. and Fountain Ave.	Homeless Shelter, Commercial	71.7	71.8	0.1	No
Between Fountain Ave. and Santa Monica Blvd.	Commercial	72.4	72.5	0.1	No
Normandie Avenue					
Between Hollywood Blvd. and Sunset Blvd.	Residential, Religious	70.1	70.1	0.0	No
Between Sunset Blvd. and Santa Monica Blvd.	Residential	72.4	72.4	0.0	No
Serrano Avenue					
Between Hollywood Blvd. and Sunset Blvd.	Residential	66.5	66.4	0.0	No
Between Sunset Blvd. and Fountain Ave.	Residential, Nursing Home	66.0	66.0	0.0	No
Franklin Avenue					
Between Wilton Ave. and Western Ave.	Residential, School	73.4	73.4	0.0	No
Between Western Ave. and Normandie Ave.	Residential	71.5	71.5	0.0	No
Hollywood Boulevard					
Between Bronson Ave. and Wilton Pl.	Residential	72.9	72.9	0.0	No
Between Wilton Pl. and Western Ave.	Residential, Motel	72.4	72.4	0.0	No
Between Western Ave. and Normandie Ave.	Hotel	72.2	72.2	0.0	No
Between Normandie Ave. and Vermont Ave.	School	72.2	72.2	0.0	No

Table IV.F-19 (Continued)
Roadway Traffic Noise Impacts—Existing Plus Project

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels (CNEL (dBA))		Increase in Noise Levels due to Project (CNEL (dBA))	Significant Impact?
		Existing	Existing Plus Project		
Sunset Boulevard					
Between Bronson Ave. and Wilton Pl.	Residential	73.5	73.6	0.1	No
Between Wilton Pl. and Western Ave.	Hotel	73.4	73.5	0.1	No
Between Western Ave. and Serrano Ave.	Residential	73.2	73.2	0.0	No
Between Serrano Ave. and Normandie Ave.	Hotel	72.9	72.9	0.0	No
Fountain Avenue					
Between Van Ness Ave. and Wilton Pl.	Residential, School	70.4	70.3	0.0	No
Between Wilton Pl. and Western Ave.	Residential	71.6	71.6	0.0	No
Between Western Ave. and Serrano Ave.	Nursing Home, Religious, Hotel	71.5	71.5	0.0	No
Between Serrano Ave. and Normandie Ave.	Residential	71.5	71.5	0.0	No
Santa Monica Boulevard					
Between Van Ness Ave. and Wilton Pl.	School	72.4	72.4	0.0	No
Between Wilton Pl. and Western Ave.	Residential	72.5	72.5	0.0	No
Between Western Ave. and Normandie Ave.	Residential, School	72.5	72.5	0.0	No
Between Normandie Ave. and Vermont Ave.	Residential, School	72.4	72.4	0.0	No

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

Table IV.F-20
Composite Noise Impacts

Receptor Location	Existing Ambient Noise Levels (CNEL (dBA)) (A)	Calculated Project-Related Noise Sources (CNEL (dBA))					Project Composite Noise Levels (CNEL (dBA)) (G=B+C+D+E+F)[b]	Ambient plus Project Noise Levels (CNEL (dBA)) (H=A+G)[b]	Increase in Noise Levels due to Project (CNEL (dBA)) (H-A)	Sig Criteria[a] (CNEL (dBA))	Sig. Impact?
		Traffic (B)	Mechanical (C)	Parking (D)	Loading/ Trash Compactor (E)	Outdoor Spaces (F)					
R1	62.7	41.5	44.0	54.2	53.1	52.7	58.4	64.1	1.4	67.7	No
R2	62.7	43.0	41.1	37.2	50.1	48.4	53.2	63.2	0.5	67.7	No
R3	71.1	51.8	42.6	48.0	53.3	62.9	63.8	71.8	0.7	74.1	No
R4	63.5	40.9	41.5	47.2	51.0	49.1	54.6	64.0	0.5	68.5	No
R5	62.9	39.7	42.4	41.0	39.9	54.3	55.0	63.6	0.7	67.9	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.*

[b] *Adding sound levels in dB are calculated based on energy basis.*

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

location R3) as the composite (Project plus ambient) noise level falls within the normally unacceptable (70 to 75 CNEL) land use categories and the 5-dBA significance criteria (applicable to receptor locations R1, R2, R4, and R5) 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. The Project would not result in a substantial permanent increase in ambient noise levels in the vicinity of the Project Site above existing levels without the Project.**

In addition, Project operations would not result in the exposure of persons to or generation of noise levels in excess of standards established in the City's general plan or noise ordinance, or applicable standards of other agencies. Therefore, the Project's operational noise impacts from on- and off-site sources would be less than significant.

(2) Mitigation Measures

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:

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

- Along the eastern property line of the Project Site between the construction areas and the residential uses on the east side of Serrano Avenue east of the Project Site (receptor R1). The temporary sound barrier shall be designed to provide a minimum 15-dBA noise reduction at the ground level of receptor R1.
- Along the northern property line of the Project Site between the construction areas and residential use on Serrano Avenue north of the Project Site (receptor R2) and the hotel on the north side Sunset Boulevard (receptor R3). The temporary sound barrier shall be designed to provide a minimum 11-dBA and 7-dBA noise reduction at the ground level of receptors R2 and R3, respectively.
- Along the southern property line (east portion) of the Project Site between the construction areas and residential use on Fernwood Avenue south of the Project Site (receptor R5). The temporary sound barrier shall be designed to provide a minimum 5-dBA noise reduction at the ground level of receptor R5.

(3) Level of Significance After Mitigation

Implementation of Mitigation Measure NOI-MM-1 provided above would reduce the Project's construction noise levels to the extent feasible. As indicated in Table IV.F-21 on page IV.F-44, 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 residential use on Serrano Avenue east of the Project Site (receptor location R1), by a minimum 11 dBA at the residential use on Serrano Avenue north of the Project Site (receptor location R2), 7 dBA at the hotel use on Sunset Boulevard north of the Project Site (receptor location R3), and 5 dBA at the residential use on Fernwood Avenue south of the Project Site (receptor location R5).[32] The estimated construction-related noise levels at all off-site sensitive receptor locations would be reduced to below a level of significance with implementation of Mitigation Measure NOI-MM-1, with the exception of receptor location R1. With the implementation of Mitigation Measured NOI MM-1, the construction-related noise at receptor location R1 would still exceed the significance threshold by 3.3 dBA. The noise impacts at location R1 would be temporary when construction equipment are operating adjacent to the receptor location. However, there are no other feasible mitigation measures to further reduce the construction noise at location R1 to below the significance threshold. **Therefore, construction noise impacts associated with on-site noise sources would remain significant and unavoidable.**

Project-level impacts associated with off-site construction noise and operational noise would be less than significant without mitigation.

[32] *While mitigation measure noise reductions are measured at the ground level where it can be monitored, the noise barrier would provide some reduction at the upper floors.*

Table IV.F-21
Construction Noise Impacts – With Mitigation

Off-Site Receptor Location	Noise Reduction Provided by Mitigation Measures, 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 after Mitigation (L_{eq} (dBA))	Sig. Impact after Mitigation?
		Demolition	Grading	Mat Foundation	Building Construction	Finishing	Paving				
R1	15	68.1	65.1	63.9	67.9	61.4	60.7	59.6	64.6	3.5	**Yes**
R2	11	60.4	58.8	57.8	60.1	54.4	52.5	56.1	61.1	0.0	No
R3	7	72.5	70.4	69.2	72.1	66.1	65.1	67.8	72.8	0.0	No
R4	0	68.2	66.9	66.0	68.1	62.5	60.2	63.2	68.2	0.0	No
R5	5	66.5	64.7	63.6	66.2	60.3	58.9	61.9	66.9	0.0	No

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.F-7 on page IV.F-15) 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 H of this Draft EIR.

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

(1) Impact Analysis

(a) *Construction*

Construction activities can generate varying degrees of ground vibration, depending on the construction procedures and the type of construction equipment used. The operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies, depending on soil type, ground strata, and construction characteristics of the receptor buildings. The results from vibration can range from no perceptible effects at the lowest vibration levels to low rumbling sounds and perceptible vibration at moderate levels. However, ground-borne vibrations from construction activities rarely reach levels that damage structures.

(i) Building Damage Impacts from On-Site Construction

With regard to potential building damage, the Project would generate ground-borne construction vibration during building demolition and site excavation/grading activities when heavy construction equipment, such as large bulldozers, drill rigs, and loaded trucks, would be used. The FTA has published standard vibration velocities for various construction equipment operations. Table IV.F-22 on page IV.F-46 provides the estimated vibration levels (in terms of inch per second PPV) at the nearest off-site structures to the Project Site. It is noted that since impact pile driving methods would not be used during construction of the Project, in accordance with Project Design Feature NOI-PDF-5 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 discussed in Section IV.B. Cultural Resources, of the Draft EIR, there are no historical resources located on or adjacent to the Project Site. Based on a Historic Places LA search, the nearest historic resource is located approximately 0.1 mile (approximately 528 feet) northeast of the Project Site at 1516 Serrano Avenue. Based on distance attenuation, the Project-related construction vibration level would not result in any impact at the nearest historic resource. 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 0.2-PPV significance criteria for a non-engineered timber and masonry building (applicable to the single- and two-story buildings to the east of the Project Site), the 0.3-PPV significance criteria for an engineered concrete masonry building (applicable to the two-story hotel and commercial buildings to the north and the restaurant building to the west of the Project Site), and the 0.5-PPV

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

Off-Site Building Structure[a]	Estimated Vibration Velocity Levels at the Outside of and Adjacent to the Nearest Off-Site Structures from the Project Construction Equipment (inch/second (PPV))[b]					Significance 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	—	—
Two-story hotel and commercial buildings on the north side of Sunset Boulevard, north of the Project Site	0.011	0.011	0.010	0.004	<0.001	0.3[c]	No
Multi-story office building and parking structure to the south, adjacent to the Project Site	0.523	0.523	0.446	0.206	0.018	0.5[d]	**Yes**
Single- and two-story residential and commercial buildings on the east side of Serrano Avenue, east of the Project Site	0.024	0.024	0.020	0.009	0.001	0.2[e]	No
Restaurant building on the west side of Western Avenue, west of the Project Site	0.013	0.013	0.011	0.005	<0.001	0.3[d]	No

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

[b] *Vibration level calculated based on FTA published reference vibration level at 25 foot distance. The listed equipment are the main vibration generating equipment. Other construction equipment, such as, crane, forklift, generator, compressor, and welding equipment would generate lower ground vibration levels.*

[c] *FTA criteria for engineered concrete and masonry buildings.*

[d] *FTA criteria for reinforced-concrete, steel or timber buildings.*

[e] *FTA criteria for non-engineered timber and masonry buildings.*

Source: FTA, 2018; AES, 2020. See Appendix H of this Draft EIR.

significance criteria for the multi-story parking structure and office building to the south of the Project Site. In addition, the construction vibration analysis for potential building damage due to off-site construction activities (haul trips) conservatively compares the estimated vibration levels generated from haul truck activities to the 0.12-PPV significance criteria for buildings extremely susceptible to vibration damage.

As indicated in Table IV.F-22 on page IV.F-46, the estimated vibration velocity levels from construction equipment would be below the building damage significant criteria for the existing building structures north, east, and west of the Project Site. However, the estimated vibration levels from the construction equipment would exceed the 0.5 PPV building damage significance criteria at the multi-story building adjacent to the Project Site to the south. **Therefore, the on-site vibration impacts during construction of the Project would be significant without mitigation measures.**

(ii) Human Annoyance Impacts from On-Site Construction

Table IV.F-23 on page IV.F-48 provides the estimated vibration levels at the off-site sensitive uses due to construction equipment operation and compares the estimated vibration levels to the specified significance criteria for human annoyance. Per FTA guidance, the significance criteria for human annoyance is 72 VdB for sensitive uses, including residential, hotel, and theater uses, assuming there are a minimum of 70 vibration events occurring during a typical construction day. As indicated in Table IV.F-23, the estimated ground-borne vibration levels from construction equipment would be below the significance criteria for human annoyance at all off-site sensitive receptor locations, with the exception of receptor location R1. The estimated ground-borne vibration levels at receptor location R1 would be up to 76 VdB and would exceed the 72 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 80 feet on the receptor R1.[33] **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 Western Avenue and Lexington Avenue. Heavy-duty construction trucks would generate ground-borne vibration as they travel along the Project's anticipated haul route(s). Thus, an analysis of potential vibration impacts using the building damage and human annoyance criteria for ground-borne vibration along the anticipated local haul routes was conducted.

Regarding building damage, based on FTA data, the vibration generated by a typical heavy-duty truck would be approximately 63 VdB (0.00565 PPV) at a distance of 50 feet

[33] *Vibration level would attenuate to 72 VdB at 80 feet distance.*

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

Off-Site Receptor Location	Estimated Vibration Velocity Levels at the Off-Site Sensitive Uses Due to On-Site Construction Equipment Operation[a] (VdB)					Significance Criteria (VdB)	Sig. Impact?
	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	87	87	86	79	58	—	—
R1	76	76	75	68	47	72	**Yes**
R2	56	56	55	48	27	72	No
R3	69	69	68	61	40	72	No
R4	51	51	50	43	22	72	No
R5	64	64	63	56	35	72	No

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

Source: FTA, 2018; AES, 2020. See Appendix H of this Draft EIR.

from the truck.[34] According to the FTA "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads." Nonetheless, there are existing buildings along the Project's anticipated haul route 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 H of this Draft EIR. This estimated vibration generated by construction trucks traveling along the anticipated haul route(s) would be well below the most stringent building damage criteria of 0.12 PPV for buildings extremely susceptible to vibration. **Therefore, vibration impacts (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. It should be noted that per FTA, "*buses and trucks rarely create vibration that exceeds 70 VdB unless there are bumps in the road.*"[35] Per FTA, typical bus and truck would generate vibration level of 63 VdB at 50 feet distance.[36] To provide a conservative analysis, the estimated vibration levels generated by construction trucks traveling along the

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

[35] *FTA, "Transit Noise and Vibration Impact Assessment," May 2006, Section 7.2.1.*

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

anticipated haul route were assumed to be within 30 feet of the sensitive use (residential use)
along Western Avenue and Lexington Avenue. As indicated in the noise calculation worksheets included in Appendix H of this Draft EIR, the temporary vibration levels could reach approximately 70 VdB periodically as trucks pass sensitive receptors along the anticipated haul route(s) (at 30 feet). Therefore, the residential uses along Western Avenue and Lexington Avenue (between the Project Site and US-101) would be exposed to ground-borne vibration up to 70 VdB, which would be below the 72-VdB significance criteria from the construction trucks. **Therefore, 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 route would be less than significant.**

(iv) Summary of Construction Vibration Impacts

As discussed above, the estimated vibration levels from on-site construction equipment would exceed the building damage significance criteria of 0.5 PPV for the off-site buildings adjacent to the Project Site to the south, and vibration impacts (pursuant to the significance criteria for building damage) during construction of the Project would be significant without implementation of mitigation measures. In addition, vibration impacts from on-site construction activities would be significant pursuant to the significance criteria for human annoyance.

Based on the above, vibration impacts associated with temporary and intermittent vibration from off-site construction activities (i.e., construction trucks traveling along the anticipated haul route) would be less than significant with respect to both building damage and human annoyance.

Therefore, without mitigation, the Project would result in the exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

(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. In addition, the number of delivery trucks associated with the Project's market/retail uses would likely be similar to the existing supermarket, which has approximately 2 to 5 truck deliveries per day. Vibration levels associated with delivery trucks would therefore be similar to the delivery trucks for the existing supermarket on the

Project Site (i.e., approximately 70 VdB), which would be well below the FTA criteria of 80 VdB applicable to infrequent events (i.e., fewer than 30 events per day) at the nearest 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 increase the existing vibration levels in the immediate vicinity of the Project Site. As such, vibration impacts associated with operation of the Project would be less than significant.**

(2) Mitigation Measures

As discussed above, Project vibration levels generated from on-site construction activities would result in significant impacts with respect to both building damage and human annoyance. As it relates to potential damage to adjacent buildings from Project construction, the Project would be subject to LAMC Section 91.3307 (Protection of Adjoining Property). Specifically, Section 91.3307.1 (Protection Required) states adjoining public and private property shall be protected from damage during construction, remodeling, and demolition work. Thus, the following mitigation measure is provided to reduce construction-related vibration impacts:

Mitigation Measure NOI-MM-2: Prior to start of construction, the Applicant shall retain the services of a structural engineer or qualified professional to perform a pre-construction survey of the multi-story office building on adjacent to the Project Site to the south to inspect and document the apparent physical condition of the buildings' readily-visible features.

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 documenting the construction-related ground vibration levels at property line of the office building adjacent to the Project Site to the south during demolition and grading/excavation phases. The vibration monitoring system shall continuously measure and store the peak particle velocity (PPV) in inch/second. The system shall also be programmed for two preset velocity levels: a warning level of 0.4 PPV and a regulatory level of 0.5 PPV. The system shall also provide real-time alert when the vibration levels exceed the two preset levels.

In the event the warning level (0.4 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 halting/ staggering concurrent activities and utilizing lower vibratory techniques.

In the event the regulatory level (0.5 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, and repairs will be provided in the event any damage occurred. 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 recalibrated and construction activities are adjusted to be below the warning level.

(3) Level of Significance After Mitigation

With implementation of Mitigation Measure NOI-MM-2 and compliance with LAMC Section 91.3307, vibration levels at the exterior of the multi-story office would not exceed the significance criteria, 0.5 PPV. Therefore, vibration impacts associated with the on-site construction activities would be reduced to a less than significant level for both project and cumulative level. However, project-level vibration impacts from on-site construction activities would still exceed the 72 VdB human annoyance significance criteria at the residential use east of the Project Site (receptor location R1). Other 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 not considered cost effective for temporary applications, such as construction.[37] 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. Thus, it is concluded that there are no feasible mitigation measures that could be implemented to reduce the temporary vibration impacts from on-site construction associated with human annoyance to a less-than-significant level. **Therefore, project-level vibration impacts from on-site construction activities with respect to human annoyance would remain significant and unavoidable.**

Off-site construction vibration and operational vibration impacts would be less than significant without mitigation.

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?

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[37] *Caltrans, Transportation and Construction Vibration Guidance Manual, Chapter 8.1, September 2013.*

As discussed in Section VI, Other CEQA Considerations, of this Draft EIR and in the Initial Study included as Appendix A of this Draft EIR, the Project Site 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 7.1 miles northwest of the Project Site. Since the Project would not be 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 and would be clearly insignificant and unlikely to occur. **Thus, the Project would have a less than significant impact with respect to airport or airstrip noise.**

e. Cumulative Impacts

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.

(1) Impact Analysis

(a) Construction Noise

(i) On-Site Construction Noise

As indicated in Section III, Environmental Setting, of this Draft EIR, 100 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. While the majority of the related projects are located a substantial distance (greater than 1,000 feet) from the Project Site, the following six related projects are within 1,000 feet of the Project Site:

- Related Project No. 21 (Target Retail Shopping Center Project) is a retail development located at 5520 Sunset Boulevard, approximately 110 feet west of the Project Site. There are noise sensitive receptors located within 500 feet of Related Project No. 21 and the Project Site, as represented by receptor locations R3 and R4. However, the Related Project No. 21 has been completed. Therefore, the Related Project No. 21 would not contribute to cumulative construction-related noise impacts.

- Related Project No. 42 is a mixed-use development located at 1350 Western Avenue, approximately 125 feet south of the Project Site. There are noise sensitive receptors located within 500 feet of Related Project No. 42 and the

Project Site, as represented by receptor locations R4 and R5. As analyzed above in Subsection 3.c.(2)(a)(i) (see Table IV.F-11 on page IV.F-27), the estimated Project-related construction noise levels at receptor location R5 would exceed the significance criteria by 4.3 dBA and at receptor location R4 would be just below the significance threshold. Since Related Project No. 42 is adjacent to the receptor location R5 and has a direct line-of-sight to the receptor location R4, there is a potential for cumulative construction noise impacts at both receptor locations R4 and R5 in the event of concurrent construction with Related Project No. 42.

- Related Project No. 61 is a 75-unit apartment development located at 5460 Fountain Avenue, approximately 640 feet south of the Project Site. There are noise sensitive receptors located along Fernwood Avenue, which is between Related Project No. 61 and the Project, as represented by receptor location R5. As analyzed above in Subsection 3.c.(2)(a)(i) (see Table IV.F-11 on page IV.F-27), the estimated Project-related construction noise levels at receptor R5 would be 4.3 dBA above the significance criteria. Therefore, the Project could contribute to cumulative construction-related noise impacts at receptor location R5 in the event of concurrent construction with Related Project No. 61.

- Related Project No. 63 (SunWest Project) is a mixed-use development located at 5525 Sunset Boulevard, approximately 155 feet northwest of the Project Site. There are noise sensitive receptors located on the north side of Sunset Boulevard represented by receptor location R3, which could be exposed to construction noise from both the Project and Related Project No. 63. As analyzed above in Subsection 3.c.(2)(a)(i) (see Table IV.F-11 on page IV.F-27), the estimated Project-related construction noise levels at receptor R3 would be 6.3 dBA above the significance criteria. Therefore, the Project could contribute to cumulative construction-related noise impacts at receptor location R3 in the event of concurrent construction with the Related Project No. 63.

- Related Project No. 64 (Hollywood De Longpre Apartments Project) is a residential development located at 5632 De Longpre Avenue, approximately 750 feet west of the Project Site. The nearest noise sensitive receptor located between Related Project No. 64 and the Project Site is the theatre use on De Longpre, represented by receptor location R4. As analyzed above in Subsection 3.c.(2)(a)(i) (see Table IV.F-11 on page IV.F-27), the estimated Project-related construction noise levels at receptor location R4 would just be below the significance criteria. Since receptor location R4 has a direct line-of-sight to Related Project No. 64, there is a potential for cumulative construction-related noise impacts at receptor location R4 in the event of concurrent construction with Related Project No. 64.

- Related Project No. 99 is a 75-unit apartment development located at 1276 Western Avenue, approximately 640 feet south of the Project Site. There are noise sensitive receptors located along Fernwood Avenue, which is between Related Project No. 61 and the Project, as represented by receptor

location R5. As analyzed above in Subsection 3.c.(2)(a)(i) (see Table IV.F-11 on page IV.F-27), the estimated Project-related construction noise levels at receptor R5 would be 4.3 dBA above the significance criteria. Therefore, the Project could contribute to cumulative construction-related noise impacts at receptor location R5 in the event of concurrent construction with Related Project No. 99.

Construction-related noise levels from the related projects would be intermittent and temporary and it is anticipated that, as with the Project, the related projects would comply with the construction hours and other relevant provisions set forth in the LAMC. Noise associated with cumulative construction activities would be reduced to the degree reasonably and technically feasible through proposed mitigation measures for each individual related project and compliance with locally adopted and enforced noise ordinances. Based on the above, there would potentially be cumulative noise impacts at the nearby sensitive uses (e.g., residential and hotel uses) located in proximity to the Project Site and Related Project Nos. 42, 61, 63, 64, and 99, in the event of concurrent construction activities. **As such, cumulative noise impacts from 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. Specifically, based on the existing daytime ambient noise level of 67.8 dBA (L_{eq}) along the anticipated haul route, Western Avenue (refer to Table IV.F-12 on page IV.F-30), it is estimated that up to 115 truck trips per hour could occur along Western Avenue without exceeding the significance criteria of 5 dBA increase over the ambient noise levels. Therefore, if the total number of trucks from the Project and related projects were to add up to 116 truck trips per hour along Western Avenue, the estimated noise level from 116 truck trips per hour would be 71.1 dBA. When added to the ambient (67.8 dBA), the cumulative noise would be 72.8 dBA, which would exceed the ambient noise levels by 5 dBA and exceed the significance criteria.[38] In addition, it is estimated that 43 truck trucks per hour (from the Project and related projects) would generate noise level of 69.7 dBA along Lexington Avenue and when added to the ambient noise level of 66.4 dBA would result in a cumulative noise level of 71.4 dBA, which would increase the ambient by 5 dBA. There are six related projects located in close proximity of Western Avenue, which could utilize the same routes as the Project, including; Related Project Nos. 42, 61, 63, 64, 67, and 99. These six related projects together would include approximately 919 residential units,

[38] *It is estimated that with 116 truck trips per hour, the noise level would be 71.1 dBA, when added to the ambient noise level of 67.8 dBA, would result in a total noise level of 72.8 dBA, which would exceed the ambient by 5.0 dBA.*

which is more than the Project's 735 units. Since the Project would generate up to 50 truck trips per hour during peak construction period, it is conservatively assumed that truck traffic from the six noted related projects could generate up to 66 truck trips per hour. Therefore, construction of the Project and other related projects would cumulatively add up to 116 or more hourly truck trips along Western Avenue and up 58 or more hourly truck trips along Lexington Avenue. As such, cumulative noise due to construction truck traffic from the Project and other related projects has the potential to exceed the ambient noise levels along the haul route by 5 dBA. **As such, cumulative noise impacts from 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 the exposure of persons to or generation of noise levels in excess of standards established by the City or result in a substantial temporary or periodic increase in ambient noise levels in the vicinity of the Project Site above levels existing without the Project and related projects. **Therefore, cumulative noise impacts from on-site construction activities and off-site construction traffic would be significant.**

(b) Operational Noise

The Project Site and surrounding area have been developed with uses that have previously generated, and will continue to generate, noise from a number of community noise sources, including mechanical equipment (e.g., HVAC systems), outdoor activity areas, and vehicle travel. Similar to the Project, 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.F-24 on page IV.F-57. As shown therein, cumulative traffic volumes would result in an increase ranging from 0.3 dBA (CNEL) along the roadway segments of Serrano Avenue (between Hollywood Boulevard and Sunset Boulevard), to 1.5 dBA (CNEL) along the roadway segment of Santa Monica Boulevard (between Wilton Place and Western Avenue), which would be below the more stringent 3-dBA significance criteria (applicable when noise levels fall within the normally unacceptable or clearly unacceptable land use category). **Therefore, cumulative noise impacts due to off-site mobile noise sources associated with the Project, future growth, and related projects would be less than significant.**

(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 standards established by the City or in a substantial permanent increase in ambient noise levels in the vicinity of the Project Site above levels existing without the Project and the related projects. **Therefore, cumulative operational noise impacts from on-site and off-site sources would be less than significant.**

(c) Construction Vibration

(i) On-Site Construction Vibration

As previously discussed, ground-borne vibration decreases rapidly with distance. Potential vibration impacts due to construction activities are generally limited to buildings/structures that are located in proximity to the construction site (i.e., within 15 feet as related to building damage and 80 feet as related to human annoyance at residential uses). As analyzed above, potential vibration impacts related to building damage associated with Project-related on-site construction activities would be significant at the multi-story office building and parking structure adjacent to the Project Site to the south (as indicated in Table IV.F-22 on page IV.F-46), but would be reduced to a less than significant level with mitigation measures described below. However, as indicated above, Related

Table IV.F-24
Cumulative Roadway Traffic Noise Impacts

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels (CNEL (dBA))		Increase in Noise Levels due to Cumulative Traffic (CNEL (dBA))	Significant Impact?
		Existing	Future Plus Project		
Wilton Place					
Between Hollywood Blvd. and Sunset Blvd.	Residential, School	70.9	71.5	0.6	No
Between Sunset Blvd. and Fountain Ave.	School, Religious	71.5	71.9	0.4	No
Between Fountain Ave. and Santa Monica Blvd.	Religious	72.5	72.9	0.4	No
Western Avenue					
Between Franklin Ave. and Hollywood Blvd.	Residential, Motel, Religious	72.2	72.7	0.5	No
Between Hollywood Blvd. and Sunset Blvd.	Residential, Hotel	72.2	72.7	0.5	No
Between Sunset Blvd. and Fountain Ave.	Homeless Shelter, Commercial	71.7	72.5	0.8	No
Between Fountain Ave. and Santa Monica Blvd.	Commercial	72.4	73.2	0.8	No
Normandie Avenue					
Between Hollywood Blvd. and Sunset Blvd.	Residential, Religious	70.1	70.5	0.4	No
Between Sunset Blvd. and Santa Monica Blvd.	Residential	72.4	72.8	0.4	No
Serrano Avenue					
Between Hollywood Blvd. and Sunset Blvd.	Residential	66.5	66.8	0.3	No
Between Sunset Blvd. and Fountain Ave.	Residential, Nursing Home	66.0	66.4	0.4	No
Franklin Avenue					
Between Wilton Ave. and Western Ave.	Residential, School	73.4	73.9	0.5	No
Between Western Ave. and Normandie Ave.	Residential	71.5	72.1	0.6	No
Hollywood Boulevard					
Between Bronson Ave. and Wilton Pl.	Residential	72.9	73.9	1.0	No
Between Wilton Pl. and Western Ave.	Residential, Motel	72.4	73.5	1.1	No
Between Western Ave. and Normandie Ave.	Hotel	72.2	73.2	1.0	No
Between Normandie Ave. and Vermont Ave.	School	72.2	73.3	1.1	No

Table IV.F-24 (Continued)
Cumulative Roadway Traffic Noise Impacts

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels (CNEL (dBA))		Increase in Noise Levels due to Cumulative Traffic (CNEL (dBA))	Significant Impact?
		Existing	Future Plus Project		
Sunset Boulevard					
Between Bronson Ave. and Wilton Pl.	Residential	73.5	74.8	1.3	No
Between Wilton Pl. and Western Ave.	Hotel	73.4	74.5	1.1	No
Between Western Ave. and Serrano Ave.	Residential	73.2	74.0	0.8	No
Between Serrano Ave. and Normandie Ave.	Hotel	72.9	73.8	0.9	No
Fountain Avenue					
Between Van Ness Ave. and Wilton Pl.	Residential, School	70.4	70.8	0.4	No
Between Wilton Pl. and Western Ave.	Residential	71.6	72.1	0.5	No
Between Western Ave. and Serrano Ave.	Nursing Home, Religious, Hotel	71.5	71.9	0.4	No
Between Serrano Ave. and Normandie Ave.	Residential	71.5	72.0	0.5	No
Santa Monica Boulevard					
Between Van Ness Ave. and Wilton Pl.	School	72.4	73.8	1.4	No
Between Wilton Pl. and Western Ave.	Residential	72.5	74.0	1.5	No
Between Western Ave. and Normandie Ave.	Residential, School	72.5	73.7	1.2	No
Between Normandie Ave. and Vermont Ave.	Residential, School	72.4	73.1	0.7	No

Source: AES, 2018. See Appendix H of this Draft EIR.

Project No. 42 is approximately 125 feet south of the Project Site and also adjacent to the multi-story office building and parking structure. Therefore, if concurrent construction activities were to occur, the multi-story office building and parking structure could potentially be exposed to vibration levels exceeding acceptable thresholds due to construction activities from both the Project and the Related Project No. 42. However, potential cumulative vibration impacts with respect to the building damage from the Project and Related Project No. 42 would be less than significant for the following reasons: Like the Project, Related Project No. 42 would be subject to the provisions of LAMC Section 91.3307 (Protection of Adjoining Property), including Section 91.3307.1 (Protection Required) which requires that adjoining public and private property shall be protected from damage during construction, remodeling and demolition work. Furthermore, Related Project No. 42 would undergo discretionary review by the City in connection with its requested entitlements, as well as environmental review pursuant to CEQA, and would be required to adopt all feasible mitigation measures to avoid damaging to any adjacent building structures. As discussed above, the Project on-site construction vibration impacts would be reduced to a less than significant level. **Therefore, the Project would not contribute to cumulative construction vibration impact with respect to building damage associated with on-site construction and the cumulative impact would be less than significant.**

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 R1. Related Project No. 42 is approximately 500 feet from receptor location R1. Due to the rapid attenuation characteristics of ground-borne vibration, the Related Project No. 42 would not contribute to the cumulative construction vibration impact with respect to human annoyance at receptor R1. In addition, the Related Project No. 42 is located adjacent to the receptor location R5. However, as analyzed above, the estimated ground-borne vibration at receptor location R5 of 64 VdB would be well below the 72 VdB significance criteria and would not contribute to the cumulative construction vibration impacts at receptor R5. **Therefore, potential 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 (0.00565 PPV) at a distance of 50 feet from the truck.[39] 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

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

discussed above, there are existing buildings that are approximately 20 feet from the right-of-way of the anticipated haul route(s) for the Project (i.e., Western Avenue and Lexington 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 route(s) would be below the most stringent building damage significance criteria of 0.12 PPV for buildings extremely susceptible to vibration. Therefore, potential cumulative vibration impacts with respect to building damage from off-site construction would be less than significant.

As discussed above, potential vibration impacts associated with temporary and intermittent vibration from project-related construction trucks traveling along the anticipated haul route would less than significant with respect to human annoyance. As related projects would be anticipated to use similar trucks as the Project, it is anticipated that construction trucks would generate similar vibration levels along the anticipated haul route(s). **Therefore, 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 routes would be less than significant.**

(iii) Summary of Cumulative Construction Vibration Impacts

As discussed above, due to the rapid attenuation characteristics of ground-borne vibration and given the distance of the nearest related project to the Project Site, there is no potential for a cumulative construction vibration impact with respect to building damage 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.

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. In addition, 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 routes would be less than significant.

Therefore, cumulative vibration impacts associated with on-site and off-site construction activities would be less than significant.

(d) Operational Vibration

Vibration levels from project operation are generally limited to building mechanical equipment and vehicle circulations and would be limited to immediate vicinity of the project sites. The related projects (mixed-use and commercial developments) would generate similar vibration levels as the Project, which would be limited to the related project sites. As described above, the nearest related projects are minimum 100 feet from the Project Site. Since ground-borne vibration decreases rapidly with distance, the related projects operation would not contribute to the cumulative vibration impacts due to distance between the Project and the related projects. As analyzed above, the Project operation would not increase in the existing vibration in the immediate 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

Mitigation Measure NOI-MM-1, discussed on page IV.F-42, would reduce the Project's construction on-site noise levels to the extent feasible. No other feasible mitigation measures were identified.

As analyzed above, cumulative noise impacts associated with off-site construction trucks from the Project and other related projects could occur. 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. Other measures, such as limiting the number of trucks from each of the related projects, similarly are not feasible. Overall, it would not be possible to coordinate haul routes such that there are not multiple projects using at the same time and/or limit the number of trucks from each of the related projects. As such, there are no other feasible mitigation measures to reduce the temporary significant noise impacts associated with the cumulative off-site construction trucks.

(3) Level of Significance After Mitigation

(a) Construction Noise

Implementation of Mitigation Measure NOI-MM-1 provided above would reduce the Project's construction noise levels to the extent feasible. However, there are no other feasible mitigation measures to further reduce the construction noise at location R1 to below the significance threshold. Therefore, the Project's contribution to cumulative

construction noise impacts associated with on-site noise sources would remain significant and unavoidable.

Cumulative noise due to construction truck traffic from the Project and other related projects would likely exceed the ambient noise levels along the haul route by 5 dBA and no feasible mitigation measures were identified. As such, cumulative noise impacts from off-site construction traffic would be significant and unavoidable.

(b) Operational Noise

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

(c) Construction Vibration

Impacts with respect to cumulative construction vibration with respect to building damage and human annoyance would be less than significant.

(d) Operational Vibration

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