IV. Environmental Impact Analysis
E. Noise

1. Introduction

This section of the Draft EIR analyzes the potential noise and vibration impacts associated with 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 D 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.E-1 on page IV.E-2.

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

Table IV.E-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 “just perceptible,” a change in sound level of 5 dB is considered “clearly noticeable,” and a change (increase) of 10 dB is typically recognized as “twice 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 construction equipment

[2] *Bies & Hansen, Engineering Noise Control, 1988, Table 2.1.*

(e.g., air conditioner or bulldozer), is 6 dBA per doubling of distance from the noise source to the receptor at acoustically "hard" sites (e.g., asphalt and concrete surfaces) and 7.5 dBA per doubling of distance from the noise source to the receptor at acoustically "soft" sites (e.g., soft dirt, grass or scattered bushes and trees).[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 and 4.5 dBA per doubling of distance from the noise source to the receptor for hard and soft sites, respectively.[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, 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.*

[4] *Caltrans, Technical Noise Supplement (TeNS), 2013, Chapter 2.1.4.*

[5] *Caltrans, Technical Noise Supplement (TeNS), 2013, Chapter 2.1.4.*

[6] *Caltrans, Technical Noise Supplement (TeNS), 2013, Chapter 2.1.4, Table 7-1.*

receptor's ear during exposure. L_{eq} for 1-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]

(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 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,

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[7] *State of California, General Plan Guidelines, 2003.*

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

[9] *Federal Transit Administration (FTA), "Transit Noise and Vibration Impact Assessment," May 2006, Section 7.1.2.*

[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 D of this Draft EIR and in this section of the Draft EIR are RMS and referenced to 1 micro-inch per second.*

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 potential hearing damage and other adverse effects associated with noise and ground-borne vibration. The City of Los Angeles 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 operational noise are discussed below.

(1) Applicable State Noise Standards

The State of California has adopted noise compatibility guidelines for general land use planning. 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 Governor's Office of Planning and Research. 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 single- and multi-family residential uses, without special noise insulation requirements. In addition, noise levels up to 75 dBA CNEL are "conditionally acceptable" with special noise insulation requirements, while noise levels at 75 dBA CNEL and above are "clearly unacceptable" for residential and hotel uses.[11] In addition, the 2016 California Building Standards Code requires that where the ambient noise environment exceeds 65 dBA or 65 CNEL, measures should be implemented to achieve an interior noise environment (measured within habitable rooms) not to exceed 45 dBA CNEL.

(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

[11] *State of California, Governor's Office of Planning and Research, General Plan Guidelines, October 2003, p. 250.*

Municipal Code (LAMC) Chapter XI, Noise Regulation. In addition, the *L.A. CEQA Thresholds Guide* provides criteria for determining noise impacts of a project. These regulations are described further below.

(a) Noise Element

The overall purpose of the Noise Element of the General Plan 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 of the General Plan 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 2.1: 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.E-2 on page IV.E-7.

(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) 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

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

Table IV.E-2
City of Los Angeles Guidelines for Noise Compatible Land Use

Land Use	Day-Night Average Exterior Sound Level (CNEL dBA)						
	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	U	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: City of Los Angeles Noise Element, 1999.

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

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

defined in Section 111.03 of the LAMC 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.E-3 on page IV.E-9.

To account for people's increased tolerance for short-duration noise events, the Noise Regulations provide an additional 5 dBA allowance beyond the 5 dB above ambient 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 that 5 dBA shall be added to the noise level 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 noise within 200 feet of any residential building; and Section 114.06, which requires vehicle theft alarm systems shall be silenced within 5 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] Section 41.40 of the LAMC 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

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[14] *Los Angeles Municipal Code, 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.*

[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.*

Table IV.E-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.

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]

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.E-4 on page IV.E-10 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.

[17] *FTA, "Transit Noise and Vibration Impact Assessment," May 2006, Chapter 7.*

[18] *Caltrans, "Transportation Related Earthborne Vibrations," February 2002.*

[19] *FTA, "Transit Noise and Vibration Impact Assessment," May 2006.*

Table IV.E-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

Source: Federal Transit Administration, 2006.

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.E-5 on page IV.E-11, 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 a highly urbanized area surrounded by existing and planned development. Land uses surrounding the Project Site specifically include the Hollywood Palladium and the site of the recently approved Palladium Residences project to the south and east, the Columbia Square mixed-use project that was recently completed one block east, the Camden Hollywood mixed-use project to the west (across Selma Avenue), Phase 2 of the Blvd 6200 project that is under construction approximately 1/2-block to the north, and the 1600 Vine and W Hollywood projects to the northwest. The predominant source of noise in the vicinity of the Project Site is vehicular traffic on nearby roadways, including: Sunset Boulevard, Argyle Street, Selma Avenue, El Centro Avenue, and Hollywood Boulevard. Other existing ambient noise sources in the vicinity of the Project Site include: surface parking lot activities and other miscellaneous noise sources associated with typical urban activities.

(1) Noise-Sensitive Receptors

Some land uses are considered more sensitive to intrusive noise than others based on the types of activities typically involved at the receptor location. The *L.A. CEQA Thresholds Guide* states that noise-sensitive uses include residences, transient lodgings, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls,

Table IV.E-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

[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, 2006.

amphitheaters, playgrounds, and parks.[20] Similarly, the Noise Element of the General Plan defines noise-sensitive land uses as single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodging, and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves; and parks.[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, seven noise receptor locations were selected to represent noise-sensitive uses in the vicinity of the Project Site. These locations represent areas with land uses nearest to the Project Site that could qualify as noise-sensitive uses according to the definition of such uses in the *L.A. CEQA Thresholds Guide* and the General Plan Noise Element. In addition, although studio uses are not defined as noise sensitive receptors by the *L.A. CEQA Thresholds Guide*, potential noise impacts at the Outlaw Sound Studio (receptor R4) north of the Project Site and the Earl Carroll Theater (Nickelodeon Studio)[22] south of the Project Site

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

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

[22] *Despite its name, the Earl Carroll Theater is occupied by the Nickelodeon Studio's production facilities, and is not considered a noise sensitive use.*

were also evaluated for informational purposes only. As discussed below, noise measurements were conducted at the seven off-site measurement locations (R1 to R7) surrounding 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.E-1 on page IV.E-13 and described in Table IV.E-6 on page IV.E-14.

(2) Ambient Noise Levels

To establish baseline noise conditions, existing ambient noise levels were monitored at seven representative off-site receptor locations (identified as R1 to R7) in the vicinity of the Project Site. The baseline noise monitoring program was conducted on November 29, 2017, using a Quest Technologies Model 2900 Integrating/Logging Sound Level Meter.[23] Two 15-minute measurements were conducted at each of the receptor locations, one during daytime and another during nighttime hours. The daytime ambient noise levels were taken between 10:00 A.M. and 1:00 P.M., and the nighttime ambient noise levels were taken between 10:00 P.M. and 1:00 A.M. The ambient noise measurements were taken in accordance with the City's standards, which require ambient noise to be measured over a period of at least 15 minutes.[24]

Table IV.E-7 on page IV.E-15 provides a summary of the ambient noise measurements. Based on field observations, the ambient noise at the measurement locations is dominated by local traffic, and to a lesser extent, other typical urban noises (e.g., parking lot traffic and commercial/retail operations, etc.). As indicated in Table IV.E-7, the existing daytime ambient noise levels at the off-site noise receptor locations ranged from 55.4 dBA (L_{eq}) at receptor location R1 to 75.4 dBA (L_{eq}) at receptor location R6. The measured nighttime ambient noise levels at the off-site noise receptor locations ranged from 54.6 dBA (L_{eq}) at receptor location R1 to 70.7 dBA (L_{eq}) at receptor location R6. Thus, the existing ambient noise levels at all off-site locations are above the City's presumed daytime and nighttime ambient noise standards of 50 dBA (L_{eq}) and 40 dBA (L_{eq}), respectively, for residential use, as presented above in Table IV.E-3 on page IV.E-9. Therefore, consistent with LAMC procedures, the measured existing ambient noise levels

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[23] *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.*

[24] *LAMC Section 111.01.*

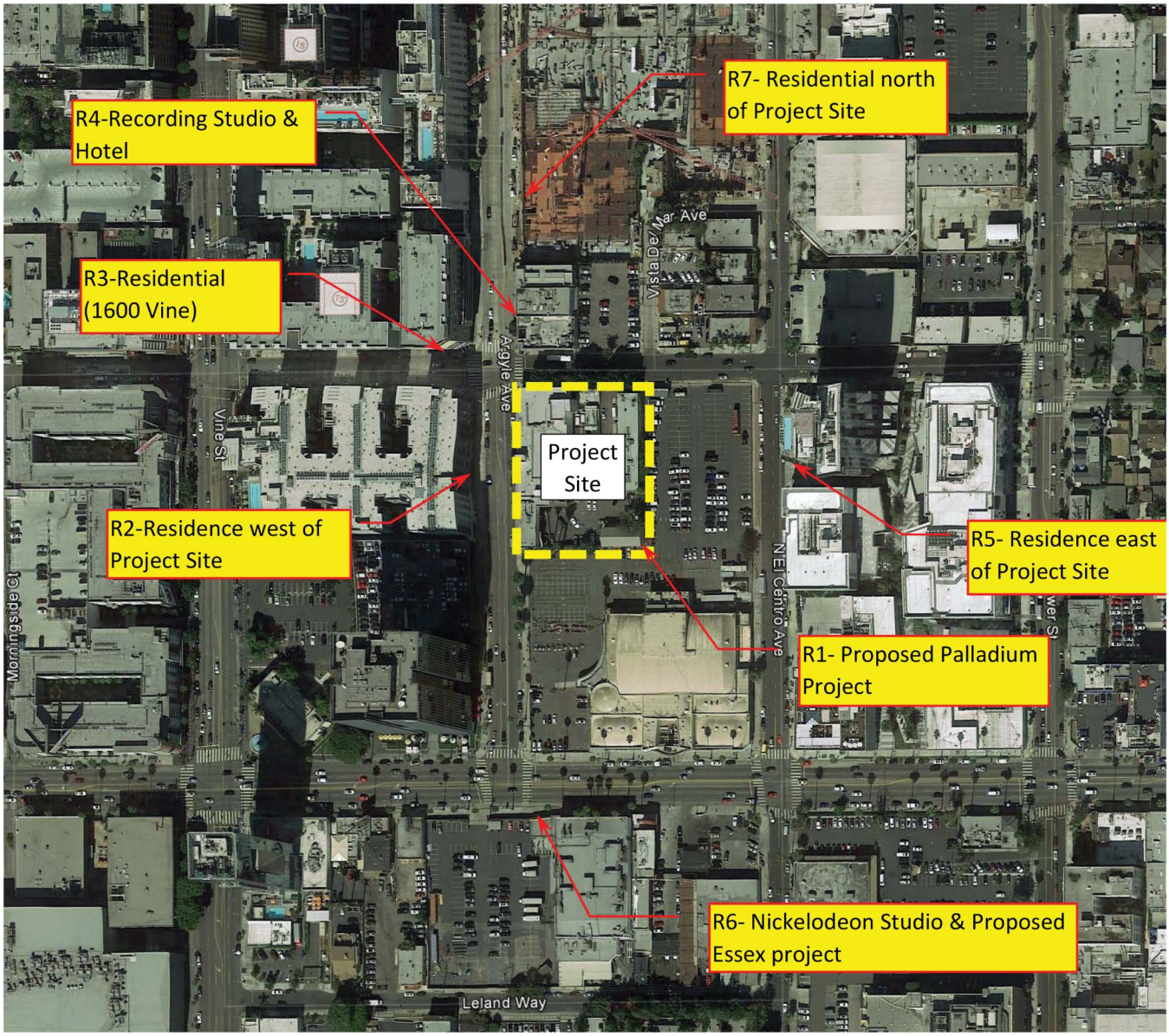

Figure IV.E-1
Noise Measurement Locations

Acoustical Engineering Services, 2017.

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

Receptor Location	Description	Approximate Distance from Measurement Location to Nearest Project Site Boundary[a]	Existing Land Use(s)
R1	Project Site southeast corner, representing the proposed Palladium Residences project.[b]	Project Site	Commercial (future residential)
R2	West side of Argyle, south of Selma Avenue, representing the existing Camden Apartments.	80	Residential
R3	Northwest corner of Selma Avenue and Argyle Avenue, representing the 1600 Vine Apartments.	125	Residential
R4	East side of Argyle, north of Selma Avenue, representing the Hollywood Le Bon Hotel and the Outlaw Sound Studio.	110	Studio/Hotel
R5	Hollywood Proper Residences, located east side of El Centro Avenue south of Selma Avenue.	230	Residential
R6	South side of Sunset Boulevard, representing the Earl Carroll Theater (Nickelodeon Studio) and proposed Essex mixed-use project.	420	Studio (future residential)
R7	West side of Argyle Avenue, south of Hollywood Boulevard, representing the existing W Hotel and proposed BLVD 6200 Project (mixed-use).	280	Hotel

[a] *Distances are estimated using Google Earth (Map data 2017 Google).*

[b] *The historic Hollywood Palladium, located immediately south of the proposed Palladium Residences is a nightclub and is not a noise sensitive use. Vibration impacts to the historic Hollywood Palladium resulting from Project construction are analyzed on page IV.E-42 and Table IV.E-20 below.*

Source: AES, 2017. See Appendix D of this Draft EIR.

are utilized as the baseline noise levels conditions for the purposes of determining Project impacts.

The estimated existing CNEL levels at the off-site receptors ranged from 59.4 dBA (CNEL) at receptor R1 to 76.8 dBA (CNEL) at receptor R6. The existing ambient noise levels at the off-site receptors fall within the conditionally acceptable land use category for residential uses (60 to 70 dBA CNEL) at receptors R1, R2, and R5, within the normally unacceptable land use category for residential uses (70 to 75 dBA CNEL) at receptors R3, R4, and R7, and within the clearly unacceptable land use category for residential uses (greater than 75 dBA CNEL) at receptor R6. In addition, the existing ambient noise levels at the Project Site ranged from 59.4 dBA (CNEL) as measured at receptor R1 (Project southeastern property line) to 69.2 dBA (CNEL) as measured at R2 (across from the Project Site's western property line).

Table IV.E-7
Existing Ambient Noise Levels

Receptor Location	Existing Land Use	Measured Noise Levels, L_{eq} (dBA)[a]		CNEL (24-hour)
		Daytime Hours (7:00 A.M.–10:00 P.M.)	Nighttime Hours (10:00 P.M.–7:00 A.M.)	
R1	Commercial	55.4	54.6	59.4
R2	Residential	66.8	63.7	69.2
R3	Residential	70.0	65.9	71.7
R4	Studio/Hotel	68.8	66.4	71.6
R5	Residential	63.6	55.6	63.3
R6	Studio	75.4	70.7	76.8
R7	Hotel	72.5	64.7	72.3

[a] *Estimated based on short-term (15-minute) noise measurement based on FTA procedures.*
Source: AES, 2017. See Appendix D of this Draft EIR.

In addition to the ambient noise measurements in the vicinity of the Project Site, the existing traffic noise on local roadways in the surrounding area was calculated to quantify the 24-hour CNEL noise levels using traffic volume data provided by the Traffic Study prepared for the Project.[25] Twenty-four (24) roadway segments were selected for the existing off-site traffic noise analysis included in this section based on proximity to noise-sensitive uses along the roadway segments and potential increases in traffic volumes from the Project. Traffic noise levels were calculated using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM). The TNM traffic noise prediction model calculates the hourly L_{eq} noise levels based on specific information including the hourly traffic volume, vehicle type mix, vehicle speed, and lateral distance between the noise receptor and the roadway. To calculate the 24-hour CNEL levels, the hourly L_{eq} levels were computed 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.E-8 on page IV.E-16.

[25] *Gibson Transportation Consulting Inc., Transportation Impact Study for the Modera Argyle Project, Hollywood, California, March 2018. See Appendix K.1 of this Draft EIR.*

Table IV.E-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, 2017. See Appendix D of this Draft EIR.

Table IV.E-9 on page IV.E-17 provides the calculated CNEL for the 24 analyzed local roadway segments based on existing traffic volumes. As shown therein, the existing CNEL due to surface street traffic volumes ranges from 64.1 dBA CNEL along Yucca Street (between Argyle Avenue and Gower Street) to 73.4 dBA CNEL along Sunset Boulevard (between Gower Street and Bronson Avenue). Currently, the existing traffic-related noise levels along roadway segments surrounding the Project Site, including Argyle Avenue (along the western property line) and Selma Avenue (along the northern property line), fall within the conditionally acceptable noise levels for residential and commercial uses (i.e., between 60 and 70 dBA CNEL).

(3) Existing Ground-Borne Vibration Levels

Based on field observations, the primary source of existing ground-borne vibration in the vicinity of the Project Site is vehicular travel (e.g., standard cars, refuse trucks, delivery trucks, construction trucks, school buses, and transit buses) on local roadways. According to the FTA technical study "Federal Transit Administration: Transit Noise and Vibration Impacts Assessments," typical road traffic-induced vibration levels are unlikely to be perceptible by people. Specifically, the FTA study reports that "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads."[26] 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

[26] *FTA, "Transit Noise and Vibration Impact Assessment," May 2006, p. 7-1.*

Table IV.E-9
Existing Roadway Traffic Noise Levels

Roadway Segment	Adjacent Land Use(s)	Approximate Distance to Roadway Center Line, (feet)	Calculated Traffic Noise Levels,[a] CNEL (dBA)	Noise-Sensitive Land Uses	Existing Noise Exposure Compatibility Category[b]
Ivar Avenue					
– Between Yucca St. and Hollywood Blvd.	Residential, Commercial	30	66.9	Yes	Conditionally Acceptable
– Between Hollywood Blvd. and Selma Ave.	Residential, Commercial	30	67.8	Yes	Conditionally Acceptable
Vine Street					
– Between Yucca St. and Hollywood Blvd.	Residential, Hotel, Studio	45	71.6	Yes	Normally Unacceptable
– Between Hollywood Blvd. and Selma Ave.	Residential, Theater	45	72.1	Yes	Normally Unacceptable
– Between Selma Ave. and Sunset Blvd.	Residential, Commercial	45	72.0	Yes	Normally Unacceptable
Argyle Avenue					
– Between Yucca St. and Hollywood Blvd.	Residential, Theater	35	68.0	Yes	Conditionally Acceptable
– Between Hollywood Blvd. and Selma Ave.	Residential, Hotel, Studio	35	68.2	Yes	Conditionally Acceptable
– Between Selma Ave. and Sunset Blvd.	Commercial	35	67.1	No	Normally Acceptable
Gower Street					
– Between Yucca St. and Hollywood Blvd.	Residential, Religious	40	70.6	Yes	Normally Unacceptable
– Between Hollywood Blvd. and Selma Ave.	Residential, Commercial	35	71.1	Yes	Normally Unacceptable
– Between Selma Ave. and Sunset Blvd.	Residential, Commercial	35	70.6	Yes	Normally Unacceptable
Franklin Avenue					
– Between Argyle Ave. and Gower St.	Residential, Commercial	35	72.6	Yes	Normally Unacceptable
Yucca Street					
– Between Ivar Ave. and Vine St.	Residential, School	45	66.4	Yes	Conditionally Acceptable
– Between Vine St. and Argyle Ave.	Residential, Studio	45	65.4	Yes	Conditionally Acceptable
– Between Argyle Ave. and Gower St.	Residential, Hotel	30	64.1	Yes	Conditionally Acceptable
Hollywood Boulevard					
– Between Ivar Ave. and Vine St.	Residential, Religious, Commercial	45	71.0	Yes	Normally Unacceptable

Table IV.E-9 (Continued)
Existing Roadway Traffic Noise Levels

Roadway Segment	Adjacent Land Use(s)	Approximate Distance to Roadway Center Line, (feet)	Calculated Traffic Noise Levels,[a] CNEL (dBA)	Noise-Sensitive Land Uses	Existing Noise Exposure Compatibility Category[b]
– Between Vine St. and Argyle Ave.	Residential, Hotel, Theater	40	71.9	Yes	Normally Unacceptable
– Between Argyle Ave. and Gower St.	Residential, Theater	40	71.7	Yes	Normally Unacceptable
Selma Avenue					
– Between Ivar Ave. and Vine St.	Residential, Commercial	30	66.1	Yes	Conditionally Acceptable
– Between Vine St. and Argyle Ave.	Residential	30	67.6	Yes	Conditionally Acceptable
– Between Argyle Ave. and Gower St.	Residential, Commercial	30	65.0	Yes	Conditionally Acceptable
Sunset Boulevard					
– Between Vine St. and Argyle Ave.	Residential, Commercial	45	73.1	Yes	Normally Unacceptable
– Between Argyle Ave. and Gower St.	Studio, Commercial	45	72.9	No	Conditionally Acceptable
– Between Gower St. and Bronson Ave.	Residential, Hotel, School, Studio	45	73.4	Yes	Normally Unacceptable

[a] *Detailed calculation worksheets are included in Appendix D 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.E-2 on page IV.E-7.*

Source: AES, 2017.

barely perceptible (with regards to ground vibration) and distinctly perceptible.[27] 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.

3. Project Impacts

a. Thresholds of Significance

(1) State CEQA Guidelines Appendix G

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

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

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

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

(2) 2006 L.A. CEQA Thresholds Guide

In the context of the above questions from Appendix G to the CEQA Guidelines, the *L.A. CEQA Thresholds Guide* identifies the following criteria 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;

[27] *FTA, "Transit Noise and Vibration Impact Assessment," May 2006, Figure 10-1.*

- 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.

Construction of the Project is anticipated to require approximately 30 months to complete. Therefore, the 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 from operations if:

- The Project (on-site and off-site sources) 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.E-2 on page IV.E-7 for a description of these categories); or

- The Project (on-site and off-site sources) causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 5 dBA in CNEL or greater for noise levels remain within the "conditionally acceptable" or "normally acceptable" category; or

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

The 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 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

The *L.A. CEQA Thresholds Guide* identifies the following significance criteria for evaluating airport noise:

- 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.

The State CEQA Guidelines Appendix G thresholds are relied upon for the analysis of potential impacts related to noise and vibration. The criteria, factors, and considerations identified in the *L.A. CEQA Thresholds Guide*, where applicable and appropriate, are used to assist in answering the Appendix G thresholds.

(3) Federal Transit Administration Guidelines

The City of Los Angeles 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 May 2006, 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; i.e., 70 or more vibration events per day):

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

- Project construction activities cause ground-borne vibration levels to exceed 65 VdB at off-site recording studio 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)."[28] The ambient noise levels at surrounding sensitive receptor locations were based on field measurement data (see Table IV.E-7 on page IV.E-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 K.1 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 with that of the existing ambient noise levels along the Project's anticipated haul route(s).

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

(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 and patio including use of amplified sound systems), parking facilities, and loading dock; (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 7.4) computer noise prediction model.[29] SoundPLAN is a 3-dimensional acoustic ray tracing program for outdoor noise propagation prediction developed by the German company, SoundPLAN GmbH. 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. 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 criteria, as described below.

(6) Operational Vibration

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

[29] *SoundPLAN GmbH, SoundPLAN version 7.4, 2017*

source. Therefore, operation of the Project would not increase the existing ground vibration levels in the immediate vicinity of the Project Site, and, as such, vibration impacts associated with operation of the Project would be less than significant. Accordingly, the ground-borne vibration analysis presented in this section is limited to Project-related construction activities.

(7) Land Use Compatibility

The Project's land use compatibility was evaluated based on the measured site ambient noise levels as compared to the City of Los Angeles Guidelines for Compatible Land Use (provided in Table IV.E-2 on page IV.E-7).[30]

c. Analysis of Project Impacts

(1) 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, shall be equipped with state-of-the-art noise shielding and muffling devices (consistent with manufacturers' standards). All equipment shall be properly maintained to assure that no additional noise, due to worn or improperly maintained parts, would be generated.

Project Design Feature NOI-PDF-2: Where power poles are available, electricity from power poles and/or solar powered generators rather than temporary diesel or gasoline generators shall be used during construction.

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

Project Design Feature NOI-PDF-4: All outdoor mounted mechanical equipment would be enclosed or screened from off-site noise-sensitive receptors.

Project Design Feature NOI-PDF-5: Loading and trash collecting areas would be screened from off-site noise-sensitive receptors.

Project Design Feature NOI-PDF-6: Outdoor amplified sound systems (e.g., speaker and stereo systems, amplification systems, or other sound-producing devices) would be designed so as not to exceed the

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

maximum noise level of: (i) 75 dBA (L_{eq-1hr}) at a distance of 25 feet from the amplified sound systems at the ground level outdoor patio area; and (ii) 85 dBA (L_{eq-1hr}) at a distance of 25 feet at the second level outdoor pool and courtyard and at the Level 7 amenity terrace.

(2) 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?

(a) Construction Noise

As discussed in Section II., Project Description of this Draft EIR, construction of the Project is anticipated to be completed over a period of 30 months, with an anticipated completion date of 2023. Construction of the Project would commence with removal of the existing on-site buildings and the existing surface parking areas, followed by grading and excavation for the subterranean parking garage. Building foundations would then be laid, followed by building construction, paving/concrete installation, and landscape installation. It is estimated that approximately 89,000 cubic yards of soil would be hauled from the Project Site during the excavation phase. It is anticipated that the empty haul trucks would come to the site from the US-101 Freeway southbound to Gower Street, turn right onto Selma Avenue and proceed to the Project Site. Loaded trucks would leave the Project Site onto Argyle Avenue traveling north to the US-101 Freeway.

(i) On-Site Construction Noise

Noise impacts from Project-related construction activities occurring within or adjacent to the Project Site would be a function of the noise generated by construction equipment, the location of the equipment, the timing and duration of the noise-generating construction activities, and the relative distance to noise-sensitive receptors. Construction activities for the Project would generally include demolition, site grading and excavation for the subterranean parking garage, and building construction. Each stage of construction would involve the use of various types of construction equipment and would, therefore, have its own distinct noise characteristics. Demolition generally involves the use of backhoes, front-end loaders, and heavy-duty trucks. Grading and excavation typically requires the use of earth-moving equipment, such as excavators, front-end loaders, and heavy-duty trucks. Building construction typically involves the use of cranes, forklifts, concrete trucks, pumps, and delivery trucks. Noise from construction equipment would generate both steady-state and episodic noise that could be heard within and adjacent to the Project Site. The Project would include Project Design Feature NOI-PDF-1 which requires noise shielding and muffling on construction equipment and Project Design

Feature NOI-PDF-2 which requires the use of power poles and/or solar powered generators where possible. Implementation of these Project Design Features would reduce noise from construction equipment.

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.E-10 on page IV.E-27. These maximum noise levels would occur when equipment is operating under full power conditions (i.e., the equipment engine at maximum speed). However, equipment used on construction sites often operate under less than full power conditions, or part power. To more accurately characterize construction-period noise levels, the average (Hourly L_{eq}) noise level associated with each construction phase is calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each construction phase.[31] These noise levels are typically associated with multiple pieces of equipment operating on part power, simultaneously.

Table IV.E-11 on page IV.E-28 provides the estimated construction noise levels for various Project 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 which all pieces of construction equipment were assumed to operate simultaneously and be located at the construction areas nearest to the affected receptors. These assumptions represent the worst-case noise scenario because construction activities would typically be spread out throughout the development area, and, thus, some equipment would be farther away from the affected receptors. In addition, the noise modeling assumes that construction noise is constant, when, in fact, construction activities and associated noise levels are periodic and fluctuate based on the construction activities.

As discussed above, since construction activities would occur over a period longer than 10 days for all phases, the corresponding significance criteria used in the construction noise analysis is an increase in the ambient L_{eq} noise level of 5 dBA at the property line of the closest noise-sensitive use. As presented in Table IV.E-11, estimated noise levels from construction activities would exceed the 5 dBA significance criteria at receptors R1 through R5, by up to 30.3 dBA. Although the existing use at receptor R1 is an open parking lot, the noise impact analysis at receptor R1 assumed the proposed mixed-use development at this location (the Palladium Residences project) would be completed and occupied during the Project construction. In addition, in the event theproposed Palladium Residences project is built before the Project is constructed, the Project-related construction noise at receptor R5

[31] *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.E-10
Construction Equipment Noise Levels

Equipment	Estimated Usage Factor[a] %	Typical Noise Level at 50 feet from Equipment, dBA (L_{max})
Air Compressor	40	78
Cement and Mortar Mixer	50	80
Concrete Mixer Truck	40	79
Concrete Saw	20	90
Crane	16	81
Drill Rig	20	84
Forklift	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.

would be reduced by a minimum of 10 dBA by the Palladium Residences building (east of the Project Site), which would reduce the impact to a less than significant level. It is estimated that the noise level associated with Project construction activities would be below the significance criteria at receptors R6 and R7. Therefore, noise impacts associated with the Project's on-site construction activities would be significant at receptors R1 through R5 before mitigation measures.

(ii) Off-Site Construction Noise

In addition to on-site construction noise sources, other noise sources may include materials delivery, concrete trucks, and haul trucks (construction trucks), as well as construction worker vehicles accessing the Project Site during construction. Typically, construction trucks generate higher noise levels than construction worker vehicles. The

Table IV.E-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	Foundation	Building Construction	Paving/ Concrete/ Landscape				
R1	25	90.7	86.9	90.4	84.7	84.6	55.4	60.4	30.3	Yes[b]
R2	80	81.8	77.8	81.0	76.8	76.1	66.8	71.8	10.0	Yes
R3	125	78.3	74.5	77.7	74.6	73.0	70.0	75.0	3.3	Yes
R4	110	74.3	70.3	73.5	69.8	68.7	68.8	73.8	0.5	Yes
R5	230	73.8	70.0	72.9	70.5	68.8	63.6	68.6	5.2	Yes[c]
R6	420	68.5	64.8	67.7	65.2	63.5	75.4	80.4	0.0	No
R7	280	62.0	58.3	61.2	58.7	57.0	72.5	77.5	0.0	No

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.E-7 on page IV.E-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.*

[b] *Significant impact if the proposed mixed-use development at receptor location R1 is built and occupied prior to Project construction.*

[c] *Note that no significant impact would occur if the proposed mixed-use development at receptor location R1 is built prior to Project construction, as the new building would provide noise shielding to receptor location R5.*

Source: AES, 2017. See Appendix D of this Draft EIR.

major noise sources associated with off-site construction trucks would be associated with delivery/haul trucks, during the Project's grading/excavation phase.

Table IV.E-12 on page IV.E-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 routes. As shown therein, Project-related construction traffic is estimated to be below the relevant 5-dBA significance criteria along the anticipated haul routes. Therefore, temporary noise impacts from off-site construction traffic would be less than significant.

(iii) Summary of Construction Noise Impacts

As discussed above, under the most conservative noise impact assessment, noise impacts associated with the Project's on-site construction would be significant at off-site sensitive receptors R1 (if future development is constructed and occupied), R2, R3, R4, and R5. In addition, the on-site construction noise impact at receptor R5 would be reduced to less than significant if the future development at receptor R1 (the Palladium Residences) is built prior to the Project's construction. Implementation of the mitigation measures below would reduce the Project's on-site construction noise levels to a less than significant level at receptor R4. No feasible mitigation measures were identified that could be implemented to reduce the temporary noise impacts from on-site construction at receptors R2, R3, and R5, to a less than significant level. In addition, in the event that the proposed mixed-use development at receptor R1 is constructed and occupied prior to the Project construction, Project construction-related noise would still exceed the 5 dBA significance criteria at receptor R1 even with implementation of the mitigation measures, and potential impacts associated with the Project's on-site construction activities would remain significant and unavoidable. Noise impacts associated with off-site construction traffic would be less than significant and mitigation measures are not required. Therefore, the Project would result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the Project Site in excess of established standards during Project construction due to on-site construction activities.

(b) Operational Noise

This section provides a discussion of potential operational noise impacts on nearby noise-sensitive receptors. Specific operational noise sources addressed herein include: (a) on-site stationary noise sources, including outdoor mechanical equipment (e.g., HVAC equipment), loading dock, parking, and activities within the proposed outdoor spaces (e.g., courtyard and patio); and (b) off-site mobile (roadway traffic) noise sources.

Table IV.E-12
Off-Site Construction Traffic Noise Levels

Construction Phase	Estimated Peak Number of Trips per Day, Construction Truck/Worker Vehicle	Estimated Peak Number of Trips per Hour,[a] Construction Truck/Worker Vehicle	Estimated Construction Traffic Noise Along the Project Haul Routes, L_{eq} (dBA)		
			Argyle Avenue (Project Site to US-101)	Gower Street (from US-101 to Selma Avenue)	Selma Avenue (from Gower Street to Project Site)
Demolition	20/30	4/12	58.1	57.3	58.1
Grading	250/40	42/16	67.4	66.7	67.4
Foundation	60/200	8/80	62.8	62.0	62.8
Building Construction	60/300	8/120	63.7	62.9	63.7
Finishing	40/100	6/40	60.8	60.0	60.8
Existing Ambient Noise Levels,[b] L_{eq} (dBA)			66.8	70.0	70.0
Significance Criteria,[c] L_{eq} (dBA)			71.8	75.0	75.0
Significant Impact?			No	No	No

[a] *For construction trucks (Demolition, Foundation, Building Construction, and Finishing phases), the number of hourly trips is based on an hourly average, assuming a uniform distribution of trips over an 8-hour work day; for the Grading phase the number of hourly truck trips is based on an hourly average over a 6-hour work day. For worker vehicles, the number of peak hourly trips is equal to 40% of the daily trips.*

[b] *Ambient noise along Argyle Avenue is based on measured ambient noise at receptor R2, ambient noise along Gower Street and Selma Avenue is based on measured ambient noise level at receptor R3.*

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

Source: AES, 2017.

(i) On-Site Stationary Noise Sources

Mechanical Equipment

As part of the Project, new mechanical equipment (e.g., air ventilation equipment) would be located at the exterior of the building (at grade or on the roof level) and within the interior of the building. Although operation of this equipment would generate noise, Project-related outdoor mechanical equipment would be designed so as not to increase the existing ambient noise levels by 5 dBA in accordance with the City's Noise Regulations. Specifically, the Project would comply with LAMC Section 112.02, which prohibits noise from air conditioning, refrigeration, heating, pumping, and filtering equipment from exceeding the ambient noise levels on the premises of other occupied properties by more than 5 dBA. In addition, as provided above in Project Design Feature NOI-PDF-4, all outdoor mounted mechanical equipment would be enclosed or screened from off-site noise-sensitive receptors. Table IV.E-13 on page IV.E-31 presents the estimated noise levels at the off-site receptor locations from operation of the Project mechanical equipment. As indicated in Table IV.E-13, the estimated noise levels from the mechanical equipment would range from 13.2 dBA (L_{eq}) at receptor location R7 to 42.3 dBA (L_{eq}) at receptor

Table IV.E-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[a], dBA (L_{eq})	Exceedance Above the Significance Criteria	Significant Impact?
R1	54.6	42.3[b]	54.8	59.6	0.0	No
R2	63.7	23.2	63.7	68.7	0.0	No
R3	65.9	21.9	65.9	70.9	0.0	No
R4	66.4	20.2	66.4	71.4	0.0	No
R5	55.6	25.1[c]	55.6	60.6	0.0	No
R6	70.7	24.1	70.7	75.7	0.0	No
R7	64.7	13.2	64.7	69.7	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.E-7 on page IV.E-15) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a significant noise impact is identified.*

[b] *Estimated noise level at future Palladium Residences outdoor spaces at the podium level.*

[c] *Project noise level would be further reduced by approximately 9.6 dBA if the proposed mixed-use development at receptor location R1 is built, as the new building would provide noise shielding to receptor location R5.*

Source: AES, 2017. See Appendix D of this Draft EIR.

location R1, which would be below the existing ambient noise levels. Accordingly, 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 noise level). 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 spaces, including an outdoor plaza located on the ground floor (northwestern corner), a pool and courtyard deck and landscaped rear yard at the second level, and an outdoor terrace at the northeast corner of Level 7. Noise sources associated with the outdoor spaces would include noise from people gathering and conversing. For this operational noise analysis, reference noise levels of 65 dBA for a male and 62 dBA for a female speaking in a raised voice were used for analyzing potential noise impacts from

people gathering at the outdoor spaces.[32] In order to analyze a typical noise scenario, it was assumed that up to 50 percent of the people (half of which would be male and the other half female) would be talking at the same time. In addition, the hours of operation for use of the outdoor spaces were assumed to be from 7:00 A.M. to 2:00 A.M. An additional potential noise source associated with outdoor uses would include the use of outdoor amplified sound systems (e.g., music or other sounds broadcast through an outdoor mounted speaker system). The sound from outdoor sound systems, if used, would be heard by people in the immediate vicinity of the outdoor areas. As part of the Project and as set forth in Project Design Feature NOI-PDF-6, the amplified sound system used in outdoor areas would be designed so as not to exceed the maximum noise levels of 75 to 85 dBA L_{eq} as indicated in Table IV.E-14 on page IV.E-33. Table IV.E-14 presents the assumed number of people at each of the outdoor spaces (based on occupancy levels for outdoor areas) and the Project's proposed amplified sound levels.

Table IV.E-15 on page IV.E-34 presents the estimated noise levels at the off-site sensitive receptors resulting from the use of outdoor areas. As presented in Table IV.E-15, the estimated noise levels from the outdoor areas would range from 36.2 dBA (L_{eq}) at receptor location R6 to 55.5 dBA (L_{eq}) at receptor location R3. The estimated noise levels from the outdoor spaces would be below the significance criteria of 5 dBA (L_{eq}) above ambient noise levels at all off-site sensitive receptors. As such, noise impacts from the use of the outdoor uses would be less than significant.

Parking Facilities

The Project would include four subterranean parking levels. Noise levels associated with the subterranean parking levels would be contained within the parking structure, as the subterranean parking levels would be fully enclosed on all sides. Therefore, noise levels associated with the parking facilities would not exceed the existing ambient noise levels or the significance criteria of 5 dBA (L_{eq}) above ambient noise levels. In addition, the noise level from the new parking areas would be less than the noise levels from the existing outdoor parking lot within the Project Site. As such, noise impacts from parking operations would be less than significant.

Loading Dock and Trash Collection Areas

The Project includes one loading area at the northeast corner within the building ground level (Level 1), and under the grocery store option, a second loading area would be provided at the southwest corner. In addition, trash/recycling collection area would be

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

Table IV.E-14
Outdoor Uses Assumptions

Project Location	Outdoor Space	Estimated Total Number of People[a]	Amplified Sound System Levels dBA (L_{eq})
Ground Level	Outdoor Plaza	67	75 dBA at 25 feet
Second Level	Pool and Courtyard	315	85 dBA at 25 feet
	Landscaped Rear Yard	242	—
Seventh Level	Outdoor Terrace	105	85 dBA at 25 feet

[a] *The estimated total number of people is based on 15 square feet/person.*
Source: AES, 2019. See Appendix D of this Draft EIR.

located at the northeast loading area. The loading areas would be partially shielded to the off-site noise sensitive receptors, as set forth in the Project Design Feature NOI-PDF-5. In addition, the trash/recycling area would be located within an enclosed room inside the building, which would mitigate noise emission to the exterior. Noise sources associated with the loading docks would include delivery trucks. Based on measured noise levels from typical loading dock facilities, delivery trucks could generate noise levels of approximately 71 dBA (L_{eq}) at a distance of 50 feet.[33] As indicated in Table IV.E-16 on page IV.E-35, the estimated noise from loading dock operation is estimated to range from 24.7 dBA (L_{eq}) at receptor location R5 to 58.4 dBA (L_{eq}) at receptor location R2. The estimated noise levels at all off-site receptor locations would be well below the existing ambient noise levels and the significance criteria of 5 dBA (L_{eq}) above ambient noise levels. Therefore, noise impacts from loading dock operation would be less than significant.

(ii) Off-Site Mobile Noise Sources

Future Plus Project

Future roadway noise levels were calculated along the 24 selected roadway segments in the vicinity of the Project Site. The roadway noise levels were calculated using the traffic data provided in the Traffic Study prepared for the Project, which is included in Appendix K.1 of this Draft EIR. As discussed in the Traffic Study, the Project is expected to generate a net increase of 2,013 daily trips under the Retail/Restaurant Option and a net increase of 1,971 daily trips under the Grocery Store Option. 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

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

Table IV.E-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 Above the Significance Criteria	Significant Impact?
R1	54.6	51.6[b]	56.4	59.6	0.0	No
R2	63.7	49.2	63.9	68.7	0.0	No
R3	65.9	55.5	66.3	70.9	0.0	No
R4	66.4	50.4	66.5	71.4	0.0	No
R5	55.6	49.3[c]	56.5	60.6	0.0	No
R6	70.7	36.2	70.7	75.7	0.0	No
R7	64.7	43.4	64.7	69.7	0.0	No

[a] *Significance criteria are equivalent to the measured daytime or nighttime ambient noise levels, whichever is lower (see Table IV.E-7 on page IV.E-15) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a significant noise impact is identified.*

[b] *Estimated noise level at future Palladium Residences outdoor spaces at the podium level.*

[c] *Project noise level would be further reduced by approximately 8.2 dBA if the proposed mixed-use development at receptor location R1 is built prior to Project operation, as the new building would provide noise shielding to receptor location R5.*

Source: AES, 2019. See Appendix D of this Draft EIR.

roadway traffic was analyzed to determine if any traffic-related noise impacts would result from operation of the Project.

Table IV.E-17 on page IV.E-36 provides a summary of the roadway noise impact analysis. The calculated traffic levels were conservatively calculated with the receptors facing the roadways and did not account for the presence of any physical sound barriers or intervening structures. As shown in Table IV.E-17, the Project is estimated to result in a maximum increase of up to 1.0 dBA (CNEL) in traffic-related noise levels along Selma Avenue between Argyle Avenue and Gower Street, under both the Retail/Restaurant Option and the Grocery Store Option. The increase in traffic noise levels would be well below the relevant 3 dBA CNEL significance criteria (applicable to noise levels within the "normally unacceptable" land use category). In addition, a noise increase of less than 1 dBA is generally considered negligible. 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

Table IV.E-16
Estimated Noise Levels from Loading Operation

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise Levels from Loading Activities, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Criteria[a]	Exceedance Above the Significance Criteria	Significant Impact?
R1	55.4	45.1[b]	55.8	60.4	0.0	No
R2	66.8	58.4	67.4	71.8	0.0	No
R3	70.0	40.1	70.0	75.0	0.0	No
R4	68.8	54.7	69.0	73.8	0.0	No
R5	63.6	24.7[c]	63.6	68.6	0.0	No
R6	75.4	48.8	75.4	80.4	0.0	No
R7	72.5	27.8	72.5	77.5	0.0	No

[a] *Significance criteria are equivalent to the measured daytime ambient noise levels (see Table IV.E-7 on page IV.E-15) plus 5 dBA, per the City of Los Angeles Noise Regulations. If the estimated noise levels exceed those significance criteria, a significant noise impact is identified.*

[b] *Estimated noise level at future Palladium Residences outdoor spaces at the podium level.*

[c] *Project noise level would be further reduced by approximately 22.2 dBA if the proposed mixed-use development at receptor location R1 is built prior to Project operation, as the new building would provide noise shielding to receptor location R5.*

Source: AES, 2019. See Appendix D of this Draft EIR.

impacts based on the increase in noise levels due to Project-related traffic compared with the existing traffic noise conditions. As shown in Table IV.E-18 on page IV.E-38, when compared with existing conditions, the Project would result in a maximum increase of 1.1 dBA CNEL in traffic-related noise levels along Selma Avenue between Argyle Avenue and Gower Street, under both the Retail/Restaurant Option and the Grocery Store Option. The estimated noise increase due to Project-related traffic would be below the relevant 3 dBA CNEL significance criteria. Therefore, off-site traffic noise impacts based on the existing 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, loading dock, outdoor areas, and off-site traffic), an evaluation of potential composite noise level increases (i.e., noise levels from all on-site noise sources combined) at the analyzed sensitive receptor locations was also performed. This evaluation of composite noise levels from all on-site project 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.E-17
Roadway Traffic Noise Impacts—Future Plus Project

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] CNEL (dBA)			Increase in Noise Levels due to Project, CNEL (dBA)		Sig. Impact?
		Future Without Project	Future With Project (Retail/ Restaurant Option)	Future With Project (Grocery Store Option)	Future With Project (Retail/ Restaurant Option)	Future With Project (Grocery Store Option)	
Ivar Avenue							
– Between Yucca St. and Hollywood Blvd.	Residential, Commercial	67.1	67.1	67.1	0.0	0.0	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Commercial	68.0	68.0	68.0	0.0	0.0	No
Vine Street							
– Between Yucca St. and Hollywood Blvd.	Residential, Hotel, Studio	72.5	72.6	72.6	0.1	0.1	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Theater	72.8	72.8	72.8	0.0	0.0	No
– Between Selma Ave. and Sunset Blvd.	Residential, Commercial	72.8	72.8	72.8	0.0	0.0	No
Argyle Avenue							
– Between Yucca St. and Hollywood Blvd.	Residential, Theater	68.9	69.0	69.0	0.1	0.1	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Hotel, Studio	68.7	68.8	68.8	0.1	0.1	No
– Between Selma Ave. and Sunset Blvd.	Commercial	67.5	67.8	67.7	0.3	0.2	No
Gower Street							
– Between Yucca St. and Hollywood Blvd.	Residential, Religious	71.1	71.2	71.2	0.1	0.1	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Commercial	72.0	72.0	72.0	0.0	0.0	No
– Between Selma Ave. and Sunset Blvd.	Residential, Commercial	71.6	71.6	71.6	0.0	0.0	No
Franklin Avenue							
– Between Argyle Ave. and Gower St.	Residential, Commercial	73.1	73.1	73.1	0.0	0.0	No

Table IV.E-17 (Continued)
Roadway Traffic Noise Impacts—Future Plus Project

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] CNEL (dBA)			Increase in Noise Levels due to Project, CNEL (dBA)		Sig. Impact?
		Future Without Project	Future With Project (Retail/ Restaurant Option)	Future With Project (Grocery Store Option)	Future With Project (Retail/ Restaurant Option)	Future With Project (Grocery Store Option)	
Yucca Street							
– Between Ivar Ave. and Vine St.	Residential, School	67.0	67.0	67.0	0.0	0.0	No
– Between Vine St. and Argyle Ave.	Residential, Studio	66.5	66.5	66.5	0.0	0.0	No
– Between Argyle Ave. and Gower St.	Residential, Hotel	65.9	65.9	65.9	0.0	0.0	No
Hollywood Boulevard							
– Between Ivar Ave. and Vine St.	Residential, Religious, Commercial	72.6	72.6	72.6	0.0	0.0	No
– Between Vine St. and Argyle Ave.	Residential, Hotel, Theater	73.4	73.5	73.5	0.1	0.1	No
– Between Argyle Ave. and Gower St.	Residential, Theater	73.3	73.3	73.3	0.0	0.0	No
Selma Avenue							
– Between Ivar Ave. and Vine St.	Residential, Commercial	66.5	66.9	66.9	0.4	0.4	No
– Between Vine St. and Argyle Ave.	Residential	67.9	68.3	68.4	0.4	0.5	No
– Between Argyle Ave. and Gower St.	Residential, Commercial	65.3	66.3	66.3	1.0	1.0	No
Sunset Boulevard							
– Between Vine St. and Argyle Ave.	Residential, Commercial	74.3	74.4	74.4	0.1	0.1	No
– Between Argyle Ave. and Gower St.	Studio, Commercial	74.3	74.3	74.3	0.0	0.0	No
– Between Gower St. and Bronson Ave.	Residential, Hotel, School, Studio	74.7	74.7	74.7	0.0	0.0	No

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

Source: AES, 2017.

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

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] CNEL (dBA)			Increase in Noise Levels due to Project, CNEL (dBA)		Sig. Impact?
		Existing Without Project	Existing Plus Project (Retail/ Restaurant Option)	Existing Plus Project (Grocery Store Option)	Existing Plus Project (Retail/ Restaurant Option)	Future Plus Project (Grocery Store Option)	
Ivar Avenue							
– Between Yucca St. and Hollywood Blvd.	Residential, Commercial	66.9	66.9	66.9	0.0	0.0	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Commercial	67.8	67.8	67.8	0.0	0.0	No
Vine Street							
– Between Yucca St. and Hollywood Blvd.	Residential, Hotel, Studio	71.6	71.7	71.7	0.1	0.1	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Theater	72.1	72.1	72.1	0.0	0.0	No
– Between Selma Ave. and Sunset Blvd.	Residential, Commercial	72.0	72.1	72.1	0.1	0.1	No
Argyle Avenue							
– Between Yucca St. and Hollywood Blvd.	Residential, Theater	68.0	68.1	68.1	0.1	0.1	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Hotel, Studio	68.2	68.4	68.4	0.2	0.2	No
– Between Selma Ave. and Sunset Blvd.	Commercial	67.1	67.3	67.3	0.2	0.2	No
Gower Street							
– Between Yucca St. and Hollywood Blvd.	Residential, Religious	70.6	70.6	70.6	0.0	0.0	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Commercial	71.1	71.1	71.1	0.0	0.0	No
– Between Selma Ave. and Sunset Blvd.	Residential, Commercial	70.6	70.6	70.6	0.0	0.0	No
Franklin Avenue							
– Between Argyle Ave. and Gower St.	Residential, Commercial	72.6	72.6	72.6	0.0	0.0	No

Table IV.E-18 (Continued)
Roadway Traffic Noise Impacts—Existing Plus Project

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] CNEL (dBA)			Increase in Noise Levels due to Project, CNEL (dBA)		Sig. Impact?
		Existing Without Project	Existing Plus Project (Retail/ Restaurant Option)	Existing Plus Project (Grocery Store Option)	Existing Plus Project (Retail/ Restaurant Option)	Future Plus Project (Grocery Store Option)	
Yucca Street							
– Between Ivar Ave. and Vine St.	Residential, School	66.4	66.4	66.4	0.0	0.0	No
– Between Vine St. and Argyle Ave.	Residential, Studio	65.4	65.4	65.4	0.0	0.0	No
– Between Argyle Ave. and Gower St.	Residential, Hotel	64.1	64.1	64.1	0.0	0.0	No
Hollywood Boulevard							
– Between Ivar Ave. and Vine St.	Residential, Religious, Commercial	71.0	71.0	71.0	0.0	0.0	No
– Between Vine St. and Argyle Ave.	Residential, Hotel, Theater	71.9	72.0	72.0	0.1	0.1	No
– Between Argyle Ave. and Gower St.	Residential, Theater	71.7	71.7	71.8	0.0	0.1	No
Selma Avenue							
– Between Ivar Ave. and Vine St.	Residential, Commercial	66.1	66.5	66.5	0.4	0.4	No
– Between Vine St. and Argyle Ave.	Residential	67.6	68.0	68.1	0.4	0.5	No
– Between Argyle Ave. and Gower St.	Residential, Commercial	65.0	66.1	66.1	1.1	1.1	No
Sunset Boulevard							
– Between Vine St. and Argyle Ave.	Residential, Commercial	73.1	73.1	73.1	0.0	0.0	No
– Between Argyle Ave. and Gower St.	Studio, Commercial	72.9	72.9	72.9	0.0	0.0	No
– Between Gower St. and Bronson Ave.	Residential, Hotel, School, Studio	73.4	73.4	73.4	0.0	0.0	No

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

Source: AES, 2017.

Table IV.E-19 on page IV.E-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.E-19, the estimated composite plus ambient noise levels would be below the significance criteria at all off-site receptor locations. Therefore, composite noise level impacts due to Project operations would be less than significant.

(iv) Land Use Compatibility

Based on the measured ambient noise levels, the exterior noise levels at the Project Site were 59.4 dBA CNEL at the southeastern corner (measured at R1) and 69.2 dBA CNEL near the western boundary (measured at R2). According to the City of Los Angeles Guidelines for Noise Compatible Land Use (refer to Table IV.E-2 on page IV.E-7), the Project Site would be considered "conditionally acceptable" for residential development, up to 70 dBA CNEL. In accordance with regulatory requirements, the Project would include necessary noise insulation features, such as insulated glass windows and doors, to achieve an interior noise environment that does not exceed 45 dBA CNEL for residential use and 50 dBA L_{eq} for non-residential uses. Therefore, noise impacts associated with land use compatibility would be less than significant.

(v) Summary of Operational Noise Impacts

As discussed above, the Project's operational noise impacts from on-site sources and off-site source (roadway traffic) would be less than significant and no mitigation measures are required. The Project Site would be "conditionally acceptable" for residential development and the Project would include necessary noise insulation features to achieve and interior noise environment that does not exceed 45 dBA CNEL for residential use and 50 dBA L_{eq} for non-residential uses. Therefore, the Project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project Site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies during Project operation.

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

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

Table IV.E-19
Composite Noise Impacts

Receptor Location	Existing Ambient Noise Levels, CNEL (dBA)	Calculated Project-Related Noise Sources, CNEL (dBA)				Project Composite Noise Levels, CNEL (dBA)	Ambient plus Project Noise Levels, CNEL (dBA)	Significance Criteria,[a] CNEL (dBA)	Signif. Impact?
		Traffic	Mechanical	Loading	Outdoor Spaces				
R1	59.4	53.0	49.0	42.3	55.5	58.1[b]	61.8	64.4	No
R2	69.2	53.0	29.9	55.6	53.1	58.8	69.6	74.2	No
R3	71.7	55.8	28.6	37.3	59.4	61.0	72.1	74.7	No
R4	71.6	49.4	26.9	51.9	54.3	57.1	71.7	74.6	No
R5	63.3	49.9	31.8	22.1	53.2	54.9	63.9	68.3	No
R6	76.8	53.9	30.8	46.0	40.1	54.7	76.8	79.8	No
R7	72.3	49.4	19.9	25.1	47.3	51.5	72.3	75.3	No

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

[b] *Estimated noise level at future Palladium Residences outdoor spaces at the podium level.*

[c] *Estimated noise level at Receptor R5 is based on the assumption that the adjacent mixed-use project at receptor location R1 (the Palladium Residences project) is not built. Project noise level would be further reduced by approximately 3.7 dBA if the Palladium Residences project is built prior to Project operation, as the new building would provide noise shielding to receptor location R5*

Source: AES, 2019. See Appendix D of this Draft EIR.

vibration at moderate levels. However, ground-borne vibrations from construction activities rarely reach levels that damage structures.

(a) 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.E-20 on page IV.E-43 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-3 provided above, impact pile driving vibration is not included in the on-site construction vibration analysis. As indicated in Table IV.E-20, the estimated vibration velocity levels from all construction equipment would be below the building damage significance criteria of 0.12 PPV for the historic Hollywood Palladium building to the south, the significance criteria of 0.2 PPV for the single-story commercial building to the north, and the significance criteria of 0.5 PPV for the newly constructed residential buildings to the east and west and the future Palladium Residences buildings to the south and east. Therefore, vibration impacts associated with potential building damage would be less than significant.

(b) Human Annoyance Impacts from On-Site Construction

Table IV.E-21 on page IV.E-44 provides the estimated vibration levels at the off-site sensitive uses due to construction equipment operation and compares the estimated vibration levels to the specified significance criteria for human annoyance. Per FTA guidance, the significance criteria for human annoyance is 72 VdB at residential uses and 65 VdB for studio (recording) uses, assuming there are a minimum of 70 vibration events occurring during a typical construction day. As indicated in Table IV.E-21, the estimated ground-borne vibration levels from construction equipment would be below the significance criteria for human annoyance at off-site receptors R3, R5, R6 and R7. The Project-related construction activities would exceed the 72 VdB significance criteria at receptors R1 (if future development is constructed and occupied) and R2, and exceed the 65 VdB significance criteria at receptor R4 (applicable to recording studio uses). Therefore, vibration impacts during construction of the Project would be significant pursuant to the significance criteria for human annoyance.

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

As described above, construction delivery/haul trucks would generally travel between the Project Site and the US-101 Freeway via Argyle Avenue, Gower Street and

Table IV.E-20
Construction Vibration Impacts—Building Damage

Off-Site Building Structure[a]	Estimated Vibration Velocity Levels at the outside of and adjacent to the Nearest Off-Site Structures from the Project Construction Equipment,[b] inch/second (PPV)					Significance Criteria, PPV	Signif. 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	—	—
Single-story commercial buildings to the North	0.024	0.024	0.020	0.009	0.001	0.20[c]	No
Hollywood Palladium (historic) building to the South	0.019	0.019	0.016	0.008	0.001	0.12[d]	No
Multi-story residential building to the East	0.003	0.003	0.003	0.001	<0.001	0.50[e]	No
Multi-story residential building to the West	0.016	0.016	0.013	0.006	0.001	0.50[e]	No
Palladium Residences (if constructed)[f]	0.192	0.192	0.164	0.075	0.007	0.50[e]	No

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

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

[c] *FTA criteria for non-engineered timber and masonry building, applicable to the single-story commercial building north of the Project Site.*

[d] *FTA criteria for historic building structures, applicable to the Hollywood Palladium building south of the Project Site.*

[e] *FTA criteria for reinforced-concrete, steel, or timber building, applicable to the newly constructed multi-story residential buildings to the east and west of the Project Site (represented by receptor locations R5 and R2, respectively) and the future Palladium Residences building (represented by receptor location R1, if constructed prior to Project).*

[f] *Estimated based on future Palladium Residences building at 15 feet from Project's property line.*

Source: FTA, 2006; AES, 2017. See Appendix D of this Draft EIR.

Selma Avenue. Heavy-duty construction trucks would generate ground-borne vibration as they travel along the Project's anticipated haul route. Thus, an analysis of potential vibration impacts using the building damage and human annoyance 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 (0.006 PPV) at a distance of 50 feet from the truck.[34] According

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

Table IV.E-21
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	Signif. Impact?
	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jack-hammer	Small Bulldozer		
FTA Reference Vibration Levels at 25 feet	87	87	86	79	58	—	—
R1	87	87	86	79	58	72[b]	Yes[d]
R2	72	72	71	64	43	72[b]	Yes
R3	66	66	65	58	37	72[b]	No
R4	68	68	67	60	39	65[c]	Yes
R5	58	58	57	60	29	72[b]	No
R6	50	50	49	42	21	65[c]	No
R7	56	56	55	48	27	72[b]	No

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

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

[c] *FTA criteria for studio (recording) use with frequent events.*

[d] *Significant impact if the proposed development at receptor location R1 (Palladium Residences) is built and occupied prior to Project construction.*

Source: FTA, 2006; AES, 2017. See Appendix D of this Draft EIR.

to the FTA "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads." Nonetheless, there are existing buildings along the Project's anticipated haul route(s) that are situated approximately 25 feet from the right-of-way and would be exposed to ground-borne vibration levels of approximately 0.016 PPV, as provided in the noise calculation worksheets included in Appendix D 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 residential uses, and 65 VdB for recording studio uses. It should be noted that buses and trucks rarely create vibration that exceeds 70 VdB at 50 feet from

the receptor unless there are bumps in the road.[35] There are residential and recording studio uses along Argyle Avenue and Gower Street between the Project Site and the US-101 Freeway. As indicated in the noise calculation worksheets included in Appendix D of this Draft EIR, the temporary vibration levels could reach approximately 72 VdB periodically as trucks pass by the residences along Argyle Avenue and Gower Street and the recording studio along Argyle Avenue. Therefore, the estimated ground-borne vibration from the construction trucks could exceed the 72 VdB significance criteria for residential uses and the 65 VdB significance criteria for recording studio uses. Therefore, although temporary and intermittent, potential vibration impacts with respect to human annoyance from construction trucks traveling along the anticipated haul route would be significant during the Project's site grading phase.

(d) Summary of Construction Vibration Impacts

As discussed above, the estimated vibration levels from Project construction equipment would be below the building damage significance criteria for all off-site buildings. Therefore, vibration impacts from on-site construction of the Project would be less than significant pursuant to the significance criteria for building damage. However, vibration impacts from on-site construction activities would be significant pursuant to the significance criteria for human annoyance. In addition, although vibration impacts from off-site construction trucks would be less than significant pursuant to the significance criteria for building damage, vibration impacts from off-site construction trucks would be significant pursuant to the significance criteria for human annoyance. There are no feasible mitigation measures that could be implemented to reduce the temporary vibration impacts associated with human annoyance to a less-than-significant level. Therefore, vibration impacts from on-site and off-site construction activities with respect to human annoyance would remain significant and unavoidable. As such, the Project would result in the short-term generation of excessive ground-borne vibration levels.

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

As discussed in Section VI, Other CEQA Considerations, and in the Initial Study included as Appendix A of this Draft EIR, the Project Site is not located within the vicinity of a private airstrip, within 2 miles of an airport, or within an area subject to an airport land use

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

plan. Therefore, the Project would not expose people residing or working in the project area to excessive airport-related noise levels. As such, no further analysis of airport operation-related noise is necessary.

Thus, the Project would have a less than significant impact with respect to Threshold (c). No impacts from excessive airport-related noise levels would occur, and no further analysis is required.

4. 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.

a. Construction Noise

(1) On-Site Construction Noise

As indicated in Section III, Environmental Setting, of this Draft EIR, there are 108 related development projects identified in the vicinity of the Project Site. Noise from construction of development projects is typically localized and has the potential to affect noise-sensitive uses within 500 feet from the construction site, based on the *L.A. CEQA Thresholds Guide* screening criteria. Thus, noise from construction activities for two projects within 1,000 feet of each other can contribute to a cumulative noise impact for receptors located midway between the two construction sites. While the majority of the related projects are located over 1,000 feet from the Project Site, the following 11 related projects are within 1,000 feet of the Project Site:

- Related Project No. 2 (BLVD 6200 Mixed-Use) is a mixed-use development located at 6200 Hollywood Boulevard located approximately 225 feet north of the Project Site. However, construction of this related project would be completed prior to Project construction. Therefore, Related Project No. 2 would not contribute to cumulative construction-related noise impacts.

- Related Project No. 14 (Selma & Vine Office Project) is an office development located at 1601 Vine Street, located approximately 540 feet northwest of the Project Site. However, construction of this related project has been completed. Therefore, Related Project No. 14 would not contribute to cumulative construction-related noise impacts.

- Related Project No. 33 (Columbia Square Mixed-Use) is a mixed-use development located at 6121 Sunset Boulevard, located east of the Project Site.

However, construction of this related project has been completed. Therefore, Related Project No. 33 would not contribute to cumulative construction-related noise impacts.

- Related Project No. 38 (Sunset & Vine Mixed-Use) is a mixed-use development located at 1538 Vine Street, located west of the Project Site. However, construction of this related project has been completed. Therefore, Related Project No. 38 would not contribute to cumulative construction-related noise impacts.

- Related Project No. 11 (Hollywood Gower Mixed-Use) is a mixed-use development located at 6100 Hollywood Boulevard, approximately 600 feet northeast of the Project Site. There are noise-sensitive uses located between the Project and Related Project No. 11, including the Palladium Residences (receptor location R1, if constructed and occupied) and the Hollywood Proper Residences (receptor location R5). However, there are multiple buildings located between the Related Project No. 11 construction area and receptor locations R1 and R5, which would provide adequate noise reduction from Related Project No. 11 construction activities. Therefore, cumulative noise impacts would not be expected in the event concurrent construction of the Project and Related Project No. 11 were to occur.

- Related Project No. 13 (Pantages Theater Office) is an office development located at 6225 Hollywood Boulevard, approximately 750 feet northwest of the Project Site. There are noise-sensitive uses located between the Project and the Related Project No. 13, including the 1600 Vine Apartments (receptor location R3), the Hollywood Le Bon Hotel (receptor location R4) and the W Hotel (represented by receptor location R7). However, there are multiple buildings located between the Project and the Related Project No. 13 construction areas, which would provide adequate noise reduction from the two projects' construction activities. Therefore, cumulative noise impacts would not be expected in the event concurrent construction of the Project and Related Project No. 13 were to occur.

- Related Project No. 40 (6250 Sunset Nickelodeon) is a mixed-used development located at 6250 Sunset Boulevard, approximately 420 feet south of the Project Site. Related Project No. 40 is also represented by receptor location R6. There are noise sensitive receptors, which could be exposed to construction noise from both the Project and Related Project No. 40 including the Palladium Residences (receptor location R1, if constructed and occupied) and the Camden Apartments (receptor location R2). As indicated in Table IV.E-11 on page IV.E-28, the estimated noise from the Project construction activities at receptor locations R1 and R2 would exceed the 5 dBA significance criteria. Since Related Project No. 40 has a direct acoustic line-of-sight to receptor locations R1 and R2, the construction related noise from Related Project No. 40 could contribute to cumulative construction noise. Therefore, construction noise impacts resulting

from the Project and Related Project No. 40, if constructed concurrently, would be cumulatively considerable and would be considered significant.

- Related Project No. 49 (Palladium Residences) is a mixed-used development located at 6201 Sunset Boulevard, adjacent to the Project Site to the south and east. Related Project No. 49 is also represented by receptor location R1. There are noise sensitive receptors that could be exposed to construction noise from both the Project and Related Project No. 49, including the Camden Apartments (receptor location R2), the 1600 Vine Apartments (receptor R3), the Hollywood Le Bon Hotel (receptor R4), the Hollywood Proper Residences (receptor location R5), and the Earl Carroll Theater/Nickelodeon Studio (receptor location R6). As indicated in Table IV.E-11 on page IV.E-28, the estimated noise from the Project construction activities at receptor locations R2, R3, R4 and R5 would exceed the 5 dBA significance criteria. Since Related Project No. 49 has a nearly direct acoustic line-of-sight (save for the Project Site itself) to these receptor locations, the construction related noise from the Related Project No. 49 could contribute to cumulative construction noise. Therefore, construction noise impacts resulting from the Project and Related Project No. 49, if constructed concurrently, would be cumulatively considerable and would be considered significant.

- Related Project No. 80 (citizenM Hotel) is a hotel development located at 1718 Vine Street, approximately 935 feet northwest of the Project Site. There are noise-sensitive uses located between the Project and Related Project No. 80, including the 1600 Vine Apartments (receptor R3), the Hollywood Le Bon Hotel (receptor R4) and the W Hotel (represented by receptor R7). However, there are multiple buildings located between the Project and Related Project No. 80 construction areas, which would provide adequate noise reduction from the two projects. Therefore, cumulative noise impacts would not be expected in the event concurrent construction of the Project and Related Project No. 80 were to occur.

- Related Project No. 84 (6200 W Sunset Boulevard) a mixed-used development located at 6200 Sunset Boulevard, approximately 410 feet southeast of the Project Site. There are noise sensitive receptors, which could be exposed to construction noise from both the Project and Related Project No. 84 including the Palladium Residences (receptor location R1, if constructed and occupied), the Hollywood Proper Residences (receptor location R5), and the Earl Carroll Theater/Nickelodeon Studio (receptor location R6). As indicated in Table IV.E-11 on page IV.E-28, the estimated noise from the Project construction activities at receptor locations R1 and R5 would exceed the 5 dBA significance criteria. However, the noise impacts at receptor location R1 (along Sunset Boulevard) would be similar to receptor R6 (due to sound attenuation provided by the Palladium Residences building), which would be less than significant. Therefore, cumulative noise impacts would not be expected at receptor locations R1 and R6. Since Related Project No. 84 has a direct acoustic line-of-sight to receptor location R5, the construction related noise from Related Project No. 84 could contribute to the cumulative construction noise. Therefore, construction

noise impacts resulting from the Project and the Related Project No. 84, if constructed concurrently, would be cumulatively considerable and would be considered significant.

- Related Project No. 99 is a mixed-use development located at 6140 Hollywood Boulevard and approximately 515 feet northeast of the Project Site. There are noise-sensitive uses located between the Project and Related Project No. 99, including the Palladium Residences (receptor location R1, if constructed and occupied) and the Hollywood Proper Residences (receptor location R5). However, there are multiple buildings located between the Related Project No. 99 construction area and receptor locations R1 and R5, which would provide adequate noise reduction from Related Project No. 99 construction activities. Therefore, cumulative noise impacts would not be expected in the event concurrent construction of the Project and Related Project No. 99 were to occur.

Based on the above, cumulative noise impacts at the nearby sensitive uses located between the Project Site and Related Project No. 40, Related Project No. 49, and Related Project No. 84 could occur. Construction-related noise levels from the related projects would be intermittent and temporary, and it is anticipated that, as with the Project, the related projects would comply with the construction hours and other relevant provisions set forth in the LAMC. Noise associated with cumulative construction activities would be reduced 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. Nonetheless, if nearby Related Project Nos. 40, 49, and 84 were to be constructed concurrently with the Project, significant cumulative construction noise impacts could result.

(2) 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 66.8 dBA (L_{eq}) measured at receptor location R2 (refer to Table IV.E-7 on page IV.E-15), it is estimated that up to 58 truck trips per hour could occur along Argyle Avenue without exceeding the significance criteria of 5 dBA above ambient noise levels (i.e., 71.8 dBA). Therefore, if the total number of trucks from the Project and related projects were to add up to 59 truck trips per hour along Argyle Avenue, the estimated noise level from 59 truck trips per hour would be 71.8 dBA, which would exceed the ambient noise levels by 5 dBA and exceed the significance criteria.

Although the Project would only generate an average of 16 truck trips per hour during peak construction period (site grading), the Project is one of three large projects in close proximity to each other that have the potential to be constructed concurrently. Thus,

truck traffic related to construction of the Project combined with potential concurrent construction of Related Projects Nos. 40, 49, and 84 located immediately south of the Project Site and other related projects in the surrounding area could result in noise levels that potentially exceed the City's significance criteria.

It is not certain whether Project construction would occur concurrently with that of Related Project Nos. 40, 49, and 84. However, given the possible circumstance of concurrent construction activities of these large-scale projects located across the street from one another, it is conservatively assumed herein that these projects, combined with other related projects in the area noted in this section, could cumulatively generate sufficient truck trips to trigger a significant noise impact. It is noted, however, that should the construction activity involving peak construction truck traffic for Related Project Nos. 40, 49, and 84 be completed prior to commencement of Project construction, or after completion of the Project's excavation phase, this cumulative construction noise impact may not occur.

In sum, based on the above, it is conservatively assumed that truck traffic related to construction of the Project, combined with Related Project Nos. 40, 49, and 84 and other nearby related projects noted in this section, would occur throughout the day and could overlap, and thus could cumulatively exceed ambient noise levels by 5 dBA. As such, cumulative noise impacts from off-site construction would be significant.

(3) Summary of Cumulative Construction Noise Impacts

Therefore, should Related Project Nos. 40, 49, and 84 be constructed concurrently with the Project, cumulative noise due to construction truck traffic from the Project, Related Project Nos. 40, 49, and 84, and other nearby related projects noted in this section has the potential to exceed the ambient noise levels by 5 dBA. Therefore, cumulative noise impacts from off-site construction activities would be significant.

b. Construction Vibration

(1) 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 close proximity of the construction site. As indicated above, the nearest related project to the Project Site is Related Project No. 49, which is located directly south and east of the Project Site. As analyzed above, Project construction activities would be below the significance criteria for building damage at the off-site building structures surrounding the Project Site. Related Project No. 49 would likely utilize standard

construction techniques and would generate similar vibration levels as the Project. Therefore, there is no potential for a cumulative construction vibration impact with respect to building damage associated with ground-borne vibration from on-site sources.

With regard to human annoyance, the nearest sensitive uses to the Project and Related Project No. 49 include the Camden Apartments (receptor location R2), which is located approximately 80 feet from both the Project and Related Project No. 49. As analyzed above, the estimated vibration from Project construction would be approximately 72 VdB at receptor R2. The vibration levels generated by the Related Project No. 49 would also be similar to the Project, based on the assumption that the Related Project No. 49 would utilize similar standard construction equipment. Therefore, cumulative construction vibration impacts pursuant to the significance criteria for human annoyance would be significant in the event concurrent construction of the Project and Related Project No. 49 were to occur.

(2) Off-Site Construction Vibration

As previously discussed, based on FTA data, the vibration generated by a typical heavy truck would be approximately 63 VdB (0.006 PPV) at a distance of 50 feet from the truck.[36] In addition, according to the FTA "[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads." As discussed above, there are existing buildings that are approximately 25 feet from the right-of-way of the anticipated haul routes. These buildings are anticipated to be exposed to ground-borne vibration levels of approximately 0.016 PPV. Trucks from the related projects are expected to generate similar ground-borne vibration levels. Therefore, the vibration levels generated from off-site construction trucks associated with the Project and other related projects along the anticipated haul route(s) would be well below the most stringent building damage 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 be significant with respect to human annoyance. As the related projects, including the Related Project No. 49 (adjacent to the Project Site) would be anticipated to use similar trucks as the Project, it is anticipated that construction trucks from the related projects would generate similar vibration levels along the anticipated haul route (i.e. Argyle Avenue, Gower Street and Selma Avenue). Therefore, to the extent that other related projects use the same haul route as the Project, potential cumulative human annoyance

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

impacts associated with temporary and intermittent vibration from haul trucks traveling along the designated haul routes would be significant.

(3) 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 pursuant to the significance criteria for human annoyance from on-site construction activities and off-site construction traffic (i.e., delivery and haul trucks) would be significant.

c. 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 has been identified in the vicinity of the Project Site would also generate stationary-source and mobile-source noise due to ongoing day-to-day operations. All related projects are of a residential, retail, or commercial 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.

(1) On-Site Stationary Noise Sources

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

(2) Off-Site Mobile Noise Sources

The Project and related projects in the area would produce traffic volumes (off-site mobile sources) that would generate roadway noise. Cumulative noise impacts due to off-site traffic were analyzed by comparing the projected increase in traffic noise levels from Existing conditions to Future Plus Project conditions to the applicable significance criteria. Future Plus Project conditions include traffic volumes from future ambient growth, related projects, and the Project. The calculated traffic noise levels under Existing conditions and Future Plus Project conditions are presented in Table IV.E-22 on page IV.E-54. As shown therein, cumulative traffic volumes would result in a maximum increase of 1.8 dBA (CNEL) along Yucca Street between Argyle Avenue and Gower Street, under both the Retail/Restaurant and Grocery Store Option. The estimated noise increase would be below the 3 dBA significance criteria (applicable to noise levels within the "normally unacceptable" land use category). Therefore, cumulative noise impacts due to off-site mobile noise sources associated with the Project, future growth, and related projects would be less than significant.

(3) Summary of Cumulative Operational Noise Impacts

As discussed above, cumulative operational noise impacts from on-site and off-site sources would be less than significant. Therefore, the Project and related projects would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project Site 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.

Table IV.E-22
Cumulative Roadway Traffic Noise Impacts

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] CNEL (dBA)			Increase in Noise Levels, CNEL (dBA)		Sig. Impact?
		Existing Conditions	Cumulative With Project (Retail/restaurant Option)	Cumulative With Project (Grocery Store Option)	Cumulative With Project(Retail/restaurant Option)	Cumulative With Project (Grocery Store Option)	
Ivar Avenue							
– Between Yucca St. and Hollywood Blvd.	Residential, Commercial	66.9	67.1	67.1	0.2	0.2	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Commercial	67.8	68.0	68.0	0.2	0.2	No
Vine Street							
– Between Yucca St. and Hollywood Blvd.	Residential, Hotel, Studio	71.6	72.6	72.6	1.0	1.0	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Theater	72.1	72.8	72.8	0.7	0.7	No
– Between Selma Ave. and Sunset Blvd.	Residential, Commercial	72.0	72.8	72.8	0.8	0.8	No
Argyle Avenue							
– Between Yucca St. and Hollywood Blvd.	Residential, Theater	68.0	69.0	69.0	1.0	1.0	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Hotel, Studio	68.2	68.8	68.8	0.6	0.6	No
– Between Selma Ave. and Sunset Blvd.	Commercial	67.1	67.8	67.7	0.7	0.6	No
Gower Street							
– Between Yucca St. and Hollywood Blvd.	Residential, Religious	70.6	71.2	71.2	0.6	0.6	No
– Between Hollywood Blvd. and Selma Ave.	Residential, Commercial	71.1	72.0	72.0	0.9	0.9	No
– Between Selma Ave. and Sunset Blvd.	Residential, Commercial	70.6	71.6	71.6	1.0	1.0	No
Franklin Avenue							
– Between Argyle Ave. and Gower St.	Residential, Commercial	72.6	73.1	73.1	0.5	0.5	No

Table IV.E-22 (Continued)
Cumulative Roadway Traffic Noise Impacts

Roadway Segment	Adjacent Land Use	Calculated Traffic Noise Levels[a] CNEL (dBA)			Increase in Noise Levels, CNEL (dBA)		Sig. Impact?
		Existing Conditions	Cumulative With Project (Retail/restaurant Option)	Cumulative With Project (Grocery Store Option)	Cumulative With Project(Retail/restaurant Option)	Cumulative With Project (Grocery Store Option)	
Yucca Street							
– Between Ivar Ave. and Vine St.	Residential, School	66.4	67.0	67.0	0.6	0.6	No
– Between Vine St. and Argyle Ave.	Residential, Studio	65.4	66.5	66.5	1.1	1.1	No
– Between Argyle Ave. and Gower St.	Residential, Hotel	64.1	65.9	65.9	1.8	1.8	No
Hollywood Boulevard							
– Between Ivar Ave. and Vine St.	Residential, Religious, Commercial	71.0	72.6	72.6	1.6	1.6	No
– Between Vine St. and Argyle Ave.	Residential, Hotel, Theater	71.9	73.5	73.5	1.6	1.6	No
– Between Argyle Ave. and Gower St.	Residential, Theater	71.7	73.3	73.3	1.6	1.6	No
Selma Avenue							
– Between Ivar Ave. and Vine St.	Residential, Commercial	66.1	66.9	66.9	0.8	0.8	No
– Between Vine St. and Argyle Ave.	Residential	67.6	68.3	68.4	0.7	0.8	No
– Between Argyle Ave. and Gower St.	Residential, Commercial	65.0	66.3	66.3	1.3	1.3	No
Sunset Boulevard							
– Between Vine St. and Argyle Ave.	Residential, Commercial	73.1	74.4	74.4	1.3	1.3	No
– Between Argyle Ave. and Gower St.	Studio, Commercial	72.9	74.3	74.3	1.4	1.4	No
– Between Gower St. and Bronson Ave.	Residential, Hotel, School, Studio	73.4	74.7	74.7	1.3	1.3	No

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

Source: AES, 2017.

5. Mitigation Measures

a. Construction

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 measures are provided to reduce the construction-related noise impacts:

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

- Along the western property line of the Project Site between the Project construction areas and the Camden Apartments building (receptor location R2). The temporary sound barrier shall be designed to provide a minimum 11-dBA noise reduction at the ground level of receptor location R2.
- Along the northern property line of the Project Site between the Project construction areas and the hotel building on Argyle Street (receptor location R4). The temporary sound barrier shall be designed to provide a minimum 5-dBA noise reduction at the ground level of receptor location R4.
- Along the eastern property line of the Project Site between the Project construction areas and the Hollywood Proper Residences building (receptor location R5). The temporary sound barrier shall be designed to provide a minimum 6-dBA noise reduction at the ground level of receptor location R5. [Note: this mitigation is only needed if the Palladium Residences development, which would adequately attenuate the Project's on-site construction noise at receptor location R5, has not been built prior to Project construction.]
- Along the southern property lines of the Project Site between the construction areas and new mixed-use development located adjacent to the south of the Project Site (receptor location R1). The temporary sound barrier shall be designed to provide a minimum 15-dBA noise reduction at ground level of receptor location R1.[37]

[37] *This mitigation is only needed if the proposed development is built and occupied prior to or during Project construction*

b. Operation

As discussed above, operation of the Project would not result in a significant impact. Therefore, no mitigation measure is required.

6. Level of Significance After Mitigation

a. Construction Noise

(1) On-Site Construction Noise

Implementation of Mitigation Measure NOI-MM-1 provided above would reduce the Project's and cumulative construction noise levels. Specifically, installation of temporary sound barriers would reduce the noise generated by on-site construction activities by minimum of 5 to 11 dBA at the ground level of receptor locations R2 to R5, which would reduce the noise impacts to a less than significant level at receptor location R4. The temporary sound barriers along the western (for receptor location R2) and northern (for receptor location R4) property lines would also provide a minimum 5 dBA noise reduction to receptor location R3. However, the specified temporary sound barriers would not be effective in reducing the construction-related noise for the upper levels of the residential uses at receptor locations R2 (7-stories), R3 (12-stories) and R5 (20-stories). In order to be effective, the temporary noise barrier would need to be as high as the affected buildings. The construction of barriers of these heights would not be feasible. There are no other feasible mitigation measures that could be implemented to reduce the temporary noise impacts from on-site construction at receptors R2, R3, and R5, to a less than significant level. In the event that the proposed mixed-use development at receptor location R1 is constructed and occupied prior to Project construction, the proposed temporary sound barrier would provide a minimum 15 dBA noise reduction at receptor location R1. However, Project construction-related noise would still exceed the 5 dBA significance criteria at this location, even with implementation of the mitigation measures. Thus, potential impacts associated with the Project's on-site construction activities would remain significant and unavoidable.

In addition, cumulative construction noise impacts associated with on-site noise sources would remain significant and unavoidable if nearby Related Project Nos. 40, 49 and 84 were to be constructed concurrently with the Project.

(2) Off-Site Construction Noise

Project-level noise impacts from off-site construction would be less than significant. However, cumulative noise due to construction truck traffic from the Project and other related projects, is conservatively assumed to exceed the ambient noise levels along the

haul route by 5 dBA. Conventional mitigation measures, such as construction of noise barrier walls to reduce the off-site construction noise impacts, would not be feasible as the barriers would obstruct access to the properties. As such, cumulative noise impacts from off-site construction would be significant and unavoidable.

b. Construction Vibration

(1) On-Site Construction Vibration

Vibration levels generated from on-site construction activities at the adjacent off-site buildings would be well below the significance criteria for building damage. Therefore, Project and cumulative vibration impacts with respect to building damage would be less than significant.

Additional 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.[38] 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 and cumulative vibration impacts from on-site construction activities with respect to human annoyance would remain significant and unavoidable.

(2) Off-Site Construction Vibration

Vibration levels generated by construction trucks (i.e., haul, delivery, and concrete trucks) along the Project's haul routes would be below the significance criteria for building damage. Therefore, Project and cumulative vibration impacts with respect to building damage would be less than significant.

Vibration levels from construction trucks would exceed the significance criteria for human annoyance at sensitive receptors (e.g., residential and recording studio uses) along Argyle Avenue, Gower Street, and Selma Avenue, resulting in significant Project-level and cumulative construction vibration impacts. There are no feasible mitigation measures that

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

would reduce the potential vibration human annoyance impacts. Even though impacts would be temporary, intermittent, and limited to daytime hours when the haul truck is traveling within 25 feet of a sensitive receptor, Project-level and cumulative vibration impacts from off-site construction with respect to human annoyance would remain significant and unavoidable.

c. Operational Noise

Project-level and cumulative impacts with regard to operational noise would be less than significant.