IV. Environmental Impact Analysis

K. Noise

1. Introduction

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

2. Environmental Setting

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

a) Noise and Vibration Basics

(1) Noise Principles and Descriptors

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

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement and reflects the way people perceive changes in

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

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

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

The typical human ear is not equally sensitive to the frequency range from 20 to 20,000 Hz. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to these extremely low and extremely high frequencies. This method of frequency filtering or weighting is referred to as A-weighting, expressed in units of A-weighted decibels (dBA), which is typically applied to community noise measurements.[5] Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in **Figure IV.K-1**, *Decibel Scale and Common Noise Sources*.

(2) Noise Exposure and Community Noise

Community noise exposure is typically measured over a period of time; a noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the sound sources contributing to the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with many unidentifiable individual contributors. Single-event noise sources, such as aircraft flyovers, sirens, etc., may cause sudden changes in background noise level.[6] However, generally, background noise levels change gradually throughout the day, corresponding with the addition and subtraction of distant noise sources, such as changes in traffic volume.

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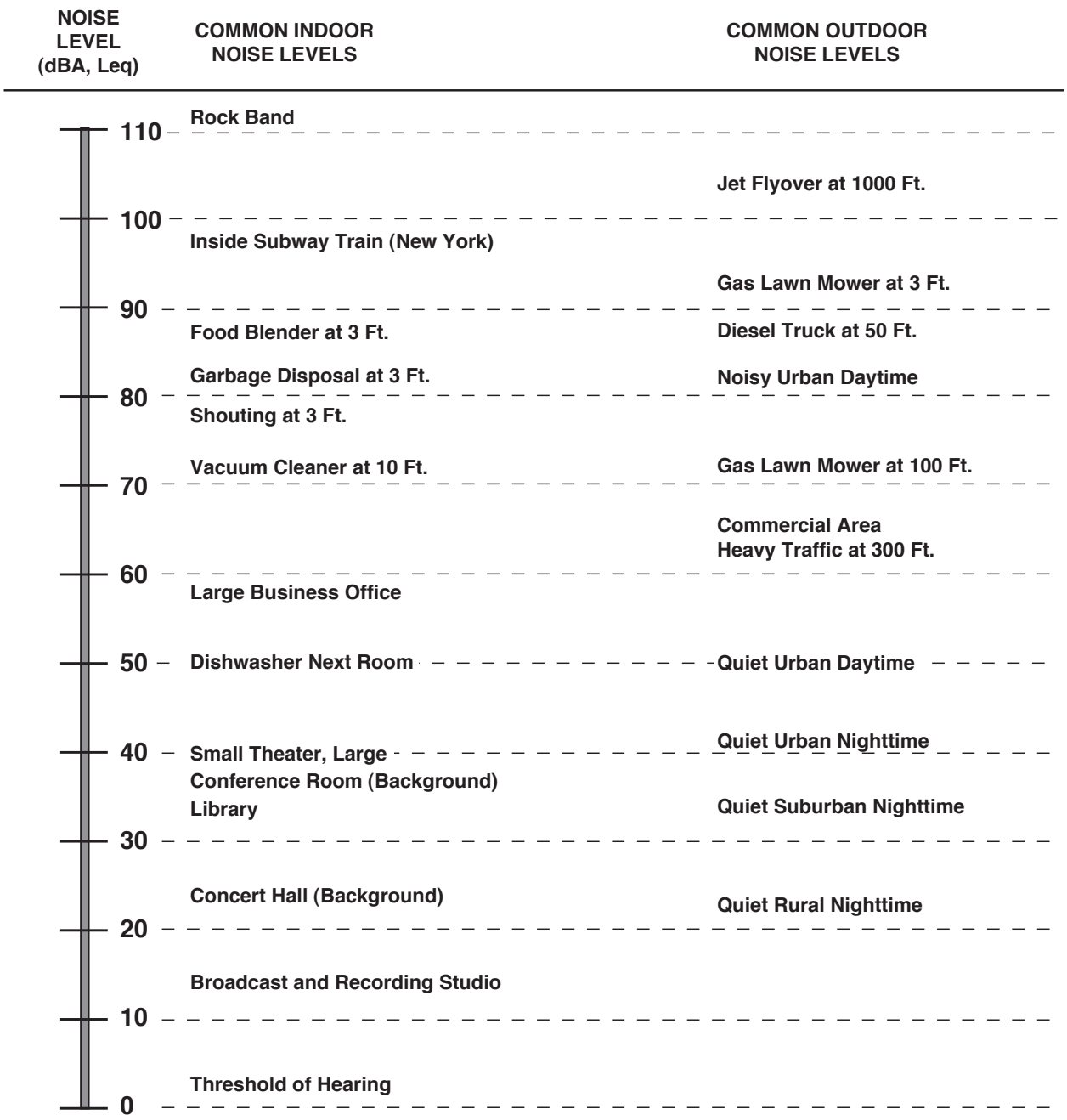
2 All sound levels measured in decibel (dB), as identified in the noise calculation worksheets included in Appendix of this Draft EIR and in this section of the Draft EIR, are relative to $2x10^{-5}$ N/m^2.

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

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

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

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



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SOURCE: Caltrans

Harvard-Westlake River Park Project

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

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

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

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

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

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

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

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

(3) Effects of Noise on People

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

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

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

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

activities, such as normal conversations, watching television, telephone conversations, and interference with sleep.

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

With regard to the subjective effects, the responses of individuals to similar noise events are diverse and influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity. Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:[9]

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

These relationships between change in noise level and human hearing response occur in part because of the logarithmic nature of sound and the dB scale. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but, rather, logarithmically. Under the dBA scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two sources are each producing sound of the same loudness, the resulting sound level at a given distance would be approximately 3 dBA higher than one of the sources under the same conditions. For

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

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

example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA. Under the dB scale, three sources of equal loudness together produce a sound level of approximately 5 dBA louder than one source, and 10 sources of equal loudness together produce a sound level of approximately 10 dBA louder than the single source.[10]

(4) Noise Attenuation

When noise propagates over a distance, the noise level reduces, or attenuates, with distance depending on the type of noise source and the propagation path. Noise from a localized source (i.e., point source) propagates uniformly outward in a spherical pattern, referred to as "spherical spreading." The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g., air conditioner) or idling vehicle (e.g., bulldozer), is 6 dBA per doubling of distance from the noise source to the receptor over acoustically "hard" sites and 7.5 dBA per doubling of distance from the noise source to the receptor over acoustically "soft" sites .[11] Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the reduction in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, which in addition to geometric spreading, provides an excess ground attenuation value of 1.5 dBA (per doubling distance).[12] For example, an outdoor condenser fan that generates a sound level of 60 dBA at a distance of 50 feet from a point source at an acoustically hard site would attenuate to 54 dBA at a distance of 100 feet from the point source and attenuate to 48 dBA at 200 feet from the point source.

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

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

[11] Caltrans, TeNS to the Traffic Noise Analysis Protocol, Sections 2.1.4.1 and 2.1.4.2, September 2013.

[12] Caltrans, TeNS to the Traffic Noise Analysis Protocol, Sections 2.1.4.1 and 2.1.4.2, September 2013.

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

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

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

Structures (e.g., buildings and solid walls) and natural topography (e.g., hills and berms) that obstruct the line-of-sight between a noise source and a receptor further reduce the noise level if the receptor is located within the "shadow" of the obstruction, such as behind a sound wall. This type of sound attenuation is known as "barrier insertion loss." If a receptor is located behind the wall but still has a view of the source (i.e., the line-of-sight is not fully blocked), barrier insertion loss would still occur but to a lesser extent. Additionally, a receptor located on the same side of the wall as a noise source may actually experience an increase in the perceived noise level as the wall can reflect noise back to the receptor, thereby compounding the noise. Noise barriers can provide noise level reductions ranging from approximately 5 dBA (where the barrier just breaks the line-of-sight between the source and receiver) to an upper range of 20 dBA with a larger barrier.[16] Additionally, structures with closed windows can further attenuate exterior noise by a minimum of 20 dBA to 30 dBA.[17]

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

(5) Vibration Fundamentals

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

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

16 Caltrans, TeNS to the Traffic Noise Analysis Protocol, Sections 2.1.4.24 and 5.1.1, September 2013.

17 Caltrans, TeNS to the Traffic Noise Analysis Protocol, Section 7.4.2, Table 7-1, September 2013.

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

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

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

driving, and operation of heavy earth-moving equipment.[21] Groundborne vibration generated by man-made activities (e.g., road traffic, construction operations) typically weakens with greater horizontal distance from the source of the vibration.

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

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

b) Regulatory Framework

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

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

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

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

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

[25] FTA, Transit Noise and Vibration Impact Assessment Manual, Section 6.1, 6.2, and 6.3, 2018.

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

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

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

(1) Federal

(a) Noise Control Act of 1972

Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (USEPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations (CFR) that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, USEPA issued guidance levels for the protection of public health and welfare in residential areas of an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA.[28] These guidance levels are not standards or regulations and were developed without consideration of technical or economic feasibility. There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Project. Moreover, the federal noise standards are not reflective of urban environments that range by land use, density, proximity to commercial or industrial centers, etc. As such, for purposes of determining acceptable sound levels to determine and evaluate intrusive noise sources and increases, this document utilizes the City of Los Angeles Noise Regulations, discussed below.

(b) Federal Transit Administration Vibration Standards

There are no federal vibration standards or regulations adopted by any agency that are applicable to evaluating vibration impacts from land use development projects such as the Project. However, the FTA has adopted vibration criteria for use in evaluating vibration impacts from construction activities.[29] The vibration damage criteria adopted by the FTA are shown in **Table IV.K-1,** *Construction Vibration Damage Criteria*.

[28] United States Environmental Protection Agency, EPA Identifies Noise Levels Affecting Health and Welfare, 1974.

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

TABLE IV.K-1
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

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

The FTA has also adopted standards associated with human annoyance for determining the groundborne vibration and noise impacts from ground-borne noise on the following three off-site land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional.[30] The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but that still potentially involve activities that could be disturbed by vibration. The vibration thresholds associated with human annoyance for these three land use categories are shown in **Table IV.K-2**, *Groundborne Vibration and Groundborne Noise Impact Criteria for General Assessment.* No thresholds have been adopted or recommended for commercial or office uses.

(c) Occupational Safety and Health Act of 1970

Under the Occupational Safety and Health Act of 1970 (29 United States Code [USC] Sections 1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.[31]

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

[31] United States Department of Labor. OSH Act of 1970.

TABLE IV.K-2
GROUNDBORNE VIBRATION AND GROUNDBORNE NOISE IMPACT CRITERIA FOR GENERAL ASSESSMENT

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

NOTES:

[a] "Frequent Events" is defined as more than 70 vibration events of the same source per day.

[b] "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

[c] "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.

[d] This criterion is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes.

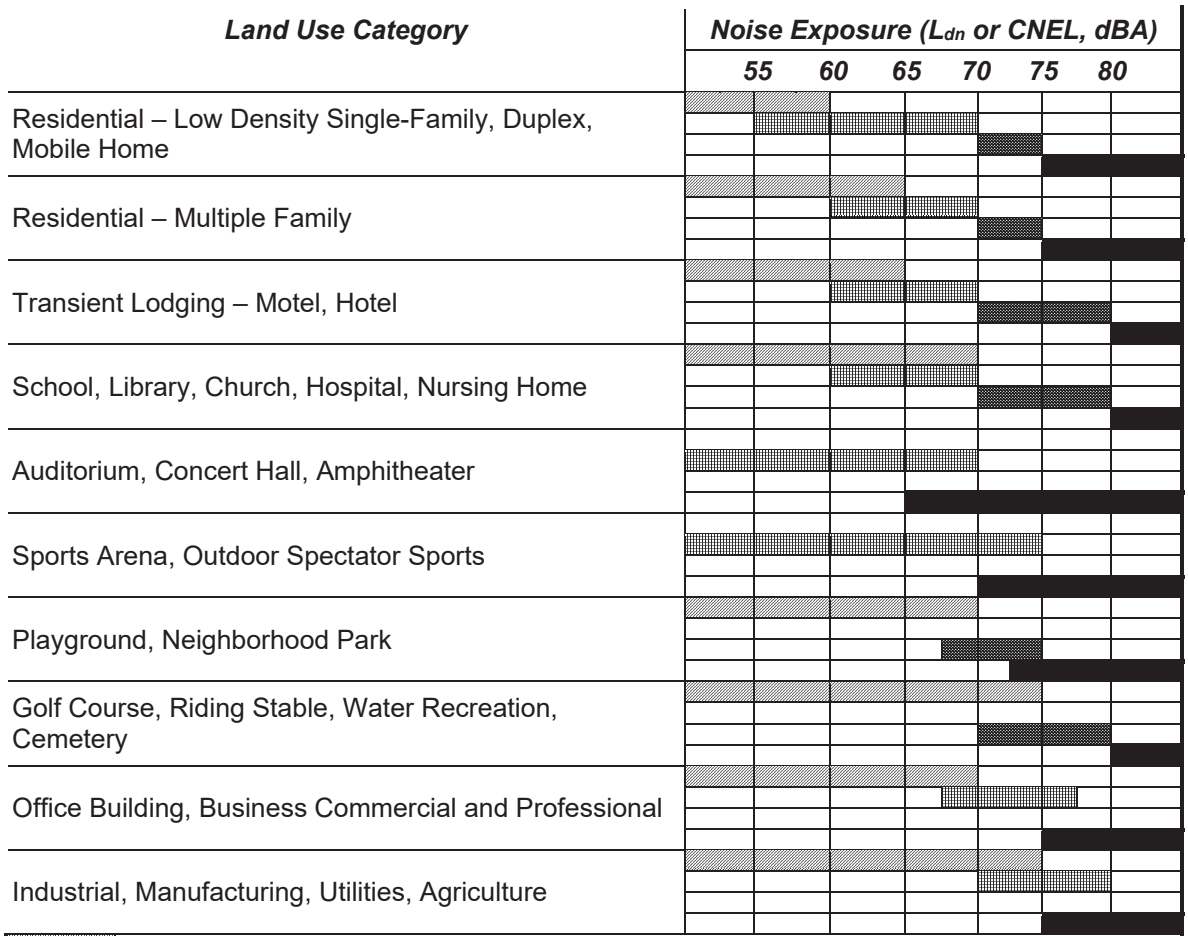
SOURCE: FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018.

(2) State

(a) Office of Planning and Research Guidelines for Noise Compatible Land Use

The State of California has not adopted Statewide standards for environmental noise, but the Governor's Office of Planning and Research (OPR) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as presented in **Figure IV.K-2,** *Guidelines for Noise Compatible Land Use*.[32] The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise levels are divided into four general categories, which vary in range according to land use type: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." The City has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR Guidelines. California Government Code Section 65302 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(f) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

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



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

CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

NORMALLY UNACCEPTABLE: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.

CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken. Construction costs to make the indoor environmental acceptable would be prohibitive and the outdoor environment would not be usable.

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

Harvard-Westlake River Park Project

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

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

(b) Caltrans Vibration/Groundborne Noise Standards

The State of California has not adopted Statewide standards or regulations for evaluating vibration or groundborne noise impacts from land use development projects, such as the Project. Although the State has not adopted any vibration standard, Caltrans in its *Transportation and Construction Vibration Guidance Manual* recommends the following vibration thresholds that are more practical than those provided by the FTA.[33] The Caltrans vibration thresholds are shown in **Table IV.K-3**, *Guideline Vibration Damage Potential Threshold Criteria*.

TABLE IV.K-3
GUIDELINE VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources[a]	Continuous/Frequent Intermittent Sources[b]
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.20	0.10
Historic and some old buildings	0.50	0.25
Older residential structures	0.50	0.30
New residential structures	1.00	0.50
Modern industrial/commercial buildings	2.00	0.50

NOTES:

[a] Transient sources create a single, isolated vibration event, such as blasting or drop balls.

[b] Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, Transportation and Construction Vibration Guidance Manual, Table 19, April 2020.

[33] Caltrans, Transportation and Construction Vibration Guidance Manual, April 2020.

(3) Regional

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

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

(4) Local

(a) Los Angeles Municipal Code

The City of Los Angeles Noise Regulations are provided in Chapter XI of the Los Angeles Municipal Code (LAMC). LAMC Section 111.02 provides procedures and criteria for the measurement of the sound level of "offending" noise sources. In accordance with the LAMC, a noise source that causes a noise level increase of 5 dBA over the existing average ambient noise level as measured at an adjacent property line creates a noise violation. This standard applies to radios, television sets, air conditioning, refrigeration, heating, pumping and filtering equipment, powered equipment intended for repetitive use in residential areas, and motor vehicles driven on-site. To account for people's increased tolerance for short-duration noise events, the Noise Regulations provide a 5-dBA allowance for a noise source that causes noise lasting more than 5 but less than 15 minutes in any one-hour period, and an additional 5-dBA allowance (for a total of 10 dBA) for a noise source that causes noise lasting 5 minutes or less in any one-hour period.[34]

The LAMC provides that, in cases where the actual ambient conditions are not known, the City's presumed daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) minimum ambient noise levels as defined in LAMC Section 111.03 should be used. The presumed ambient noise levels for these areas, where the actual ambient conditions are not known as set forth in the LAMC Sections 111.03, are provided in **Table IV.K-4**, *City of Los Angeles Presumed Ambient Noise Leve*ls. For example, for residential-zoned areas, the presumed ambient noise level is 50 dBA during the daytime and 40 dBA during the nighttime.

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

TABLE IV.K-4
CITY OF LOS ANGELES PRESUMED AMBIENT NOISE LEVELS

Zone	Daytime Hours (7 a.m. to 10 p.m.) dBA (L_{eq})	Nighttime Hours (10 p.m. to 7 a.m.) dBA (L_{eq})
Residential (A1, A2, RA, RE, RS, RD, RW1, RW2, R1, R2, R3, R4, and R5)	50	40
Commercial (P, PB, CR, C1, C1.5, C2, C4, C5, and CM)	60	55
Manufacturing (M1, MR1 and MR2)	60	55
Heavy Manufacturing (M2 and M3)	65	65

SOURCE: LAMC Section 111.03.

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

LAMC Section 112.05 sets a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard shall not apply where compliance therewith is technically infeasible.[35] LAMC Section 41.40 prohibits construction between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, 6:00 p.m. and 8:00 a.m. on Saturday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 a.m. to 9:00 p.m..; and Saturdays and National Holidays between 8:00 a.m. to 6:00 p.m.). In general, the City's Department of Building and Safety enforces Noise Ordinance provisions relative to equipment, and the Los Angeles Police Department (LAPD) enforces provisions relative to noise generated by people.

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

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

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

(b) City of Los Angeles General Plan Noise Element

The Noise Element of the City's General Plan policies include the CNEL guidelines for land use compatibility as shown in **Table IV.K-5**, *City of Los Angeles Land Use Compatibility for Community Noise*, and includes a number of goals, objectives, and policies for land use planning purposes. The overall purpose of the Noise Element is to guide policymakers in making land use determinations and in preparing noise ordinances that would limit exposure of citizens to excessive noise levels.[36] The following policies and objectives from the Noise Element apply to the Project.

TABLE IV.K-5
CITY OF LOS ANGELES LAND USE COMPATIBILITY FOR COMMUNITY NOISE

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

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

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

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

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

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

[36] City of Los Angeles. General Plan, Noise Element, Pages 1.1-2.4, 1999.

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

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

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

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

Exhibit I of the Noise Element also contains guidelines for noise compatible land uses.[37] The following table summarizes these guidelines, which are based on OPR guidelines from 1990.

c) Existing Conditions

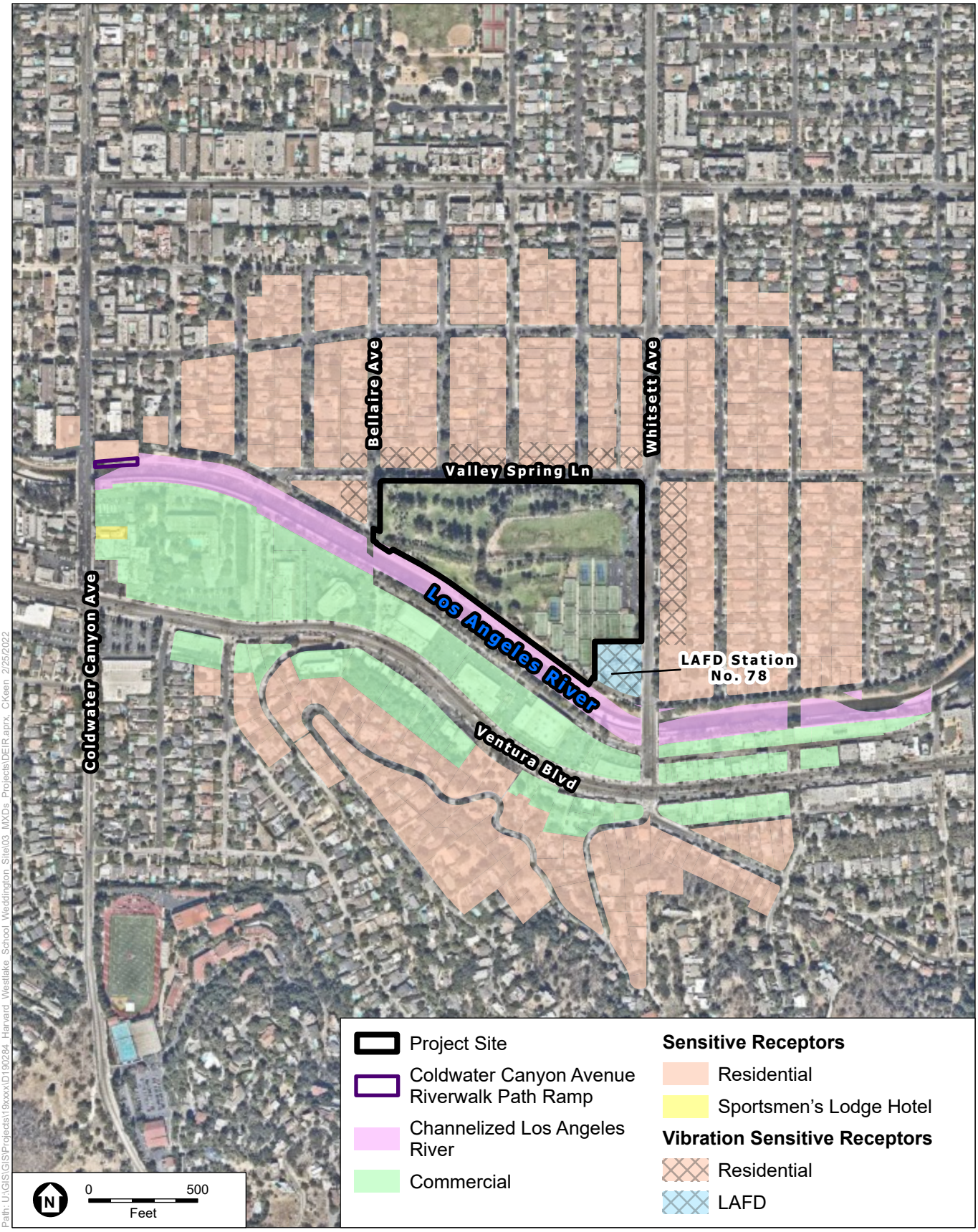
(1) Noise-Sensitive Receptor Locations

Some land uses are considered more sensitive to noise than others due to the types of activities typically involved at the receptor locations and the effect that noise can have on those activities and the persons engaged in them. The City of Los Angeles 2006 L.A. CEQA Thresholds Guide (Thresholds Guide) states that residences, schools, motels and hotels, libraries, religious institutions, hospitals, nursing homes, and parks are generally more sensitive to noise than commercial and industrial land uses.[38]

Eight noise receptor locations were selected to represent noise sensitive uses in the vicinity of the Project Site. The noise-sensitive receptors include single-family residences along Bellaire Avenue to the west, single- and multi-family residences along Valley Spring Lane to the north, and single- and multi-family residences and a church along Whitsett Avenue to the east of the Project Site. Additional single-family residential sensitive receptors are located along Sunswept Drive to the south of the Project Site. The Americans with Disabilities Act (ADA)-compliant accessible pedestrian ramp leading to the Zev Greenway at Coldwater Canyon Avenue (Coldwater Canyon Avenue Riverwalk Path Ramp) would be located west of the Project site at the junction of the Los Angeles River and Coldwater Canyon Avenue and residential uses to the north were also included as receptor locations. The locations of the noise-sensitive receptors are depicted in **Figure IV.K-3**, *Sensitive Receptors*.

[37] City of Los Angeles. General Plan, Noise Element, Page I-1, 1999.

[38] City of Los Angeles, 2006 L.A. CEQA Thresholds Guide, 2006.



Path: U:\GIS\GIS\Projects\19xxxx\D190284_Harvard_Westlake_School_Weddington_Site\03_MXDs_Projects\DEIR.aprx, CKeen 2/25/2022

SOURCE: ESA, 2021.

Harvard-Westlake River Park Project

Figure IV.K-3
Sensitive Receptors

(2) Vibration-Sensitive Receptor Locations

Typically, groundborne vibration generated by man-made activities (i.e., rail and roadway traffic, operation of mechanical equipment and typical construction equipment) diminishes rapidly with distance from the vibration source. Construction activities, such as impact pile driving, would have the greatest effect on vibration-sensitive land uses. Energy is lost during the transfer of energy from one particle to another, and, as a result, vibration becomes less perceptible with increasing distance from the source. With respect to potential structural damage, structures in close proximity (adjacent) to the Project Site are considered vibration-sensitive. Thus, as shown in Figure IV.K-3, each of the sensitive receptors fronting the street along Bellaire Avenue to the west, Valley Spring Lane to the north, and Whitsett Avenue to the east of the Project Site are vibration-sensitive with respect to structural damage. As shown in Table IV.K-1, the structural category/construction type (i.e., reinforced-concrete, engineered concrete, non-engineered timber, and building susceptible to damage) determines the vibration damage criteria for a specific building/structure.[39] The structures in the vicinity of the Project Site are Category I (Los Angeles Fire Department (LAFD) Fire Station 78), Category II (Multi-family residential buildings and church use on the east side of Whitsett Avenue, east of the Project Site), and Category III (Single-family residential buildings on the north side of Valley Spring Lane, north of the Project Site). Additionally, vibration was analyzed for construction of the Coldwater Canyon Avenue Riverwalk Path Ramp. The closest vibration sensitive receptor to the Coldwater Canyon Avenue Riverwalk Path Ramp is a Category III (multi-family residential use directly to the north along Coldwater Canyon Avenue) receptor. As discussed in Section IV.D, Cultural Resources, the character defining features of the Project Site as identified in the City of Los Angeles Historic-Cultural Monument (HCM) designation include the clubhouse, putting green, golf ball-shaped light standards, and brick wall with weeping mortar and would be considered a Category IV building (buildings extremely susceptible to vibration damage).

With respect to human annoyance, sensitive land uses include buildings where use of vibration-sensitive equipment is used (e.g., hospitals, research, and manufacturing), residential land uses and buildings where people normally sleep, schools, churches, and doctor's offices.[40] As shown in Figure IV.K-3, all the receptors identified as vibration-sensitive for structural damage are also considered vibration-sensitive for human annoyance.

[39] Where the structural category/type of a vibration-sensitive receptor is unclear, the analysis herein utilizes a conservative assumption. For example, although structures where industrial processes take place would generally be constructed of concrete, the threshold for non-engineered timber and masonry has been applied due to the uncertainty of building construction.

[40] FTA, Transit Noise and Vibration Impact Assessment Manual, Table 6-1, September 2018.

(3) Ambient Noise Levels

(a) Noise Measurements

The predominant existing noise source surrounding the Project Site is traffic noise from major roadways, such as Whitsett Avenue to the east and Ventura Boulevard to the south. Secondary noise sources include local roadway traffic, landscaping equipment, and other typical urban noise from residences. Ambient noise measurements were taken at seven of the off-site sensitive receptor locations on February 11, 2020 (receptor locations R1, R3, R4, R6 and R7) and November 11, 2020 (receptor locations R2 and R5).[41] The measurements for receptor locations R2 and R5 (conducted on November 11, 2020) were added after the ambient measurements for the first five receptor locations were completed on February 11, 2020, in response to public comment received during the Project scoping meeting on October 19, 2020. An ambient noise measurement was taken at the off-site sensitive receptor location R8 in the vicinity of the proposed Coldwater Canyon Avenue Riverwalk Path Ramp on March 1, 2022.

The ambient noise monitoring program was conducted using Quest Technologies Model 2900 Integrating/Logging Sound Level Meters, which meet the minimum industry standard performance requirements for "Type 2" standard instruments as defined in the American National Standard Institute (ANSI) S1.4. Two 15-minute measurements were conducted at the off-site receptor locations R1, R2, R4, R5, R6 and R7 with one taking place during the daytime hours (between 10:00 a.m. and 12:00 p.m.) and another during the evening hours (between 7:00 p.m. and 10:00 a.m.). A 15-minute measurement was conducted at the off-site receptor location R8 during the daytime hours (between 10:00 a.m. and 12:00 p.m.). In addition to 15-minute noise measurements, a 24-hour measurement was taken at receptor location R3.[42] The ambient noise measurements were taken in accordance with City's standards, which require ambient noise to be measured over a period of at least 15 minutes.[43] The microphone was placed at a height of five feet above the local grade at the following locations, as shown in **Figure IV.K-4,** *Noise Measurement Locations*:

- Measurement Location R1: Single-family residential uses on the west side of Bellaire Avenue, approximately 50 feet west of the Project Site.
- Measurement Location R2: Single-family residential uses at the corner of Bellaire Avenue and Valley Spring Lane, approximately 50 feet north of the Project Site.

41 The existing ambient noise measurements for receptors R2 and R5 are conservative (i.e., lower than a typical condition), given the lower traffic volume associated with the COVID-19 pandemic and, therefore, lower ambient noise associated with passing traffic.

42 A 24-hour measurement was conducted at receptor location R3 to document the current ambient noise pattern (i.e., noise levels fluctuations with respect to time of day/night) during the Project's proposed operation hours in the vicinity of the Project Site. To provide an environmentally conservative analysis, the lowest measured hourly L_{eq} during the proposed operation hours was used as the existing ambient noise level.

43 LAMC Section 111.01.

D190284.00 - Harvard-Westlake School\05 Graphics-GIS-Modeling

SOURCE: AES, 2022

Harvard-Westlake River Park Project

Figure IV.K-4
Noise Measurement Locations

- Measurement Location R3: Single-family residential uses at the corner of Teesdale Avenue and Valley Spring Lane, approximately 50 feet north of the Project Site.
- Measurement Location R4: Single-family residential uses at the corner of Babcock Avenue and Valley Spring Lane, approximately 50 feet north of the Project Site.
- Measurement Location R5: Multi-family residential uses on the east side of Whitsett Avenue, approximately 90 feet east of the Project Site.
- Measurement Location R6: Multi-family residential uses on the east side of Whitsett Avenue, approximately 90 feet east of the Project Site. Church use on the east side of Whitsett Avenue near the intersection with Valleyheart Drive approximately 90 feet east of the Project Site and directly across the street from the existing LAFD Fire Station 78.
- Measurement Location R7: Single-family residential uses on Sunswept Drive, approximately 800 feet south of the Project Site
- Measurement Location R8: Multi-family residential uses north of the proposed Coldwater Canyon Avenue Riverwalk Path Ramp.
- The results of the ambient sound measurements are summarized in **Table IV.K-6,** *Summary of Ambient Noise Measurements*. As indicated in Table IV.K-6, the existing ambient noise levels at the receptor locations ranged from 50.5 dBA L_{eq} (at receptor location R1) to 69.5 dBA L_{eq} (at receptor location R5). Based on field observation and measured sound data, the current ambient noise environment in the vicinity of the Project Site is controlled primarily by vehicular traffic on local roadways, commercial uses, and other typical urban noise. The existing ambient noise environment at all measurement locations currently exceed the City's presumed daytime ambient noise standard of 50 dBA (L_{eq}) for residential use. Therefore, consistent with LAMC procedures, the measured existing ambient noise levels are used as the baseline conditions for the purposes of determining Project impacts.

(b) Roadway Noise Levels

Existing roadway CNEL noise levels were calculated for eight roadway segments located in the vicinity of the Project Site. The roadway segments selected for analysis are considered to be those that are expected to be the most directly impacted by Project-related traffic, which, for the purpose of this analysis, include the roadways that are located near and immediately adjacent to the Project Site. These roadways, when compared to roadways located farther away from the Project Site, would experience the greatest percentage increase in traffic generated by the Project (as distances are increased from the Project Site, traffic is spread out over a greater geographic area and its effects are reduced).

TABLE IV.K-6
SUMMARY OF AMBIENT NOISE MEASUREMENTS

Receptor Location	Approximate Distance to Project Site [b] (ft)	Measured Ambient Noise Levels (dBA)[a]	
		Daytime (10 a.m. to 12 p.m.) 15-min L_{eq}	Evening (7 p.m. to 10 p.m.) 15-min L_{eq}
R1: Single-family residential uses on west side of Bellaire Avenue, west of the Project Site.	60	50.5	52.6
R2: Single-family residential uses at the corner of Bellaire Avenue and Valley Spring Lane, north of the Project Site.	60	51.1	55.1
R3: Single-family residential uses at the corner of Teesdale Avenue and Valley Spring Lane, north of the Project Site.	60	53.0	54.7
R4: Single-family residential uses at the corner of Babcock Avenue and Valley Spring Lane, north of the Project Site.	60	63.5	58.5
R5: Multi-family residential uses on the east side of Whitsett Avenue, east of the Project Site.	90	69.5	64.6
R6: Multi-family residential uses and church use on the east side of Whitsett Avenue, east of the Project Site.	90	64.6	68.3
R7: Single-family residential uses on Sunswept Drive, south of the Project Site.	800	57.1	57.2
R8: Multi-family residential uses north of the proposed Coldwater Canyon Avenue Riverwalk Path Ramp [c]	1,100	53.8	N/A

[a] Detailed measured noise data, including hourly L_{eq} levels, are included in Appendix K.

[b] Distances are estimated based on Google Earth map and are referenced to the nearest receptor property boundary, and not the building or dwelling itself.

[c] Receptor Location R8 is evaluated for potential impacts from construction related to the proposed off-site improvements at the Coldwater Canyon Avenue Riverwalk Path.

SOURCE: AES, 2022; ESA 2022.

Existing roadway CNEL noise levels were calculated using the Federal Highway Administration's (FHWA) Highway Noise Prediction Model (FHWA-TNM)[44] and traffic

[44] The traffic noise model which was developed based on calculation methodologies provided in the Caltrans TeNS document and traffic data provided in the Project's TA provided in Appendix K to this Draft EIR. This methodology, considered an industry standard, allows for the definition of roadway configurations, barrier information (if any), and receiver locations.

volumes at the study intersections analyzed in the Project's Transportation Assessment.[45] The model calculates the average noise level at specific locations based on traffic volumes, average speeds, and site environmental conditions. The noise levels along these roadway segments are presented in **Table IV.K-7,** *Calculated Existing Vehicular Traffic Noise Levels*. As shown in Table IV.K-7, the ambient noise environment of the Project vicinity can be characterized by 24-hour CNEL levels attributable to existing traffic on local roadways. The calculated CNEL (at a distance of 50 feet from the roadway centerline) from actual existing traffic volumes on the analyzed roadway segments ranged from 57.0 dBA CNEL along Valley Spring Lane (between Bellaire Avenue and Whitsett Avenue) to 71.5 dBA CNEL along Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue).

(4) Ambient Vibration Levels

(a) Groundborne Vibration Levels

Aside from periodic construction work, field observations noted that other sources of groundborne vibration in the Project Site vicinity are primarily limited to heavy-duty vehicular travel (e.g., refuse trucks, delivery trucks, etc.) on local roadways. Trucks traveling at a distance of 50 feet typically generate groundborne vibration velocity levels of 65 VdB (approximately 0.0068 in/sec PPV).[46]

(b) Groundborne Noise Levels

As stated earlier, groundborne noise levels would generally be 20 to 50 decibels lower than the velocity level depending on the frequency level of the source.[47] With a background groundborne vibration level in residential areas of 50 VdB or lower, groundborne noise levels would be approximately 0 to 30 dBA. A bus traveling at a distance of 50 feet would generate groundborne noise levels of approximately 23 to 38 dBA. The approximate level of human perception of groundborne noise is 25 dBA for low frequency vibration (near 30 Hz) and 40 dBA for mid-frequency vibration (near 60 Hz).[48]

[45] Fehr & Peers, Transportation Assessment – Harvard-Westlake River Park Project for Assessor Parcel Numbers 2375-018-020 and portion of APN 2375-018-903 Los Angeles River Parcel 276,4141 Whitsett Avenue, Studio City, CA 91604, April 2021. Provided in Appendix M of this Draft EIR.

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

[47] FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018, p. 146.

[48] FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018, p. 120.

TABLE IV.K-7
CALCULATED EXISTING VEHICULAR TRAFFIC NOISE LEVELS

Roadway Segment	Adjacent Land Use	Approximate Distance to Roadway Centerline (ft)	Existing CNEL (dBA CNEL) [a]	Existing Noise Exposure Compatibility Category [b]
Whitsett Avenue				
Between Moorpark St. and Valley Spring Ln.	Residential	40	69.9	Conditionally Acceptable
Between Valley Spring Ln. and Ventura Blvd.	Residential	40	69.2	Conditionally Acceptable
Coldwater Canyon Avenue				
Between Moorpark St. and Ventura Blvd.	Residential	40	70.8	Normally Unacceptable
Moorpark Street				
Between Coldwater Canyon Ave. and Whitsett Ave.	Residential	37.5	70.3	Normally Unacceptable
Between Whitsett Ave. and Laurel Canyon Blvd.	Residential	37.5	70.3	Normally Unacceptable
Valley Spring Lane				
Between Bellaire Ave. and Whitsett Ave.	Residential	27.5	57.0	Conditionally Acceptable
Between Whitsett Ave. and Laurel Canyon Blvd.	Residential	27.5	60.4	Conditionally Acceptable
Ventura Boulevard				
Between Coldwater Canyon Ave. and Whitsett Ave.	Hotel	42.5	71.5	Normally Unacceptable

NOTES:

[a] Calculated based on existing traffic volumes.

[b] See Table IV.K-5 for a description of the compatibility categories.

SOURCE: AES, 2022.

3. Project Impacts

a) Thresholds of Significance

(1) Appendix G of the State CEQA Guidelines

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

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

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

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

For this analysis, the Appendix G Thresholds are relied upon. The analysis utilizes factors and considerations identified in the City's 2006 L.A. CEQA Thresholds Guide and the FTA's groundborne vibration and noise criteria for assessing potential impacts relating to building damage and human annoyance were used, as appropriate, to assist in answering the Appendix G Threshold questions. The factors to evaluate noise impacts are listed below.

(2) Construction

The 2006 L.A. CEQA Thresholds Guide identifies the following criteria to evaluate construction noise:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA L_{eq} or more at a noise-sensitive use;
- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA L_{eq} or more at a noise-sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA L_{eq} at a noise-sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday.

As discussed in Chapter II, *Project Description*, of this Draft EIR, construction of the Project is anticipated begin in 2022 and is estimated to be completed in 2025, with construction occurring for approximately 30 months. Therefore, since construction activities would occur over a period longer than 10 days for all phases, the corresponding criteria used in the construction noise analysis presented in this section of the Draft EIR is an increase in the ambient exterior noise levels of 5 dBA L_{eq} or more at a noise-sensitive use.

(3) Operations

The Project's on-site operational noise sources are based on the City's Noise Regulations (i.e., any increase to the ambient noise levels by 5 dBA). The City Noise Regulations; however, do not apply to off-site traffic traveling on public roads. Therefore, the significance threshold for off-site traffic noise is based on the criteria provided in the *L.A. CEQA Threshold Guide*. Thus, the Project would have a significant noise impact if any of the following events were to occur:

- Off-site traffic from the Project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" category; or
- Off-site traffic from the Project causes the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 5 dBA in CNEL or greater; or
- The Project on-site operational (i.e., non-roadway) noise sources, such as, outdoor mechanical equipment, parking facilities, loading, and outdoor activities, increase the ambient noise level (hourly L_{eq}) at noise-sensitive uses by 5 dBA.

The significance criteria used in the noise analysis for on-site operations presented below is an increase in the ambient noise level of 5 dBA (hourly L_{eq}) at the noise-sensitive uses, in accordance with the LAMC. The LAMC does not apply to off-site traffic (i.e., vehicles traveling on public roadways). Therefore, based on the *L.A. CEQA Thresholds Guide*, the significance criteria for off-site traffic noise associated with Project operations is an increase in the ambient noise level by 3 dBA or 5 dBA in CNEL (depending on the land use category) at noise-sensitive uses. In addition, the significance for composite noise levels (on-site and off-site sources) is also based on the *L.A. CEQA Thresholds Guide*, which is an increase in the ambient noise level of 3 dBA or 5 dBA in CNEL (depending on the land use category) for the Project's composite noise (both Project-related on-site and off-site sources) at noise-sensitive uses. Because noise associated with the Project's athletic fields, tennis courts, and the swimming pool would be generated by human activity, such as spectators cheering, clapping, and yelling, noise levels would be expected to be somewhat variable over time. Noise levels may be somewhat more elevated during short-term periods of excitement, such as when a team scores a goal or an individual completes a swimming race, but less elevated during periods of routine play and during breaks between or in the middle of the athletic events. Therefore, in order to evaluate noise levels during these short-term periods of excitement, an additional criterion

was used to analyze noise impacts for this specific type of noise-generating activity from athletic and pool events based on an L_{10} metric. The L_{10} metric is defined as the noise level exceeded 10 percent of a specified time period (e.g., 6 minutes in an hour). Crowds at the school athletic activities, which may include tennis, soccer games, lacrosse games, football practice (not football games), swimming and water polo meets at the pool, and similar activities, would engage in cheering, clapping, and yelling for short periods of time (e.g., cheering, clapping, and yelling occur on a timescale of minutes within an athletic activity duration and are not single isolated and instantaneous noise events). As such, the L_{10} metric would appropriately capture elevated noise levels from short-term periods of crowds cheering, clapping, and yelling.

The L_{10} metric is not often used to evaluate on-site noise impacts from land use development projects occurring in the City since most projects do not include athletic fields or pools used for athletic or competitive events. However, in light of the particular Project uses, which include two athletic fields and the swimming pool, the noise analysis for this Project include both the L_{eq} and the L_{10} metrics as criteria for evaluating operational noise impacts and to satisfy the information and disclosure requirements of CEQA. Therefore, in addition to the three criteria listed above, the following criterion provided below was included for evaluating operational noise for this Project:

- The Project on-site athletic activities noise levels, including the two athletic fields, tennis courts, and swimming pool, as measured in terms of L_{10} increase the ambient noise level (hourly L_{eq}) at noise-sensitive uses by 10 dBA.

(4) Groundborne Vibration

The City has not adopted criteria to assess vibration impacts during construction. Thus, for this Project, the City has determined that the use of FTA's criteria for structural damage and human annoyance, as described in Tables IV.K-1 and IV.K-2, respectively, is appropriate to evaluate potential impacts related to Project construction and operation. The structures in the vicinity of the Project Site are Category I (reinforced-concrete, steel, or timber [no plaster]), Category II (engineered concrete and masonry [no plaster]), and Category III (non-engineered timber and masonry buildings).

- Potential Building Damage – Project construction activities that cause groundborne vibration levels to exceed the potential structural damage threshold of 0.5 in/sec PPV at the nearest off-site buildings or structures of Building Category I, Reinforced-concrete, steel, or timber (no plaster).
- Potential Building Damage – Project construction activities that cause groundborne vibration levels to exceed the potential structural damage threshold of 0.3 in/sec PPV at the nearest off-site buildings of Building Category II, Engineered concrete and masonry (no plaster).
- Potential Building Damage – Project construction activities that cause groundborne vibration levels to exceed the potential structural damage threshold of 0.2 in/sec PPV at the nearest off-site buildings of Building Category III, Non-engineered timber and masonry buildings.

- Potential Building Damage – Project construction activities that cause groundborne vibration levels to exceed the potential structural damage threshold of 0.12 in/sec PPV at the nearest off-site buildings of Building Category IV, Buildings extremely susceptible to building damage.

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

- Project construction and operational activities cause groundborne vibration levels to exceed 72 VdB at off-site sensitive uses, including residential and hotel uses.

b) Methodology

(1) On-Site Construction Noise

Noise impacts due to on-site construction activities associated with the Project were evaluated by calculating the noise levels at representative sensitive receptor locations and comparing these estimated construction noise levels to the existing ambient noise levels (i.e., noise levels without construction noise from the Project). Construction noise associated with the Project was analyzed based on the Project's potential construction equipment inventory, construction durations, and construction schedule. The construction equipment noise levels are based on the published noise data (equipment source levels) by the FHWA Roadway Construction Noise Model (RCNM).[49] The construction noise levels were then calculated for sensitive receptor locations based on the standard point source (e.g., generator or bulldozer) noise-distance attenuation factor of 6 dBA for each doubling of distance. 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. For the noise analysis, a 5-dBA attenuation was assigned for receptor locations where the acoustic line-of-sight is just interrupted (i.e., around the edge of a building) and up to a 15-dBA attenuation for receptor locations where the acoustic line-of-sight is fully interrupted (i.e., by intervening buildings).

Project construction includes the following 10 construction stages:

1. Demolition
2. Site preparation
3. Grading/excavation
4. Drainage/utilities/trenching
5. Concrete/foundations
6. Building construction
7. Architectural coating

[49] FHWA, Roadway Construction Noise Model, 2006.

8. Paving
9. Landscape
10. Pool area

The construction phasing schedule for the Project would require the following overlaps in construction stages:

a. Demolition and site preparation
b. Demolition and grading/excavation
c. Grading/excavation and concrete/foundations
d. Concrete/foundations and drainage/utilities/trenching
e. Concrete/foundations, drainage/utilities/trenching, and building construction
f. Site preparation, concrete/foundations, drainage/utilities/trenching, and building construction
g. Concrete/foundations, drainage/utilities/trenching, building construction, and landscape
h. Building construction, drainage/utilities/trenching, and landscape
i. Building construction, drainage/utilities/trenching, architectural coating, and landscape
j. Building construction, architectural coating, and landscape
k. Building construction, architectural coating, landscape, and paving

Construction of the Coldwater Canyon Avenue Riverwalk Path Ramp would require concrete work and would occur within the timeframe of the overall Project construction schedule.

Since construction of the Project as a whole would last more than 10 days, based on the criteria provided in the 2006 L.A. CEQA Thresholds Guide, the construction noise significance threshold used in this analysis is an increase in the ambient exterior noise level of 5 dBA L_{eq} or more at a noise-sensitive use.

Types of construction equipment expected to be used during Project construction could produce maximum noise levels of 75 dBA L_{max} to 90 dBA L_{max} at a reference distance of 50 feet from the noise source according to FHWA reference noise levels. **Table IV.K-8**, *Project Construction Equipment and Associated Noise Levels*, lists the construction equipment type and number assumed for each Project construction stage and FHWA reference noise levels (L_{max}) at 50 feet. These maximum noise levels would occur when equipment is operating at full power. Construction equipment does not typically operate at full power consistently throughout the duration of a given construction stage. The estimated usage factor for the equipment is also shown in Table IV.K-8 and represents the percentage of a specified time period (i.e., an hour) that a piece of equipment is

expected to be operational, allowing for the calculation of an average noise level (dBA L_{eq}). The usage factors are based on FHWA's RCNM.[50]

TABLE IV.K-8
PROJECT CONSTRUCTION EQUIPMENT AND ASSOCIATED NOISE LEVELS

Type of Equipment [a]	Number of Equipment [a b]	Reference Noise Level at 50 Feet, L_{max}	Estimated Usage Factor
Demolition			
Air Compressor	1	78	40%
Concrete Saw	2	90	20%
Excavator	3	81	40%
Jackhammer	1 to 2	89	20%
Rough Terrain Forklift	2	83	40%
Skid Steer Loader	4	79	40%
Sweepers/Scrubbers	1	82	10%
Tractor/Loader/Backhoes	3 to 5	81	40%
Water Truck	1	82	10%
Site Preparation			
Excavator	1	81	40%
Graders	1	85	40%
Scrapers	2	84	40%
Skid Steer Loader	2 to 4	79	40%
Tractor/Loader/Backhoes	4	81	40%
Trencher	1	80	50%
Water Truck	1	82	10%
Grading/Excavation			
Bore/Drill Rig	2	84	20%
Compactors	2	83	20%
Compressors	2	78	40%
Concrete Pump	2	81	20%
Excavator	2	81	40%
Skid Steer Loader	2	79	40%
Sweepers/Scrubbers	1	82	10%
Tractor/Loader/Backhoes	2 to 3	81	40%
Water Truck	2	82	10%

[50] FHWA, Roadway Construction Noise Model User's Guide, 2006.

TABLE IV.K-8
PROJECT CONSTRUCTION EQUIPMENT AND ASSOCIATED NOISE LEVELS

Type of Equipment [a]	Number of Equipment [a b]	Reference Noise Level at 50 Feet, L_{max}	Estimated Usage Factor
Foundation/Concrete Pour			
Air Compressor	1 to 3	78	40%
Bore/Drill Rig	1 to 3	84	20%
Compactors	2	83	20%
Concrete Pump	2 to 5	81	20%
Crane	1 to 2	81	16%
Excavator	1	81	40%
Jackhammer	1	89	10%
Rough Terrain Forklift	1 to 2	83	40%
Skid Steer Loader	2 to 4	79	40%
Sweepers/Scrubbers	1	82	10%
Tractor/Loader/Backhoes	2 to 6	81	40%
Water Truck	1	82	10%
Drainage/Utilities/Trenching			
Air Compressor	1	78	40%
Compactors	1 to 2	83	20%
Dumpers/Tenders	2 to 5	76	40%
Excavator	2	81	40%
Haul Truck	1	76	40%
Rough Terrain Forklift	1 to 2	83	40%
Rubber Tired Loader	1 to 2	79	40%
Signal Board	1 to 4	79	40%
Skid Steer Loader	1 to 2	82	10%
Tractor/Loader/Backhoes	1 to 4	81	40%
Trencher	1	80	50%
Water Truck	1 to 2	82	10%
Building Construction			
Air Compressor	1 to 3	78	40%
Cement/Mortar Mixer	3	80	50%
Concrete Saw	2	90	20%
Crane	1	81	16%
Generator Set	4	81	50%

TABLE IV.K-8
PROJECT CONSTRUCTION EQUIPMENT AND ASSOCIATED NOISE LEVELS

Type of Equipment [a]	Number of Equipment [a b]	Reference Noise Level at 50 Feet, L_{max}	Estimated Usage Factor
Rough Terrain Forklift	2	83	40%
Skid Steer Loader	2	79	40%
Sweepers/Scrubbers	1	82	10%
Tractor/Loader/Backhoes	3	81	40%
Landscape			
Cement/Mortar Mixer	1	80	50%
Crane	2	81	16%
Forklift	1	75	20%
Grader	1	85	40%
Roller	2	80	20%
Rough Terrain Forklift	1 to 3	83	40%
Rubber Tired Loader	2 to 3	79	40%
Skid Steer Loader	2 to 7	79	40%
Tractor/Loader/Backhoes	2 to 5	79	40%
Trenchers	2	80	50%
Water Truck	1	82	10%
Pool Area			
Air Compressor	1	78	40%
Cement/Mortar Mixer	1	80	50%
Concrete Saw	1	90	20%
Compactors	1	83	20%
Concrete Pump	1	81	20%
Crane	1	81	16%
Rough Terrain Forklift	1 to 2	83	40%
Rubber Tired Loader	1	79	40%
Skid Steer Loader	1 to 3	79	40%
Tractor/Loader/Backhoes	1	81	40%
Water Truck	1	82	10%
Architectural Coatings			
Concrete Saw	1 to 2	90	20%
Forklift	1 to 2	75	20%
Rough Terrain Forklift	1 to 3	83	40%

TABLE IV.K-8
PROJECT CONSTRUCTION EQUIPMENT AND ASSOCIATED NOISE LEVELS

Type of Equipment [a]	Number of Equipment [a b]	Reference Noise Level at 50 Feet, L_{max}	Estimated Usage Factor
Paving			
Air Compressor	1	78	40%
Compactors	1	83	20%
Concrete Pump	1	81	20%
Grader	1	85	40%
Paver	1	77	50%
Paving Equipment	1	77	50%
Roller	1	80	20%
Sweepers/Scrubbers	1	82	10%
Tractor/Loader/Backhoes	2	81	40%
Coldwater Canyon Avenue Riverwalk Path Ramp			
Cement/Mortar Mixer	1	80	50%
Compactor	1	83	20%
Concrete Pump	1	81	20%
Jackhammer	1	89	20%

[a] The number and types of equipment used would vary by the specific Project component being demolished or constructed. Certain types of equipment may only be used for limited durations or locations within each construction stage. Detailed equipment lists used during each construction stage during each month of construction activity are provided in Appendix K of this Draft EIR.

[b] Reference noise level is based on the operation of one piece of equipment.

SOURCE: FHWA, 2006; AES, 2022; ESA, 2022.

The analysis of construction noise incorporates conservative assumptions to provide an environmentally protective analysis that avoids underestimating construction noise levels. These conservative assumptions include (1) assuming all pieces of construction equipment anticipated to be used for the specific construction stages and construction activities would be in use simultaneously; (2) assuming that the noisiest equipment used during the various construction stages and construction activities would be located on the Project Site in the applicable construction work area for the construction activity at the closest distance to the sensitive receptor location; (3) estimating noise levels at the property line of each sensitive receptor location and without benefit of any intervening walls, landscaping, windows, or structures; and (4) assuming the more conservative attenuation rate of 6 dBA per doubling of distance for acoustically “hard” sites (e.g., asphalt and concrete surfaces) instead of 7.5 dBA per doubling of distance for acoustically “soft” sites (e.g., soft dirt, grass or scattered bushes and trees).

To present a conservative impact analysis, the estimated noise levels were calculated with all pieces of construction equipment assumed to be operating simultaneously and be located at the construction area nearest to the affected receptors. The noise model assumed the two noisiest pieces of construction equipment would operate in the construction area nearest to the affected receptors. Additional construction equipment, if applicable for each phase, was modeled in groups of two with incremental 25-foot spacing between each group, as construction equipment would typically be spread out across the Project Site (detailed calculations are provided in Appendix K of this Draft EIR).

As discussed in Chapter II, *Project Description*, the Project would include an extensive landscaping program, resulting in a net increase of trees on the Project Site. However, according to Caltrans, "[i]t is uncommon for trees and vegetation to result in a noticeable reduction in noise. A vegetative strip must be very dense and wide for there to be any meaningful shielding effect. A heavily vegetated ground surface may increase ground absorption which can increase attenuation over distance."[51] For the purposes of providing a conservative analysis, no noise reduction from trees is applied to the Project construction noise calculations.

It should also be noted that the 2006 L.A. CEQA Thresholds Guide contains screening criteria, including (1) whether construction activities occur within 500 feet of a noise-sensitive use; and (2) whether construction occurs 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 anytime on Sunday. A "no" response to these questions indicates that construction would not occur between these hours and there would normally be no significant construction noise impacts from the project. Construction would occur Monday through Friday between 7:00 a.m. and 6:00 p.m.; and Saturdays between 8:00 and 6:00 p.m., which is within the allowable hours per the LAMC. The Project would occur within 500 feet of a noise-sensitive use, therefore, requiring analysis of construction noise impacts. Noise-sensitive uses as defined in the Thresholds Guide located at distances greater than 500 feet from the Project Site would experience lower noise levels than the sensitive receptors described above in subsection IV.K.2.c)(1) from potential sources of noise on the Project Site due to noise attenuation (e.g., noise reduction) from distance and intervening structures. The single-family residential sensitive receptors located along Sunswept Drive to the south of the Project Site are located greater than 500 feet but less than 1,000 feet from the Project Site. Since those sensitive receptors are elevated above the Project Site and could have a line-of-sight to the Project construction area, they were included in the analysis. Therefore, based on the reduction in Project Site-related noise levels that would occur at additional sensitive receptors beyond those identified above, additional receptors beyond those identified above are not necessary and were not evaluated.

[51] Caltrans, TeNS to the Traffic Noise Analysis Protocol, Section 2.1.4.4, September 2013.

(2) Off-Site Roadway Noise (Construction and Operation)

Roadway noise levels were projected using the FHWA's Traffic Noise Model (TNM) and the roadway traffic volume provided in the Transportation Assessment for the Project.[52] The TNM is the current Caltrans standard computer noise model for traffic noise studies. The model allows for the input of roadway parameters, noise receivers, and sound barriers (if any). Roadway noise attributable to Project development was calculated and compared to baseline noise levels that would occur under the "without Project" condition.

(3) On-Site Stationary Point-Source Noise (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 that would take place on-site (e.g., athletic activities and special events), and operation of the parking facilities, (2) calculating the noise level from each noise source at surrounding sensitive receptor property line locations; and (3) comparing such noise levels to ambient noise levels to determine significance. The on-site stationary noise sources were calculated using the SoundPLAN (version 8.2), a 3-dimensional computer noise prediction model, which calculates noise transference (propagation) using approved engineering procedures and incorporates national and international noise standards. This calculation tool is widely used by acoustical engineers as a noise modeling tool for environmental noise analysis.

For noise associated with Project outdoor mechanical equipment, it was assumed that the Project would comply with the requirements of LAMC Section 112.02 to ensure that the maximum noise generated by any and all outdoor mechanical equipment would not exceed the ambient noise level by more than 5 dBA, which falls within the significance threshold identified below.

For noise associated with Project athletic activities, representative noise levels were measured at the Harvard-Westlake Upper School Campus on October 29, 2019, November 6, 2019, and December 6, 2019. Noise measurements were taken at boys soccer practices, boys football practices, girls soccer practice, boys varsity soccer game, boys junior varsity water polo games, boys varsity water polo game, girls varsity water polo game, and boys water polo practice. The measured athletic activities noise levels from the existing Harvard-Westlake Upper School Campus were used for the noise analysis at the Project Site as they represent the same activities that would occur on the Project Site. Noise measurements were taken at a distance of approximately 100 feet from the center of the playing field for soccer and football activities and approximately 55 feet from the center of the pool for water polo activities. Concurrent

[52] Fehr & Peers, Transportation Assessment – Harvard-Westlake River Park Project for Assessor Parcel Numbers 2375-018-020 and portion of APN 2375-018-903 Los Angeles River Parcel 276,4141 Whitsett Avenue, Studio City, CA 91604, April 2021. Provided in Appendix M of this Draft EIR.

activities from all outdoor athletic facilities (Field A, Field B, swimming pool, and tennis courts) in use with their maximum occupancy and noisiest potential sport events were modeled to present a conservative noise analysis. The noise levels also account for the design of the Project's Field A, Field B, the swimming pool, and the tennis courts consistent with the requirements set forth in Project Design Feature NOI-PDF-1, which is provided below in Subsection IV.K.3.c.

Noise associated with the Project's use of an amplified sound system are based on the noise levels for the system as designed consistent with the requirements set forth in Project Design Feature NOI-PDF-2, which is provided below in Subsection IV.K.3.c.

Open space noise from use of the Coldwater Canyon Avenue Riverwalk Path Ramp was calculated based on noise from people talking along the path. Noise from female adults, male adults, and children talking is approximately 55 dBA, 58 dBA, and 58 dBA, respectively, at a distance of 3 feet.[53] As a conservative analysis, it is assumed that 10 people would be using the Coldwater Canyon Avenue Riverwalk Path Ramp simultaneously at a given time and that half of the visitors would be adults (half male and half female) and half would be children. Of the adults and children, half would be talking simultaneously (half of the occupants talking and the other half listening).Consistent with the methodology for estimating Project construction noise, no attenuation was attributed to Project Site landscaping for operational noise calculations. Operational noise, based on the above methodology and assumptions, would result in potentially significant impacts if noise levels exceed the significance threshold identified in Subsection 3.a, *Thresholds of Significance*, above.

(4) Composite Noise (Operations)

Combined noise levels from each operational noise source were estimated by logarithmically adding together the noise levels from all the operational noise sources at the maximum impacted noise-sensitive receptor locations, assuming simultaneous contribution of noise from each source. As discussed previously, the dBA scale is based on logarithms, where a doubling of sound energy corresponds to a 3-dBA increase (e.g., if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA). Composite noise sources include off-site roadway noise and on-site stationary point-source noise, as listed above.

(5) Groundborne Vibration (Construction and Operation)

Groundborne vibration and noise impacts were evaluated for potential building damage and human annoyance impacts by identifying the Project's potential vibration sources, estimating the distance between the Project's vibration sources and the nearest structure and vibration annoyance receptor locations, and making a significance determination based on the significance thresholds described below.

[53] American Journal of Audiology Vol.7 21-25 October 1998. doi:10.1044/1059-0889(1998/012).

The FTA guidance classifies the vibration impact levels based on whether the vibration-producing events are frequent, occasional, or infrequent. “Frequent Events” is defined as more than 70 vibration events of the same source per day. “Occasional Events” is defined as between 30 and 70 vibration events of the same source per day. “Infrequent Events” is defined as fewer than 30 vibration events of the same kind per day. For the purposes of providing a conservative analysis, the vibration analysis provided herein for potential human annoyance compares the estimated vibration levels generated during construction and operation of the Project to the 72 VdB significance threshold for off-site residential uses for “Frequent Events.” The vibration analysis for the Project conservatively used the closest distance to construction activity and the construction phase with the equipment mix that would result in the greatest potential vibration.

Construction activities may generate groundborne vibration and noise from transient sources due to the temporary and sporadic use of vibration-generating equipment. Operation of the Project has no potential to cause structure damage to the Project’s own buildings or to off-site buildings that are farther away because the Project would not include any equipment that would generate substantial groundborne vibration or noise levels. Construction and operational activities may generate groundborne vibration and noise levels that could be felt by people as a result of trucks and vehicles driving to and from the Project Site, or from the operation of typical commercial-grade stationary mechanical and electrical equipment, such as air handling units, condenser units, and exhaust fans, which could produce groundborne vibration and noise.

(6) Groundborne Noise

According to the FTA, airborne noise levels would be higher than groundborne noise levels.[54] Unless indoor receptors have substantial sound insulation (e.g., recording studio) and would be exposed to vibration velocities great enough to cause substantial levels of groundborne noise, groundborne noise does not need to be assessed. There are no substantially insulated indoor receptors located within the area surrounding the Project Site; therefore, the effects of airborne noise would still be higher than groundborne noise levels. Accordingly, impacts related to groundborne noise have not been analyzed herein.

c) Project Design Features

The following project design features (PDF) are proposed to reduce the noise impacts from Project operation to the nearby sensitive receptors:

> **NOI-PDF-1**: The Project will include sections of solid walls and an overhead canopy above the swimming pool that will reduce noise associated with the athletic activities to the adjacent residences, as follows:
>
> - An 8- to 10-foot-high wall along portions of the northeastern and eastern sides of Field A.

[54] FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018, p. 124.

- An 8- to 11-foot-high wall along portions of the western and northern sides of Field B.
- A 30-foot solid overhead canopy above the swimming pool bleachers and pool buildings.
- An 8-foot-high solid wall along the northern edge of the tennis courts.

NOI-PDF-2: The Project's amplified sound system for special events at Field A will be installed and designed using a line-array speaker system, so as to not exceed a maximum noise level of 92 dBA (L_{eq}) at a distance of 50 feet from the amplified sound system. In addition, the stage for special events will be located at the north side of Field A, with the amplified sound system facing south in the opposite direction from the off-site sensitive uses to the north of Field A, which would reduce speaker noise at the nearest off-site sensitive uses to the north and east of Field A.

NOI-PDF-3: Project construction will be limited to Monday through Friday between 7:00 a.m. and 6:00 p.m.; and Saturdays between 8:00 and 6:00 p.m., which is within the allowable hours per Los Angeles Municipal Code Section 41.40.

d) Analysis of Project Impacts

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

(1) Impact Analysis

(a) Construction Impacts

(i) On-Site Construction Noise

Construction of the Project is anticipated to begin in the third quarter of 2022, pending Project consideration and approval, and is estimated to be completed in the fourth quarter of 2024 (approximately 30 months). All construction staging of materials and equipment and worker parking would be confined to the Project Site.

Project construction activities would be required to comply with the City's Ordinance Nos. 144,331 and 161,574, which prohibit the emission or creation of noise beyond 75 dBA at 50 feet from the equipment, unless technically infeasible.[55] In addition, the Project would

[55] As provided in LAMC Section 112.05, technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during the operation of the equipment.

be subject to LAMC Section 91.106.4.8 (Construction Site Notice, City's Ordinance 178,048), which requires a construction site notice to be provided that includes the following information: job site address, permit number, name and phone number of the contractor and owner or owner's agent, hours of construction allowed by code or any discretionary approval for the site, and City telephone numbers where violations can be reported.

Noise impacts from Project construction activities would be a function of the noise generated by construction equipment, the type and 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, stormwater capture system, pool, 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. Equipment that would be used during the various construction stages is shown previously in Table IV.K-8.[56] Noise from construction equipment would generate both steady-state and episodic noise that could be heard within and adjacent to the Project Site.

Table IV.K-9, *Estimate of Construction Noise Levels (L_{eq}) at Off-Site Sensitive Receptors,* provides the estimated, construction noise levels at the off-site noise sensitive receptors by construction months (over the anticipated 30 months of construction). As indicated in Table IV.K-9, the estimated construction noise levels would exceed the Project significance threshold at all off-site noise receptor locations, including residential uses along Bellaire Avenue (receptor R1, west of the Project Site), along Valley Spring Lane (receptors R2, R3, and R4, north of the Project Site), along Whitsett Avenue (receptors R5 and R6, east of the Project Site), along Sunswept Drive (receptor R7, south of the Project Site), and at the receptors north of the Coldwater Canyon Avenue Riverwalk Path Ramp (receptor R8, west of the Project Site), prior to implementation of mitigation measures. **Therefore, the Project would result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established by the City, and on-site construction noise impacts would be potentially significant.**

[56] The number and types of equipment used would vary by the specific Project component being demolished or constructed. Certain types of equipment may only be used for limited durations or locations within each construction stage. Detailed equipment lists used during each construction stage during each month of construction activity are provided in Appendix K of this Draft EIR.

TABLE IV.K-9
ESTIMATE OF CONSTRUCTION NOISE LEVELS (L_{EQ}) AT OFF-SITE SENSITIVE RECEPTORS

Receptor Location	Daytime Ambient Noise Levels, dBA (L_{eq})	Estimated Construction Noise Levels by Months,[a] dBA (L_{eq}) Project											Significance Threshold,[b] dBA (L_{eq})	Maximum Exceedance over Significance Threshold dBA (L_{eq})	Sig. Impacts?
		Months 1-2	Months 3-5	Months 6-8	Months 9-10	Months 11-14	Month 15	Months 16-17	Month 18	Months 19-21	Months 22-27	Months 28-30			
R1	50.5	69.0	64.4	63.7	61.4	67.0	79.6	**81.4**	80.5	76.7	67.2	77.3	55.5	25.9	Yes
R2	51.1	70.1	65.8	65.2	62.4	67.7	**81.1**	79.7	75.2	77.6	68.0	75.6	56.1	25.0	Yes
R3	53.0	73.5	69.7	69.3	64.7	70.4	81.2	80.0	77.9	**81.9**	71.3	75.4	58.0	23.9	Yes
R4	63.5	76.8	72.0	74.2	73.2	74.8	**81.6**	78.2	74.9	78.4	75.8	77.3	68.5	13.1	Yes
R5	69.5	**81.4**	78.2	78.4	79.9	73.3	75.4	74.4	71.2	76.1	76.3	76.0	74.5	6.9	Yes
R6	64.6	79.4	78.2	78.1	**79.9**	73.1	72.3	77.7	74.3	79.4	76.1	75.0	69.6	10.3	Yes
R7	57.1	67.4	61.7	62.9	62.0	65.7	65.8	65.9	65.0	**69.3**	65.2	66.4	62.1	7.2	Yes
R8[c]	53.8	**92.3** (approximately 3-month duration within the timeframe of the overall Project construction schedule)											58.8	33.5	Yes

NOTES: Bolded values represent peak noise levels.

a Construction activity by months:
- Months 1-2: Demolition and Site Preparation during month 1 and Demolition and Grading during Month 2
- Months 3-5: Grading
- Months 6-8: Grading and Foundation
- Months 9-10: Foundation and Utilities
- Months 11-14: Foundation, Utilities, and Building Construction
- Months 15: Site Preparation, Foundation, Utilities, and Building Construction
- Months 16-17: Foundation, Utilities, Building Construction, and Landscape
- Month 18: Building Construction, Utilities, and Landscape
- Months 19-21: Building Construction, Utilities, Architectural Coating, and Landscape
- Months 22-27: Building Construction, Architectural Coating, and Landscape
- Months 28-30: Building Construction, Architectural Coating, Landscape, and Paving (month 29 only)

b Significance thresholds are equivalent to the measured daytime ambient noise levels plus 5 dBA.

c Construction schedule/date is unknown for the Coldwater Canyon Avenue Riverwalk Path Ramp. Construction would take place within the overall Project Site construction schedule.

SOURCE: AES, 2022; ESA, 2022.

(ii) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp: Construction Equipment Noise

The noise level from construction activities related to the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path are shown in Table IV.K-9. As indicated in Table IV.K-9, the estimated construction noise levels would exceed the Project significance threshold at the off-site noise receptor location R8 (north of the Coldwater Canyon Avenue Riverwalk Path and west of the Project Site), prior to implementation of mitigation measures. **Therefore, the off-site improvements related to the Coldwater Canyon Avenue Riverwalk Path would result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the improvement in excess of standards established by the City, and on-site construction noise impacts would be potentially significant.**

(iii) Off-Site Construction Traffic Noise

In addition to on-site construction noise sources, other noise sources may include materials delivery, concrete mixing, haul trucks (construction trucks), and construction worker vehicles accessing the Project Site during construction. Typically, construction trucks generate higher noise levels than construction worker vehicles. The major noise sources associated with off-site construction trucks would be from the material delivery/concrete/haul trucks. Construction haul trucks would travel between the Project Site and US-101. Incoming trucks would travel from US-101, exit onto Coldwater Canyon Avenue, head south on Coldwater Canyon Avenue to Moorpark Street, turn left onto Moorpark Street, and turn right onto Whitsett Avenue to the Project Site. Upon departure from the Project Site, trucks would exit the Project Site via Whitsett Avenue heading south to Ventura Boulevard, turn right onto Ventura Boulevard, turn right onto Coldwater Canyon Avenue, and onto US-101. The peak period (i.e., daily number of truck trips) of construction with the highest number of construction trucks would occur during the site grading and excavation phase. During this phase, there would be a maximum of 150 construction trucks into and out of the Project Site (equal to 300 total trips) per day. The Coldwater Canyon Avenue segment between US-101 and Moorpark Avenue would have both inbound and outbound truck trips. The other analyzed roadway segments would only have either inbound or outbound truck trips, but not both, and would have a maximum of 75 construction trucks (equal to 150 trips) per day.[57]

In addition, there would be, conservatively 35 to 275 construction workers traveling to and from the Project Site on a daily basis during the various construction phases. Construction workers are expected to arrive at the Project Site before construction starts and leave when construction ends. Therefore, construction worker vehicle noise would not overlap

[57] These segments include: Moorpark Street segment between Coldwater Canyon Avenue and Whitsett Avenue; Whitsett Avenue segment between Moorpark Street and Ventura Boulevard; Ventura Boulevard segment between Coldwater Canyon Avenue and Whitsett Avenue; and Coldwater Canyon Avenue segment between Moorpark Avenue and Ventura Boulevard.

with the Project construction equipment or trucks. In addition, the noise levels generated by worker trips would be lower than the noise generated from construction truck trips.

Table IV.K-10, *Estimate of Off-Site Construction Traffic Noise Impacts*, provides the maximum number of construction-related trips and the estimated noise levels along the anticipated haul routes. As indicated in Table IV.K-10, the estimated noise levels generated by construction trucks would be consistent with the existing daytime ambient noise levels along Coldwater Canyon Avenue, Moorpark Street, Whitsett Avenue, and Ventura Boulevard. Project construction traffic would not increase ambient noise levels along the anticipated truck routes by 5 dBA, and, as such, construction traffic noise increase would be below the 5-dBA significance threshold. **Therefore, the Project would not result in the generation of a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established by the City, and off-site construction traffic noise impacts would be less than significant.**

(b) Operational Noise Impacts

(i) Fixed Mechanical Equipment

The Project would include new mechanical equipment (e.g., air ventilation equipment), which would be located at the roof level (e.g., gymnasium building and restrooms) and within the building structure (e.g., pool pump and underground parking). 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 (Section 112.02 of the LAMC). **Table IV.K-11**, *Mechanical Equipment Noise Levels* (on page 45), presents the estimated on-site mechanical equipment noise levels at the off-site receptor locations. As shown on Table IV.K-11, the estimated noise levels from the mechanical equipment would range from 32.3 dBA (L_{eq}) at receptor location R7 to 42.3 dBA (L_{eq}) at receptor location R6, which would be below the existing ambient noise levels. As such, the estimated noise levels at all off-site receptor locations would be below the significance threshold of 5 dBA (L_{eq}) above ambient noise levels. **As such, the Project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established by the City, and impacts from mechanical equipment noise would be less than significant.**

TABLE IV.K-10
ESTIMATE OF OFF-SITE CONSTRUCTION TRAFFIC NOISE IMPACTS

Roadway Segment	Daytime Ambient Noise Levels, dBA (L_{eq})	Estimated Off-Site Construction Noise Levels by Months,[a] dBA (L_{eq}) Project / Project+Ambient											Significance Threshold,[b] dBA (L_{eq})	Maximum Exceedance over Significance Threshold dBA (L_{eq})	Sig. Impacts?
		Months 1-2	Months 3-5	Months 6-8	Months 9-10	Months 11-14	Month 15	Months 16-17	Month 18	Months 19-21	Months 22-27	Months 28-30			
Truck trips per hour		45	50	47	-	31	48	41	25	30	29	24			
Daily workers		80	35	135	-	135	175	135	135	275	240	270			
Coldwater Canyon Ave.[c]	71.9	65.4 / 72.8	**65.8 / 72.9**	65.6 / 72.8	63.0 / 72.4	63.7 / 72.5	65.6 / 72.7	65.0 / 72.7	62.8 / 72.4	63.6 / 72.5	63.5 / 72.5	62.6 / 72.4	76.9	0.0	No
Moorpark St.[d]	65.8	63.6 / 67.8	**64.0 / 68.0**	63.8 / 67.9	61.1 / 67.1	62.0 / 67.3	63.8 / 67.7	63.2 / 67.7	61.1 / 67.1	61.7 / 67.2	61.7 / 67.2	60.8 / 67.0	70.8	0.0	No
Whitsett Ave.[e]	64.6	63.6 / 67.1	**64.0 / 67.3**	63.8 / 67.2	61.1 / 66.2	62.0 / 66.5	63.8 / 67.0	63.2 / 67.0	61.1 / 66.2	61.7 / 66.4	61.7 / 66.4	60.8 / 66.1	69.6	0.0	No
Ventura Blvd.[f]	71.9	60.1 / 72.2	**60.4 / 72.2**	60.3 / 72.2	57.6 / 72.1	58.5 / 72.1	60.3 / 72.2	59.7 / 72.2	57.6 / 72.1	58.2 / 72.1	58.2 / 72.1	57.3 / 72.0	76.9	0.0	No
Coldwater Canyon Ave.[g]	71.9	64.4 / 72.6	**64.8 / 72.7**	64.6 / 72.6	61.9 / 72.3	62.8 / 72.4	64.6 / 72.6	64.0 / 72.6	61.9 / 72.3	62.6 / 72.4	62.6 / 72.4	61.6 / 72.3	76.9	0.0	No

NOTES: Bolded values represent peak noise levels.

[a] Construction activity by months:
- Months 1-2: Demolition and Site Preparation during month 1 and Demolition and Grading during Month 2
- Months 3-5: Grading
- Months 6-8: Grading and Foundation
- Months 9-10: Foundation and Utilities
- Months 11-14: Foundation, Utilities, and Building Construction
- Months 15: Site Preparation, Foundation, Utilities, and Building Construction
- Months 16-17: Foundation, Utilities, Building Construction, and Landscape
- Month 18: Building Construction, Utilities, and Landscape
- Months 19-21: Building Construction, Utilities, Architectural Coating, and Landscape
- Months 22-27: Building Construction, Architectural Coating, and Landscape
- Months 28-30: Building Construction, Architectural Coating, Landscape, and Paving

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

[c] Coldwater Canyon Avenue segment between US-101 and Moorpark Avenue. This segment would have both inbound and outbound truck trips.

[d] Moorpark Street segment between Coldwater Canyon Avenue and Whitsett Avenue. This segment would have inbound truck trips.

[e] Whitsett Avenue segment between Moorpark Street and Ventura Boulevard. This segment would have inbound truck trips north of the Project Site truck entrance and outbound truck trips south of the Project Site truck exit.

[f] Ventura Boulevard segment between Coldwater Canyon Avenue and Whitsett Avenue. This segment would have outbound truck trips.

[g] Coldwater Canyon Avenue segment between Moorpark Avenue and Ventura Boulevard. This segment would have outbound truck trips.

SOURCE: AES, 2022.

TABLE IV.K-11
MECHANICAL EQUIPMENT NOISE LEVELS

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from Project Mechanical Equipment,[a] dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[b]	Exceedance over Significance Threshold	Significant Impact?
R1	50.5	43.3	51.3	55.5	0.0	No
R2	51.1	43.2	51.8	56.1	0.0	No
R3	53.0	46.9	54.0	58.0	0.0	No
R4	58.5	44.0	58.7	63.5	0.0	No
R5	64.6	55.1	65.1	69.6	0.0	No
R6	64.6	53.4	64.9	69.6	0.0	No
R7	57.1	43.9	57.3	62.1	0.0	No

NOTES:

[a] Noise levels were calculated based on typical mechanical equipment with sound power levels of 80 dBA for exhaust fans (over the restrooms), 90 dBA for air-conditioning equipment for the gymnasium building, and 104 dBA for the underground parking fans.

[b] Significance thresholds are equivalent to the measured daytime or evening ambient noise levels, whichever is lower plus 5 dBA, per the City of Los Angeles Noise Regulations.

SOURCE: AES, 2022

(ii) Athletic Activities

The Project would include two outdoor athletic fields consisting of Field A located along the eastern portion of the Project Site adjacent to Whitsett Avenue set back from the eastern Project Site boundary by approximately 25 feet (eastern property line to the east side bleachers) and Field B located in the northwestern corner of the Project in proximity to Valley Spring Lane set back from the northern Project Site boundary by approximately 35 feet (northern property line to the north side bleachers). The swimming pool would be located along the northern portion of the Project Site in proximity to Valley Spring Lane set back from the northern Project Site boundary by approximately 95 feet and would be designed with a 30-foot overhead canopy above the swimming pool bleachers and pool buildings, which would provide acoustic shielding for noise sensitive receptors located to the north, east, and west of the Project Site. In addition, eight tennis courts would be located at the northeastern portion of the Project Site.

Table IV.K-12, *Athletic Activities Noise Levels – L_{eq} Analysis*, presents the estimated noise levels (in terms of L_{eq}) at the off-site sensitive receptors, resulting from simultaneous use of Project outdoor athletic fields, swimming pool, and tennis courts. The analysis conservatively assumes noise levels associated with games on the

outdoor athletic fields. In reality, games occurring at the same time on the Project's outdoor athletic fields would be rare. As presented in Table IV.K-12, the estimated noise levels from the outdoor athletic activities would range from 52.0 dBA (L_{eq}) at receptor location R2 to 64.7 dBA (L_{eq}) at receptor location R5, which would be below the significance threshold of 5-dBA (L_{eq}) increase above the ambient noise levels. In addition to the L_{eq} noise analysis (per the LAMC), noise impacts in terms of L_{10} impact noise metric were also evaluated representing the intermittent noise levels (e.g., cheering sound). **Table IV.K-13**, *Athletic Activities Noise Levels – L_{10} Analysis*, presents the estimated outdoor athletic activities noise levels (in terms of L_{10}) at the off-site sensitive receptors. As indicated in Table IV.K-13, the estimated noise levels from the outdoor athletic activities would range from 58.1 dBA (L_{10}) at receptor location R2 to 68.9 dBA (L_{10}) at receptor location R5, which would be below the significance threshold of a 10-dBA increase above ambient noise levels. **As such, the Project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established by the City, and impacts from athletic activities noise would be less than significant.**

(iii) Special Events

In addition to the athletic activities analyzed above, the Project would include outdoor School-related and public special events, which would be held at Field A (or inside the gymnasium which, for the purposes of this technical study, are not evaluated given that interior noise would not be heard at nearby sensitive receptor locations). School-related special events at Field A would include events, such as alumni reunions, parent receptions, school meetings, and parent association activities, which may reach up to 30 special events per year, 27 of which are conservatively assumed to have up to 500 people and three at 2,000 people. The outdoor public special events at Field A would be limited to a maximum of 500 persons and would include activities, such as "Movies in the Park." Noise sources associated with special events typically include amplified sound systems and noise from people in attendance (voice and clapping). The Project would be designed to include the installation of an amplified sound system and per Project Design Feature NOI-PDF-2, the amplified sound system for special events (e.g., movies or music) would be located at the north end of Field A facing south to reduce off-site noise for residential uses and would be designed to not exceed 92 dBA ($L_{eq\text{-}1hr}$) at a distance of 50 feet from the amplified speaker sound system.[58] In addition, noise levels of 75 dBA and 71 dBA (L_{eq}) at a distance of 3.3 feet for males and females (speaking in loud voice), respectively, were assumed for the analysis.[59] To represent a worst-case noise scenario, it was assumed that 100 percent of the people (half of which would be male and the other half female) would be talking and clapping at the same time.

[58] Based on measured noise levels at an outdoor concert at the Woodland Hills Warner Center summer concert at the park in 2017.

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

TABLE IV.K-12
ATHLETIC ACTIVITIES NOISE LEVELS – L_{EQ} ANALYSIS

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from Outdoor Uses, dBA (L_{eq})				Total Project Noise Levels, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceedance over Significance Threshold	Significant Impact?
		Field A	Field B	Swimming Pool	Tennis Courts					
R1	50.5	40.6	51.1	46.6	27.5	52.7	54.8	55.5	0.0	No
R2	51.1	40.2	50.1	46.7	27.1	52.0	54.6	56.1	0.0	No
R3	53.0	38.8	51.4	48.5	31.5	53.4	56.2	58.0	0.0	No
R4	58.5	50.7	46.4	61.0	42.0	61.6	63.3	63.5	0.0	No
R5	64.6	54.3	41.8	64.2	36.8	64.7	67.6	69.6	0.0	No
R6	64.6	55.1	40.7	58.4	32.9	60.1	65.9	69.6	0.0	No
R7	57.1	45.5	45.2	49.9	24.9	52.2	58.3	62.1	0.0	No

NOTES:

[a] Significance thresholds are equivalent to the measured daytime or evening ambient noise levels, whichever is lower plus 5 dBA, per the City of Los Angeles Noise Regulations.

SOURCE: AES, 2022

TABLE IV.K-13
ATHLETIC ACTIVITIES NOISE LEVELS – L_{10} ANALYSIS

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from Outdoor Uses, dBA (L_{10})				Total Project Noise Levels, dBA (L_{10})	Ambient (L_{eq})+ Project Noise Levels (L_{10}), dBA (L_{10})	Significance Threshold[a]	Exceedance over Significance Threshold	Significant Impact?
		Field A	Field B	Swimming Pool	Tennis Courts					
R1	50.5	51.4	56.6	49.0	30.5	58.3	59.0	60.5	0.0	No
R2	51.1	50.9	56.5	49.1	30.1	58.1	58.9	61.1	0.0	No
R3	53.0	49.2	57.3	50.9	34.5	58.7	59.8	63.0	0.0	No
R4	58.5	61.2	52.8	63.3	45.0	65.7	66.4	68.5	0.0	No
R5	64.6	65.0	47.5	66.5	39.8	68.9	70.2	74.6	0.0	No
R6	64.6	66.1	46.7	60.8	35.9	67.3	69.1	74.6	0.0	No
R7	57.1	56.0	50.2	52.2	27.9	58.3	60.7	67.1	0.0	No

NOTES:

[a] Significance thresholds are equivalent to the measured daytime or evening ambient noise levels, whichever is lower plus 10 dBA.

SOURCE: AES, 2022

Table IV.K-14, *School-Related Special Events Noise Levels*, presents the estimated noise levels at off-site sensitive receptors, resulting from the School-related special events at Field A. As presented in Table IV.K-14, the estimated noise levels from School-related special events would range from 49.6 dBA (L_{eq}) at receptor location R2 to 67.3 dBA (L_{eq}) at receptor location R6. The Project, in addition to ambient noise levels, would be below the significance threshold of 5 dBA (L_{eq}). **Table IV.K-15**, *Public Special Events Noise Levels*, presents the estimated noise levels from public special events at off-site sensitive receptor locations. As presented in Table IV.K-15, the estimated noise levels from public special events would range from 46.0 dBA (L_{eq}) at receptor location R2 to 65.2 dBA (L_{eq}) at receptor location R6. The Project's generated noise, in addition to the ambient noise levels, would be below the significance threshold of 5 dBA (L_{eq}). **As such, the Project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established by the City, and impacts from special event noise would be less than significant.**

TABLE IV.K-14
SCHOOL-RELATED SPECIAL EVENTS NOISE LEVELS

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from Outdoor Uses, dBA (L_{eq})		Total Project Noise Levels, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceedance over Significance Threshold	Significant Impact?
		Amplified Sound	People Voice & Clapping					
R1	50.5	47.7	48.6	51.2	53.9	55.5	0.0	No
R2	51.1	42.1	48.8	49.6	53.4	56.1	0.0	No
R3	53.0	43.4	51.5	52.1	55.6	58.0	0.0	No
R4	58.5	56.6	58.5	60.7	62.7	63.5	0.0	No
R5	64.6	56.1	62.7	63.6	67.1	69.6	0.0	No
R6	64.6	64.0	64.6	67.3	69.2	69.6	0.0	No
R7	57.1	57.0	52.6	58.3	60.8	62.1	0.0	No

NOTES:

[a] Significance thresholds are equivalent to the measured daytime or evening ambient noise levels, whichever is lower plus 5 dBA, per the City of Los Angeles Noise Regulations.

SOURCE: AES, 2022

TABLE IV.K-15
PUBLIC SPECIAL EVENTS NOISE LEVELS

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from Outdoor Uses, dBA (L_{eq})		Total Project Noise Levels, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceedance over Significance Threshold	Significant Impact?
		Amplified Sound	People Voice & Clapping					
R1	50.5	47.7	44.9	49.5	53.0	55.5	0.0	No
R2	51.1	42.1	43.8	46.0	52.3	56.1	0.0	No
R3	53.0	43.4	45.9	47.8	54.1	58.0	0.0	No
R4	58.5	56.6	53.4	58.3	61.4	63.5	0.0	No
R5	64.6	56.1	58.0	60.2	65.9	69.6	0.0	No
R6	64.6	64.0	58.9	65.2	67.9	69.6	0.0	No
R7	57.1	57.0	46.1	57.3	60.2	62.1	0.0	No

NOTES:

[a] Significance thresholds are equivalent to the measured daytime or evening ambient noise levels, whichever is lower plus 5 dBA, per the City of Los Angeles Noise Regulations.

SOURCE: AES, 2022

(iv) Parking Facilities

Parking for the Project would be provided on both a surface parking lot (29 parking spaces) and below-grade parking structure (503 parking spaces). The above-ground surface parking is located at the southeastern portion of the Project Site between the multi-purpose gymnasium and Field A, which would be mostly shielded to the off-site sensitive receptors. Sources of noise within the below-grade parking structure would primarily include vehicular movements and engine noise and vehicle door opening and closing. Noise generated within the underground parking structure would be effectively shielded from off-site sensitive receptor locations, as the structure would be fully enclosed on all sides. **Table IV.K-16**, *On-Site Parking Noise Levels*, presents the estimated noise levels from the surface parking lot at the off-site receptor locations. As indicated in Table IV.K-16, the estimated noise levels from the Project surface parking lot would be well below existing ambient noise levels and the significance threshold of 5 dBA (L_{eq}) above ambient noise levels. **As such, the Project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established by the City, and impacts from parking facilities would be less than significant.**

TABLE IV.K-16
ON-SITE PARKING NOISE LEVELS

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from On-Site Project Parking, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceedance over Significance Threshold	Significant Impact?
R1	50.5	8.9	50.5	55.5	0.0	No
R2	51.1	9.8	51.1	56.1	0.0	No
R3	53.0	12.6	53.0	58.0	0.0	No
R4	58.5	24.4	58.5	63.5	0.0	No
R5	64.6	22.9	64.6	69.6	0.0	No
R6	64.6	25.4	64.6	69.6	0.0	No
R7	57.1	24.8	57.1	62.1	0.0	No

NOTES:

[a] Significance thresholds are equivalent to the measured daytime or evening ambient noise levels, whichever is lower plus 5 dBA, per the City of Los Angeles Noise Regulations.

SOURCE: AES, 2022

(v) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp

Noise from pedestrian use of the Coldwater Canyon Avenue Riverwalk Path Ramp was analyzed for 10 individuals using the Coldwater Canyon Avenue Riverwalk Path Ramp simultaneously at a given time. **Table IV.K-17**, *Coldwater Canyon Avenue Riverwalk Path Ramp Operational Noise Levels*, presents the estimated noise levels from operation of the Coldwater Canyon Avenue Riverwalk Path Ramp compared to the ambient noise level and threshold. As indicated in Table IV.K-17, the estimated noise levels from the Coldwater Canyon Avenue Riverwalk Path Ramp would be below the existing ambient noise levels and the significance threshold of 5 dBA (L_{eq}) above ambient levels. **Therefore, noise impacts from operation of the Coldwater Canyon Avenue Riverwalk Path Ramp would be less than significant.**

TABLE IV.K-17
COLDWATER CANYON AVENUE RIVERWALK PATH RAMP OPERATIONAL NOISE LEVELS

Receptor Location	Existing Ambient Noise Levels, dBA (L_{eq})	Estimated Noise from People Talking, dBA (L_{eq})	Ambient + Project Noise Levels, dBA (L_{eq})	Significance Threshold[a]	Exceedance over Significance Threshold	Significant Impact?
R8	53.8	48.9	54.3	58.8	0.0	No

NOTES:

[a] Significance thresholds are equivalent to the measured daytime or evening ambient noise levels, whichever is lower plus 5 dBA, per the City of Los Angeles Noise Regulations.

SOURCE: ESA, 2022

(vi) Off-Site Operational Traffic Noise

Project-generated traffic noise impacts were evaluated by comparing the increase in noise levels from the "existing without project" condition to the "existing with project" condition and the "future without project" condition to the "future with project" condition relative to the Project's significance threshold. Traffic noise levels at the off-site noise sensitive receptors were calculated using FHWA's TNM and the Project's traffic volume data. The traffic noise impact analysis is based on the hourly L_{eq} noise descriptor for the 3:00-4:00 p.m. and 5:00-6:00 p.m. hours.

Table IV.K-18, *Off-Site Roadway Traffic Noise Impacts – Existing plus Project Conditions*, provides a summary of the off-site traffic noise analysis under the "existing plus project" condition. As shown in Table IV.K-18, traffic from the Project during the 3-4 p.m. hour would result in a maximum noise increase of 0.1 dBA along Whitsett Avenue (between Valley Spring Lane and Ventura Boulevard), Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard), Moorpark Street (between Coldwater Canyon Avenue and Whitsett Avenue), and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue). During the 5-6 p.m. hour, the Project-related traffic noise would result in an increase of 0.1 dBA along Moorpark Street (between Coldwater Canyon Avenue and Whitsett Avenue) and an increase of 0.2 dBA increase along Whitsett Avenue (between Valley Spring Lane and Ventura Boulevard), Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard), and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue). Roadway segments along Valley Spring Lane between Bellaire Avenue and Whitsett Avenue and between Whitsett Avenue and Laurel Canyon Boulevard experience slight decreases in noise levels as a result of decreasing traffic volumes along the roadway segments under the "existing with project" scenario based on the traffic modeling in the Project's Transportation Assessment.[60] Typically, a minimum 3-dBA change in the noise environment (increase and/or decrease) is considered as a threshold of human perception.

[60] Fehr & Peers, Transportation Assessment – Harvard-Westlake River Park Project for Assessor Parcel Numbers 2375-018-020 and portion of APN 2375-018-903 Los Angeles River Parcel 276,4141 Whitsett Avenue, Studio City, CA 91604, April 2021. . Provided in Appendix M of this Draft EIR.

TABLE IV.K-18
OFF-SITE ROADWAY TRAFFIC NOISE IMPACTS – EXISTING PLUS PROJECT CONDITIONS

Roadway Segment	Calculated Traffic Noise Levels,[a] Hourly L_{eq} (dBA)				Increase in Noise Levels, Hourly L_{eq} (dBA)		Significant Impact?
	Existing Without Project		Existing with Project				
	3-4 p.m.	5-6 p.m.	3-4 p.m.	5-6 p.m.	3-4 p.m.	5-6 p.m.	
Whitsett Avenue							
Between Moorpark St. and Valley Spring Ln.	69.9	70.4	69.9	70.4	0.0	0.0	No
Between Valley Spring Ln. and Ventura Blvd.	69.4	69.7	69.5	69.9	0.1	0.2	No
Coldwater Canyon Avenue							
Between Moorpark St. and Ventura Blvd.	71.3	71.3	71.4	71.5	0.1	0.2	No
Moorpark Street							
Between Coldwater Canyon Ave. and Whitsett Ave.	70.7	70.8	70.8	70.9	0.1	0.1	No
Between Whitsett Ave. and Laurel Canyon Blvd.	70.6	70.8	70.6	70.8	0.0	0.0	No
Valley Spring Lane							
Between Bellaire Ave. and Whitsett Ave.	57.3	57.6	57.3	57.3	0.0	-0.3	No
Between Whitsett Ave. and Laurel Canyon Blvd.	60.1	60.9	60.0	60.8	-0.1	-0.1	No
Ventura Boulevard							
Between Coldwater Canyon Ave. and Whitsett Ave.	72.0	72.0	72.1	72.2	0.1	0.2	No

NOTES:

[a] Detailed calculation worksheets, are included in Appendix K of this Draft EIR.

SOURCE: AES, 2022.

Table IV.K-19, *Off-Site Roadway Traffic Noise Impacts – Future (2025) plus Project Conditions*, provides a summary of the off-site traffic noise analysis under the "future (2025) plus project" condition. Also included in Table IV.K-18 are the estimated noise levels with the special events for the "left turn allowed at Valleyheart Drive" condition and "no left turn allowed at Valleyheart Drive" condition. As shown in Table IV.K-19, traffic noise from the Project during the 3-4 p.m. hour would result in an increase of 0.1 dBA along Whitsett Avenue (between Valley Spring Lane and Ventura Boulevard), Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard), Moorpark Street (between Coldwater Canyon Avenue and Whitsett Avenue), and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue). During the 5-6 p.m. hour, the Project-related traffic noise would result in an increase of 0.1 dBA along Whitsett Avenue (between Valley Spring Lane and Ventura Boulevard) and Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard) and an increase of 0.2 dBA along Ventura Boulevard), Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard), and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue). The Project-related traffic with the Special Events under the "left turn allowed at Valleyheart Drive" would result in an increase of 0.1 dBA along Whitsett Avenue (between Moorpark Street and Valley Spring Lane) and Moorpark Street (between Coldwater Canyon Avenue and Whitsett Avenue), 0.5 dBA along Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard) and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue), and 0.6 dBA along Whitsett Avenue (between Valley Spring Lane and Ventura Boulevard). The Project-related traffic with the Special Events under the "left turn not allowed at Valleyheart Drive" would result in an increase of 0.6 dBA along Whitsett Avenue (between Valley Spring Lane and Ventura Boulevard), Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard) and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue).

The estimated noise increases, under all options would be below the 5-dBA significance threshold. **Therefore, the Project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established by the City, and Project-related traffic noise increases would be less than significant**.

TABLE IV.K-19
OFF-SITE ROADWAY TRAFFIC NOISE IMPACTS – FUTURE (2025) PLUS PROJECT CONDITIONS

Roadway Segment	Calculated Traffic Noise Levels,[a] Hourly L_{eq} (dBA)				Increase in Noise Levels, Hourly L_{eq} (dBA)		
	Future Without Project		Future with Project				
	3-4 p.m.	5-6 p.m.	3-4 p.m.	5-6 p.m. A/B/C [b]	3-4 p.m.	5-6 p.m. A/B/C [b]	Significant Impact?
Whitsett Avenue							
Between Moorpark St. and Valley Spring Ln.	70.2	70.7	70.2	70.7/70.8/70.7	0.0	0.0/0.1/0.0	No
Between Valley Spring Ln. and Ventura Blvd.	69.7	70.1	69.8	70.2/70.7/70.7	0.1	0.1/0.6/0.6	No
Coldwater Canyon Avenue							
Between Moorpark St. and Ventura Blvd.	71.7	71.8	71.8	71.9/72.3/72.4	0.1	0.1/0.5/0.6	No
Moorpark Street							
Between Coldwater Canyon Ave. and Whitsett Ave.	70.8	71.0	70.9	71.0/71.1/71.0	0.1	0.0/0.1/0.0	No
Between Whitsett Ave. and Laurel Canyon Blvd.	70.8	71.0	70.7	70.9/70.9/70.9	0.0	0.0/0.0/0.0	No
Valley Spring Lane							
Between Bellaire Ave. and Whitsett Ave.	57.5	57.7	57.5	57.5/57.5/57.5	0.0	0.0/0.0/0.0	No
Between Whitsett Ave. and Laurel Canyon Blvd.	60.2	61.0	60.1	60.9/60.9/60.9	0.0	0.0/0.0/0.0	No
Ventura Boulevard							
Between Coldwater Canyon Ave. and Whitsett Ave.	72.4	72.5	72.5	72.7/73.0/73.1	0.1	0.2/0.5/0.6	No

NOTES:

[a] Detailed calculation worksheets, are included in Appendix K of this Draft EIR.

[b] Traffic conditions during the 5-6 p.m. hour:
A – Future (2025) condition with Project
B – Future (2025) condition with Project and Special Event, assuming Left-Turn out allowed at Valleyheart Drive.
C – Future (2025) condition with Project and Special Event, assuming Left-Turn out not allowed at Valleyheart Drive.

SOURCE: AES, 2022.

(vii) Composite Noise Level Impacts from Project Operations

An evaluation of composite noise levels, including all Project-related noise sources plus existing ambient noise levels, was conducted to identify the potential maximum Project-related noise level increase that may occur at the noise-sensitive receptor locations. The overall sound environment at the sensitive receptors surrounding the Project Site would include contributions from each on-site and off-site individual noise source associated with maximum daily operation of the Project (all athletic fields, tennis courts, and swimming pool with maximum noise at each locations). Principal on-site noise sources associated with the Project would include mechanical equipment, athletic activities, parking facility, and noise from occasional special events, including from the amplified sound system. **Table IV.K-20**, *Composite Noise Impacts*, presents the estimated noise from Project-related noise sources in terms of CNEL. As indicated in Table IV.K-20, the Project would result in a maximum increase of 0.7 dBA CNEL at receptor R2 to 3.0 dBA CNEL at receptor R7. The increases in noise levels due to Project operations at off-site receptors R1 through R4 and R7 would be below the 5-dBA CNEL significance threshold, and the estimated noise levels would fall within the conditionally acceptable (60 to 70 CNEL) land use category for residential. The estimated noise level increase at off-site receptors R5 and R6 would be below the 3-dBA CNEL significance threshold, and the estimated noise levels would fall within the normally unacceptable (70 to 75 CNEL) land use category for residential and the normally unacceptable (70 to 80 CNEL) land use category for churches.[61] **Therefore, the Project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established by the City, and the Project's operational composite noise would be less than significant.**

[61] A different threshold for off-site receptors R5 and R6 is used since noise levels from existing traffic conditions correspond with the City's land use categorization of "normally unacceptable". Therefore, the Project would have an impact if it resulted in a 3 dBA CNEL increase, rather than the 5 dBA CNEL increase associated with the "normally acceptable" or "conditionally acceptable" categorizations per the City of Los Angeles Noise Element.

TABLE IV.K-20
COMPOSITE NOISE IMPACTS

Receptor Location	Calculated Project-Related Noise Levels, CNEL (dBA)						Project Composite Noise Levels, CNEL (dBA)	Ambient Noise Levels,[a] CNEL (dBA)	Ambient Plus Project Composite Noise Levels, CNEL (dBA)	Increase in Noise Levels Due to Project, CNEL (dBA)	Significance Threshold[b]	Significant Impact?
	Traffic	Mechanical	Athletic Activities	Parking	Special Events[c]	Coldwater Canyon Avenue Riverwalk Path Ramp						
R1	43.2	42.8	47.8	10.3	48.0	-	52.1	53.8	56.0	2.2	58.8	No
R2	43.6	42.7	47.2	10.9	46.4	-	51.4	59.1	59.8	0.7	64.1	No
R3	44.6	46.4	48.5	13.0	48.9	-	53.5	59.2	60.2	1.0	64.2	No
R4	48.4	43.5	57.3	24.0	57.5	-	60.8	61.4	64.1	2.7	66.4	No
R5	60.2	54.6	60.4	22.5	60.4	-	65.5	68.4	70.2	1.8	71.4	No
R6	60.2	52.9	55.6	25.0	64.1	-	66.2	67.7	70.1	2.4	70.7	No
R7	53.9	43.4	47.6	24.4	55.1	-	58.1	58.2	61.2	3.0	63.2	No
R8[d]	53.2	-	-	-	-	50.5	55.1	53.8	57.5	3.7	58.8	No

NOTES:

[a] Ambient in CNEL levels are estimated based on the short-term ambient noise measurements based on FTA procedures.

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

[c] Based on estimated noise levels for the School-related special events, as conservative analysis.

[d] Coldwater Canyon Avenue Riverwalk Path Ramp noise (shown as CNEL) is evaluated independent of Project Site operational noise sources because it is further than 1,000 feet from the Project Site and would not contribute to increases in on-site operational noise from the Project Site. Traffic noise at receptor location 8 is based on the Project's incremental traffic noise level on Coldwater Canyon Avenue between Moorpark Street and Ventura Boulevard conservatively evaluated at 150 feet from the roadway centerline, which corresponds to the approximate location of the ambient noise measurement for receptor location R8.

SOURCE: AES, 2022; ESA, 2022.

(2) Mitigation Measures

As analyzed above, the Project's on-site construction activities and off-site improvement construction activities would result in significant noise impacts without the implementation of mitigation measures. Therefore, the following noise mitigation measures are recommended to reduce the Project's construction-related noise impacts to sensitive uses in the vicinity of the Project Site:

(a) Construction

NOI-MM-1: Temporary noise barriers shall be used along the western, northern, southern, and eastern property boundaries to block the line-of-sight between the construction equipment and the adjacent noise sensitive uses.

- Along the Project's western property line. The noise barrier shall provide minimum 15-dBA noise reduction (minimum 16 feet high) at the residences adjacent to the Project Site to the west (receptor location R1).
- Along the Project's northern property line. The noise barrier shall provide minimum 15-dBA noise reduction (minimum 16 feet high) to the residences to the north (receptor locations R2, R3, and R4).
- Along the Project's eastern property line. The noise barrier shall provide minimum 12-dBA (minimum 12 feet high) noise reduction to the residences and church to the east (receptor locations R5 and R6).
- Along the south side of the Project's construction area to block the line-of-sight between the construction equipment and the receptor location R7. The noise barrier shall provide minimum 8-dBA noise reduction to the receptor location R7.

These noise barriers shall be in-place during early Project construction phases (remain up to the start of building framing) and during paving when heavy equipment is used. Temporary barriers shall provide acoustically sealed gate access as needed for construction activities, deliveries, and site access by construction personnel.

NOI-MM-2: Construction equipment that would generate high levels of noise and vibration whose specific location on the Project Site may be flexible (e.g., compressors and generators) shall be located at least 100 feet away from the nearest off-site sensitive land uses, or natural and/or manmade barriers (e.g., intervening construction trailers) shall be used to screen propagation of noise from such equipment towards these land uses.

NOI-MM-3: The Project contractor shall use power construction equipment with properly operating and maintained noise shielding and muffling devices, consistent with manufacturers' standards. In addition, no impact pile driving shall be utilized; augered or drilled piles are permitted. Flexible sound control curtains shall be placed around all stationary compressors and generators, drilling apparatuses, drill rigs, and jackhammers when in use. The flexible sound control curtains shall have a minimum Sound Transmission Class (STC) rating of 25.

(b) Operation

Impacts regarding the Project's operational noise were determined to be less than significant. Therefore, no mitigation measures are required.

(3) Level of Significance After Mitigation

(a) Construction - Noise

(i) On-Site Construction Noise

Implementation of Mitigation Measures NOI-MM-1, NOI-MM-2, and NOI-MM-3, as described above, would reduce the Project's on-site construction noise impacts at the off-site noise sensitive receptors, to the extent technically feasible.[62] Specifically, the construction noise levels would be reduced by a minimum of 15 dBA at receptor locations R1 through R4, 12 dBA at receptor locations R5 and R6, and 8 dBA at receptor location R7, which would reduce the construction noise impacts at receptor locations R4 through R7 to less-than-significant levels. **Table IV.K-21,** *On-Site Construction Noise Impacts – With Mitigation*, presents the estimated, conservative construction noise levels at the off-site receptor locations with implementation of mitigation measures. As indicated in Table IV.K-21, the construction noise levels at receptor locations R4 through R7 would be reduced below the 5-dBA significance threshold. However, the construction noise levels at receptor locations R1 through R3 would still exceed the 5-dBA significance threshold, as the temporary construction noise barriers required in mitigation measure NOI-MM-1 would be limited to a 15-dBA noise reduction. Consequently, with implementation of technically feasible mitigation measures, construction noise impacts at noise-sensitive receptors R1 through R3 would exceed the significance threshold temporarily during certain months of construction, when there would be multiple simultaneous construction activities and some equipment used near the periphery of the Project Site (see shaded values in Table IV.K-21, which represents the sensitive receptor locations and the months when significant impacts would occur). Construction noise levels would be lower than shown in Table IV.K-21 when equipment would be in use in the interior portions of the Project Site, with equipment noise reduced (attenuating) at a rate of at least 6 dBA per doubling of distance between the equipment and the sensitive receptor. The mitigated noise levels in Table IV.K-21 conservatively assumes that the noisiest equipment used during the various construction stages and construction activities would be located on the Project Site in the applicable construction work area for the construction activity at the closest distance to the sensitive receptor location. There are no other feasible mitigation measures that could be implemented to reduce the temporary noise impacts from on-site construction. **Therefore, construction noise impacts associated with on-site noise sources would remain temporarily significant and unavoidable.**

[62] Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during the operation of the equipment. LAMC Chapter XI, Art. 1, Section 112.05.

TABLE IV.K-21
ON-SITE CONSTRUCTION NOISE IMPACTS – WITH MITIGATION

Receptor Location	Daytime Ambient Noise Levels, dBA (L_{eq})	Noise Reduction Provided by Mitigation Measures, dBA	Estimated Construction Noise Levels by Months,[a] dBA (L_{eq}) Project											Significance Threshold,[b] dBA (L_{eq})	Maximum Exceedance over Significance Threshold dBA (L_{eq})	Sig. Impacts?
			Months 1-2	Months 3-5	Months 6-8	Months 9-10	Months 11-14	Month 15	Months 16-17	Month 18	Months 19-21	Months 22-27	Months 28-30			
R1	50.5	-15	54.0	49.4	48.7	46.4	52.0	64.6	**66.4**	65.5	61.7	52.2	62.3	55.5	10.9	Yes
R2	51.1	-15	55.1	50.8	50.2	47.4	52.7	**66.1**	64.7	60.2	62.6	53.0	60.6	56.1	10.0	Yes
R3	53.0	-15	58.5	54.7	54.3	49.7	55.4	66.2	65.0	62.9	**66.9**	56.3	60.4	58.0	8.9	Yes
R4	63.5	-15	61.8	57.0	59.2	58.2	59.8	**66.6**	63.2	59.9	63.4	60.8	62.3	68.5	0.0	No
R5	69.5	-12	**69.4**	66.2	66.4	67.9	61.3	63.4	62.4	59.2	64.1	64.3	64.0	74.5	0.0	No
R6	64.6	-12	67.4	66.2	66.1	**67.9**	61.1	60.3	65.7	62.3	67.4	64.1	63.0	69.6	0.0	No
R7	57.1	-8	59.4	53.7	54.9	54.0	57.7	57.8	57.9	57.0	61.3	57.2	58.4	62.1	0.0	No
R8[c]	53.8	0	**92.3** (approximately 3-month duration within the timeframe of the overall Project construction schedule)											58.8	33.5	Yes

NOTES: Bolded values represent peak noise levels. Shaded numbers in grey illustrate significant and unavoidable short-term noise impact.

a Construction activity by months:
- Months 1-2: Demolition and Site Preparation during month 1 and Demolition and Grading during Month 2
- Months 3-5: Grading
- Months 6-8: Grading and Foundation
- Months 9-10: Foundation and Utilities
- Months 11-14: Foundation, Utilities, and Building Construction
- Months 15: Site Preparation, Foundation, Utilities, and Building Construction
- Months 16-17: Foundation, Utilities, Building Construction, and Landscape
- Month 18: Building Construction, Utilities, and Landscape
- Months 19-21: Building Construction, Utilities, Architectural Coating, and Landscape
- Months 22-27: Building Construction, Architectural Coating, and Landscape
- Months 28-30: Building Construction, Architectural Coating, Landscape, and Paving (during Month 29)

b Significance thresholds are equivalent to the measured daytime ambient noise levels plus 5 dBA.

c Construction schedule/date is unknown for the Coldwater Canyon Avenue Riverwalk Path Ramp. Construction would take place within the overall Project Site construction schedule.

SOURCE: AES, 2022.

(ii) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp: Construction Equipment Noise

Implementation of Mitigation Measure NOI-MM-3, as described above, would reduce the construction noise impacts from the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp at the off-site noise sensitive receptor (receptor location R8), to the extent technically feasible.[63] Construction noise levels at the sensitive receptor location north of the Coldwater Canyon Avenue Riverwalk Path Ramp (receptor location R8) would still exceed the 5-dBA significance threshold, as noise barriers would not be effective given that the construction work would take place at a lower elevation than the sensitive receptors. The sensitive receptors would still have a direct line-of-sight to the Coldwater Canyon Avenue Riverwalk Path Ramp construction site and any benefits of a noise barrier would not occur. It is not feasible to install a construction noise barrier of sufficient height that would block the line-of-sight for receptor location R8 due to technical limitations including barrier foundation needs and wind load capacities. The construction work area is within 100 feet away from the nearest off-site sensitive land uses. Thus, Mitigation Measures NOI-MM-1 and NOI-MM-2 are not technically feasible for construction of the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp. **Therefore, construction noise impacts associated with construction of the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp would remain temporarily significant and unavoidable.**

(iii) Off-Site Construction Traffic Noise

Noise impacts from construction vehicles traveling off-site were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

(b) Operational Noise

Impacts regarding the Project's operational noise were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

63 Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or other noise reduction devices or techniques during the operation of the equipment. LAMC Chapter XI, Art. 1, Section 112.05.

Threshold (b): Would the project result in generation of excessive groundborne vibration or groundborne noise?

(1) Impact Analysis

(a) Structural Damage

(i) Construction

Construction activities can generate varying degrees of ground vibration, depending on the construction procedures and the type of construction equipment used. The operation of construction equipment generates vibrations that travel 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.

With regard to potential building damage, the Project would generate groundborne construction vibration forces 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 velocity levels for various construction equipment operations. **Table IV.K-22**, *Construction Equipment Vibration Levels*, presents the typical vibration levels at a reference distance of 25 feet for construction equipment anticipated to be used during Project construction. Vibration impacts with regard to structures are evaluated at the nearest off-site buildings to the Project Site (north, south, east, and west) and the nearest off-site buildings to the off-site improvement at the Coldwater Canyon Avenue Riverwalk Path Ramp (north), whereas the potential for human annoyance associated with construction-related vibration are evaluated at the eight human annoyance vibration-sensitive receptor locations (receptor locations R1 through R7 for vibration sources from the Project Site and receptor location R8 for vibration sources from the off-site improvement at the Coldwater Canyon Avenue Riverwalk Path Ramp).

TABLE IV.K-22
CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Equipment	Equipment vibration Levels at 25 feet, (PPV / VdB)
Vibratory Roller	0.210 / 94
Large Bulldozer	0.089 / 87
Caisson Drilling	0.089 / 87
Loaded Trucks (e.g., haul trucks)	0.076 / 86
Jackhammer	0.035 / 79
Small Bulldozer	0.003 / 58

SOURCE: FTA, 2018

Table IV.K-23, *Construction Vibration Impacts – Building Damage*, provides the estimated vibration levels (in terms of inch per second PPV) at the nearest off-site structures adjacent to the Project Site. To present a worst-case analysis, the estimated vibration levels were calculated with the construction equipment assumed to be operating at the closest distance to the nearest off-site building structures. As indicated in Table IV.K-23, the estimated vibration velocity levels from all construction equipment would be below the building damage significance criteria at all off-site building structures. **Therefore, the Project would not result in the generation of excessive groundborne vibration, and vibration impacts associated with structural damage from on-site construction activities would be less than significant.**

The existing clubhouse building located on the northeastern corner of the Project Site is conservatively considered a Category IV building (buildings extremely susceptible to vibration damage) for potential structural damage impacts. Grading, utilities and trenching, and landscaping construction activities would occur in the vicinity of the clubhouse. Potential vibration-generating equipment are shown in Table IV.K-22. Vibratory rollers would not be used in the immediate vicinity of the clubhouse. However, other equipment, such as dozers or loaded trucks, may be used within approximately 25 feet of the building. Vibration levels at 25 feet for equipment that could be used in the immediate vicinity of the clubhouse would be up to approximately 0.089 inches per second PPV, which would not exceed the significance threshold of 0.12 inches per second PPV. Furthermore, as discussed in Chapter II, *Project Description*, the Project would rehabilitate the clubhouse as part of the Project to improve its usability and address deferred maintenance. The clubhouse would remain as part of the Project and function as a visitor center. Rehabilitation of the clubhouse that would occur as part of the Project would further improve the structural integrity of the building given its history of deferred maintenance. **Therefore, structural damage impacts to the clubhouse would be less than significant.**

(ii) Operation

Project operation would include typical commercial-grade stationary mechanical and electrical equipment, such as air handling units, condenser units, and exhaust fans, which would produce vibration. In addition, the primary sources of transient vibration would include passenger vehicle circulation within the Project's parking areas. Groundborne vibration generated by each of the above-mentioned activities would generate approximately up to 0.005 in/sec PPV adjacent to the Project Site.[64] The potential vibration levels from all Project operational sources at the closest existing sensitive receptor locations would be less than the significance threshold of 0.5 in/sec PPV for potential Category I building damage. **As such, the Project would not result in the generation of excessive groundborne vibration, and vibration impacts associated with operation of the Project would be less than significant**.

[64] This vibration estimate is based on data presented in the USDOT FTA, Transit Noise and Vibration Impact Assessment Manual, 2018.

TABLE IV.K-23
CONSTRUCTION VIBRATION IMPACTS – STRUCTURAL DAMAGE

Nearest Off-Site Building Structures [a]	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment,[b] inch/second (PPV)						Significance Threshold, inch/second (PPV)	Maximum Exceedance over Significance Threshold (PPV)	Sig. Impacts?
	Vibratory Roller [c]	Large Bulldozer [d]	Caisson Drilling [e]	Loaded Trucks [d]	Jack-hammer [e]	Small Bulldozer [f]			
R1: Single-family residential buildings on west side of Bellaire Avenue, west of the Project Site.	0.001	**0.013**	0.001	0.011	<0.001	0.001	0.20 [g]	0.0	No
R2, R3, R4, R5: Single-family residential buildings on the north side of Valley Spring Lane, north of the Project Site.	0.002	**0.013**	0.008	0.011	0.003	0.001	0.20 [g]	0.0	No
R6: Multi-family residential buildings and church use on the east side of Whitsett Avenue, east of the Project Site.	0.004	**0.013**	**0.013**	0.011	0.005	<0.001	0.30 [h]	0.0	No
Non-Sensitive: Fire Station Building adjacent to the Project Site to the south.	**0.160**	0.068	0.068	0.058	0.027	0.002	0.50 [i]	0.0	No
R8: Multi-family residential uses north of the Coldwater Canyon Avenue Riverwalk Path Ramp	n/a	n/a	n/a	n/a	0.049	n/a	0.20[g]	0.0	No

NOTES: Bolded values represent peak vibration levels.

[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] Vibratory roller is at 540, 960, 355, and 30 feet from the off-site buildings to the north, west, east, and south, respectively.

[d] Large bulldozer and loaded trucks are at 90 feet from the off-site buildings to the north, west, and east and 30 feet from the building to the south.

[e] Caisson drilling and Jackhammer are at 130, 670, 90, and 30 feet from the off-site buildings to the north, west, east, and south, respectively. Jackhammers used for construction of the Coldwater Canyon Avenue Riverwalk Path Ramp would be approximately 20 feet from the off-site building to the north.

[f] Small bulldozer is at 70, 85, 90, and 30 feet from the off-site buildings to the north, west, east, and south, respectively.

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

[h] FTA criteria for engineered concrete and masonry buildings.

[i] FTA criteria for reinforced concrete, steel or timber buildings.

SOURCE: AES, 2022; ESA, 2022

(b) Human Annoyance

(i) On-Site Construction Vibration

With respect to human annoyance, the FTA's *Transit Noise and Vibration Impact Assessment* identifies Category 2 uses, or buildings where people normally sleep as sensitive receptors. As discussed above, per FTA guidance, the significance criteria for human annoyance is 72 VdB for Category 2 uses for frequent events, assuming a minimum of 70 vibration events occurring during a typical construction day. **Table IV.K-24,** *Construction Vibration Impacts – Human Annoyance,* presents the estimated vibration velocity levels (in terms of inch per second VdB) due to construction equipment at the off-site vibration sensitive receptors. To present a worst-case analysis, the estimated vibration levels were calculated with the construction equipment assumed to be operating at the closest distance to the nearest off-site sensitive receptors. As indicated in Table IV.K-24, the estimated vibration levels due to on-site construction equipment would be below the significance threshold for human annoyance at all off-site receptor locations. **Therefore, the Project would not result in the generation of excessive groundborne vibration, and vibration impacts associated with human annoyance from on-site construction activities would be less than significant.**

(ii) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp: Construction Equipment Vibration

With respect to human annoyance, the FTA's *Transit Noise and Vibration Impact Assessment* identifies Category 2 uses, or buildings where people normally sleep as sensitive receptors. As discussed above, per FTA guidance, the significance criteria for human annoyance is 72 VdB for Category 2 uses for frequent events, assuming a minimum of 70 vibration events occurring during a typical construction day. As indicated in Table IV.K-24, the estimated vibration levels due to construction equipment for the Coldwater Canyon Avenue Riverwalk Path Ramp would exceed the significance threshold for human annoyance at the sensitive receptors north of the Coldwater Canyon Avenue Riverwalk Path Ramp (receptor location R8). **Therefore, the Project would result in the generation of excessive groundborne vibration, and vibration impacts associated with human annoyance from construction activities associated with the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp would be potentially significant**.

TABLE IV.K-24
CONSTRUCTION VIBRATION IMPACTS – HUMAN ANNOYANCE

Off-Site Receptor Location	Estimated Vibration Velocity Levels at the Nearest Off-Site Sensitive Receptors from the Project Construction Equipment,[a] VdB						Significance Threshold, VdB	Maximum Exceedance over Significance Threshold	Sig. Impacts?
	Vibratory Roller [b]	Large Bulldozer [c]	Caisson Drilling [d]	Loaded Trucks [c]	Jack-hammer [d]	Small Bulldozer [e]			
R1	46	**70**	44	69	36	42	72	0	No
R2	47	**70**	47	69	39	45	72	0	No
R3	50	**70**	54	69	46	45	72	0	No
R4	54	**70**	66	69	58	45	72	0	No
R5	58	**70**	70	69	62	41	72	0	No
R6	59	**70**	70	69	62	41	72	0	No
R7	**49**	42	42	41	34	13	72	0	No
R8	n/a	n/a	n/a	n/a	82	n/a	72	10	**Yes**

NOTES: Bolded values represent peak vibration levels.

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

[b] Vibratory roller is at 960, 920, 740, 540, 410, 355, and 800 feet from R1, R2, R3, R4, R5, R6, and R7, respectively.

[c] Large bulldozer and loaded trucks are at 90 feet from R1, R2, R3, R4, R5, and R6 and 800 feet from R7.

[d] Caisson drilling and jackhammer are at 670, 555, 325, 130, 90, 90, and 800 feet from R1, R2, R3, R4, R5, R6, and R7, respectively. Jackhammers would be approximately 20 feet from off-site sensitive receptors north of the Coldwater Canyon Avenue Riverwalk Path Ramp.

[e] Small bulldozer is at 85, 70, 70, 70, 90, 90, and 800 feet from R1, R2, R3, R4, R5, R6, and R7, respectively.

SOURCE: FTA, 2018; AES, 2022

(iii) Off-Site Construction Traffic Vibration

In addition to the on-site construction equipment, heavy-duty construction trucks would generate groundborne vibration as they travel along the Project's anticipated haul route. As described above, construction delivery/haul trucks would travel between the Project Site and US-101 via Coldwater Canyon Avenue, Moorpark Street, Whitsett Avenue, and Ventura Boulevard. Vibration levels generated by the Project's construction trucks travelling along the anticipated haul routes would be well below the significance thresholds for building damage. There are residential uses located along Coldwater Canyon Avenue, Moorpark Street, and Whitsett Avenue. The estimated vibration levels generated by the Project's construction trucks would range from 66 VdB at the sensitive uses along Moorpark Street and Whitsett Avenue to 70 VdB along Coldwater Canyon Avenue, which would be below the 72-VdB significance criteria for residential use. In addition to residential uses, there is an existing recording studio located on Ventura Boulevard (Media City Sound, located at 12711 Ventura Boulevard). Per FTA guidance, the significance criterion for a recording studio is 65 VdB (based on 70 events per day). Vibration levels generated by the Project's construction trucks would be

approximately 66 VdB at the exterior of the building at 12711 Ventura Boulevard. Per FTA, the vibration would be further reduced inside the building due to the building coupling loss, which range from -5 VdB for wood-frame houses to -10 VdB for large masonry buildings on spread footings.[65] Therefore, based on the building structural coupling loss, the vibration levels inside the recording studio due to construction trucks would be below the 65-VdB significance criteria for recording studio. Furthermore, the vibration levels from the Project construction trucks would be similar to the existing conditions due to similar trucks that already travel on Ventura Boulevard. **As such, the Project would not result in the generation of excessive groundborne vibration, and potential vibration impacts with respect to human annoyance from construction trucks traveling along the anticipated haul route (i.e., Ventura Boulevard) would be less than significant.**

(iv) Operation

Project operation would include typical commercial-grade stationary mechanical and electrical equipment, such as air handling units, condenser units, and exhaust fans, which would produce vibration at low levels that would not cause damage or annoyance impacts to the Project buildings or on-site occupants and would not cause vibration impacts to the off-site environment. According to America Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), pumps or compressor would generate groundborne vibration levels of 0.5 in/sec PPV at 1 foot.[66] Project mechanical equipment, including air handling units, condenser units, and exhaust fans, would be located within enclosed mechanical rooms on basement levels and building rooftops. Therefore, groundborne vibration from the operation of such mechanical equipment would not impact any of the off-site sensitive receptors. Due to the rapid attenuation characteristics of groundborne vibration and distance from the Project Site to receptors, there is no potential for operational impacts with respect to groundborne vibration. **Therefore, the Project would not result in the generation of excessive groundborne vibration, and vibration impacts from the Project operation would be less than significant**.

(2) Mitigation Measures

As discussed above, with regard to construction associated with the Project Site, vibration impacts (pursuant to the significance criteria for building damage and human annoyance) associated with on-site construction activities and off-site construction traffic would be less than significant. Therefore, no mitigation measures are required.

With regard to off-site improvements associated with the Coldwater Canyon Avenue Riverwalk Path Ramp, the Project could potentially exceed applicable thresholds for human annoyance for sensitive receptors north of the Coldwater Canyon Avenue

65 FTA, Transit Noise and Vibration Impact Assessment Manual, Table 6-12, September 2018.

66 America Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., Heating, Ventilating, and Air-Conditioning Applications, 1999.

Riverwalk Path Ramp (receptor location R8). Vibration impacts regarding human annoyance at nearby sensitive receptors could exceed the significance thresholds (72 VdB at residential uses). Potential mitigation measures to reduce vibration impacts from construction activities with respect to human annoyance could include 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 feasible for temporary applications, such as Project construction.[67] Per the Caltrans Transportation and Construction Vibration Guidance Manual, the wave barrier would need to be at least two-thirds of the seismic wavelength and the length of the barrier must be at least one wavelength (typical wavelength can be up to 500 feet). In addition, constructing a wave barrier to reduce the Project's construction-related vibration impacts would, in and of itself, generate groundborne 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 construction associated with human annoyance at the vibration-sensitive receptor location R8.

(3) Level of Significance After Mitigation

(a) Structural Damage

Impacts regarding the Project's construction (structural impacts) and operational (structural impacts) vibration were determined to be less than significant without mitigation.

(b) Human Annoyance

(i) On-Site Construction Vibration

Impacts regarding the Project's on-site construction (human annoyance) vibration were determined to be less than significant without mitigation.

(ii) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp: Construction Equipment Vibration

Construction of the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp would cause vibration impacts related to human annoyance. There are no feasible mitigation measures that could reduce human annoyance to a less than significant level, and the human annoyance impact would be significant and unavoidable at receptor location R8.

[67] Caltrans, *Transportation and Construction Vibration Guidance Manual*, p. 41. September 2020.

(iii) Off-Site Construction Traffic Vibration

Impacts regarding the Project's off-site construction traffic (human annoyance) vibration were determined to be less than significant without mitigation.

(iv) Operation

Impacts regarding the Project's operational (human annoyance) vibration were determined to be less than significant without mitigation.

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

As discussed in the Initial Study (Appendix A of this Draft EIR), the nearest airport is the Burbank Bob Hope Airport located approximately 4.5 miles northeast of the Project Site. **Therefore, the Project would not expose people residing or working in the Project Site area to excessive noise levels for a project within the vicinity of a public use airport or private airstrip, and no impact would occur with respect to Threshold (c). As such, no further analysis is required.**

e) Cumulative Impacts

(1) Impact Analysis

The Project, together with the related projects, 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 related projects would add to the surrounding roadway network. There are five related projects identified in the vicinity of the Project Site. The five related projects are located along Ventura Boulevard between Coldwater Canyon Avenue and Whitsett Avenue.

(a) Construction - Noise

(i) On-Site Construction Noise

Noise from the 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.

Related Project Nos. 1 and 5 are located at 12833 Ventura Boulevard, approximately 630 feet west of the Project Site and approximately 120 feet south of the nearest residential use to the proposed Coldwater Canyon Avenue Riverwalk Path Ramp

location. While construction related to Related Projects 1 and 5 is at or near completion, this analysis has conservatively evaluated these related projects. Therefore, it is conservatively assumed that construction of these related projects could occur at the same time as the Project. Residences located at the corner of Valleyheart Drive and Bellaire Avenue (represented by receptor R1) are located between the Project Site and the Related Projects 1 and 5 and could be exposed to construction noise from both the Project and the Related Projects 1 and 5. As analyzed above, the estimated Project construction noise level at receptor R1 would exceed the 5-dBA significance threshold and the construction related noise from Related Project Nos. 1 and 5 would contribute to the cumulative noise impacts.

Related Project Nos. 2, 3 and 4 are located at 12548, 12582 and 12544 Ventura Boulevard, respectively. These related projects are approximately 530 feet south of the Project Site. Exact construction schedules for these related projects are not known. Therefore, it is conservatively assumed that construction of these related projects could occur at the same time as the Project. There are residences along Sunswept Drive (represented by receptor R7), which could be exposed to the construction noise from both the Project and these related projects. These related projects are located approximately 150 to 400 feet from the receptor R7. As analyzed above, the estimated Project construction noise level at receptor R7 would result in a noise level of up to 61.3 dBA L_{eq} with implementation of mitigation measures, which would not exceed the significance threshold of 62.1 dBA L_{eq} (5-dBA over the ambient). However, since receptor R7 along Sunswept Drive has a direct line-of-sight to Related Project Nos. 2, 3, and 4, construction-related noise from Related Project Nos. 2, 3, and 4 could contribute to cumulative noise impacts. For instance, if any one of Related Project Nos. 2, 3, or 4 contribute a noise level identical to the Project, the combined noise level would be approximately 64.3 dBA L_{eq} given that two equal noise levels result in a 3-dBA increase when added together (i.e., 61.3 dBA + 61.3 dBA = 64.3 dBA).

Based on the above, there would be potential cumulative noise impacts at the nearby sensitive uses (receptor locations R1 and R7) in the event of concurrent construction activities with Related Project Nos. 1 through 5. 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**.** In addition, 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. **However, there is potential for cumulative construction noise impacts even with mitigation measures. As such, cumulative noise impacts from construction would be significant.**

(ii) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp: Construction Equipment Noise

Related Project Nos. 1 and 5 are located at 12833 Ventura Boulevard, approximately 120 feet south of the nearest residential use to the proposed Coldwater Canyon Avenue Riverwalk Path Ramp location. While construction related to Related Projects 1 and 5 is at or near completion, this analysis has conservatively evaluated these related projects. Therefore, it is conservatively assumed that construction of these related projects could occur at the same time as construction of the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp. The residential uses in the vicinity of the Coldwater Canyon Avenue Riverwalk Path Ramp location could be exposed to construction noise from both the Coldwater Canyon Avenue Riverwalk Path Ramp and the Related Projects 1 and 5. As analyzed above, the estimated Project construction noise level at receptor location R8 would exceed the 5-dBA significance threshold and the construction related noise from Related Project Nos. 1 and 5 would contribute to the cumulative noise impacts.

(iii) Off-Site Construction Traffic Noise

If construction of the related projects identified above would overlap with Project construction and construction trucks would utilize the same roadway network as the Project, cumulative off-site construction noise level increases could occur in the Project area. The exact construction scheduling and timing of construction truck trips for these projects are not known. For the purposes of this analysis, the number of construction trucks from related projects that would be needed to exceed the significance threshold is estimated to determine the potential for impacts.

As shown in Table IV.K-10, the Project would not result in any significant off-site construction noise impacts due to construction trips. The roadway in the vicinity of the Project Site that would have off-site construction noise levels from Project construction trucks closest to the significance threshold would be Whitsett Avenue during construction months 3-5, which would have a maximum of up to 25 truck trips per hour,[68] generating a noise level of approximately 64.0 dBA L_{eq}. Related projects contributing an additional 38 truck trips per hour on the same roadway segment at the same time as the Project would generate a noise level of approximately 65.8 dBA L_{eq}. When adding the noise levels together, along with the ambient noise level of 64.6 dBA L_{eq}, the cumulative noise level would be approximately 69.6 dBA L_{eq},[69] which is equal to the significance threshold on Whitsett Avenue in the vicinity of the Project Site. Therefore, related projects contributing more than 38 truck trips would result in a

[68] While the Project would generate up to 50 truck trips per hour (inbound plus outbound), Whitsett Avenue between Moorpark Street and Ventura Boulevard would have inbound truck trips north of the Project Site and outbound truck trips south of the Project Site. Therefore, no portion of Whitsett Avenue would have both inbound and outbound truck trips.

[69] Calculated as ambient noise level (64.6 dBA L_{eq}), plus Project (64.0 dBA L_{eq}), plus related projects (65.8 dBA L_{eq}) contributing off-site construction noise along the same roadway (Whitsett in the vicinity of the Project Site): 64.6 + 64.0 + 65.8 = 69.6 dBA L_{eq}.

cumulatively considerable contribution to off-site construction noise and impacts would be significant. This is not likely to happen as the related projects individually have grading and excavation areas smaller than the Project (i.e., less than 17.2 acres), with Related Project Nos. 2, 3, and 4 on the order of one acre or less in size each. Nonetheless, it is conservatively assumed that truck traffic from multiple related projects could potentially overlap on some days and generate noise in excess of the significance threshold. **Therefore, given that it is possible that the Project and related projects could contribute to cumulative off-site construction traffic noise levels and could exceed a significance threshold with sufficiently high cumulative traffic levels, cumulative off-site construction traffic noise impacts would be temporarily significant and unavoidable.**

(b) Operations - Noise

(i) On-Site 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 vehicular travel. Similar to the Project, each of the related projects that have been identified in the vicinity of the Project Site would also generate stationary-source and mobile-source noise due to ongoing day-to-day operations.

Due to provisions set forth in the LAMC that limit stationary source noise from items, such as rooftop mechanical equipment and amplified sound, noise levels would be less than significant at the property line for each related project. As analyzed above, noise impacts associated with the Project on-site operations would be less than significant. **Therefore, based on the distance of the related projects from the Project Site and the operational noise levels associated with the Project, the Project's contribution to operational noise would not be cumulatively considerable, and cumulative stationary source noise impacts associated with operation of the Project and related projects would be less than significant.**

(ii) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp

The area surrounding the Coldwater Canyon Avenue Riverwalk Path Ramp 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, vehicular travel, residential landscaping activity and other similar types of community noise.

Due to provisions set forth in the LAMC that limit stationary source noise from items, such as rooftop mechanical equipment and amplified sound, noise levels would be less than significant at the property line for each related project. As analyzed above, noise impacts associated with operation of the Coldwater Canyon Avenue Riverwalk Path

Ramp would be less than significant. **Therefore, based on the distance of the related projects from the Coldwater Canyon Avenue Riverwalk Path Ramp and the operational noise levels associated with the Coldwater Canyon Avenue Riverwalk Path Ramp, the Coldwater Canyon Avenue Riverwalk Path Ramp's contribution to operational noise would not be cumulatively considerable, and cumulative operational noise impacts associated with operation of the Coldwater Canyon Avenue Riverwalk Path Ramp would be less than significant.**

(iii) Off-Site Operational Traffic Noise

The Project and related projects in the area would produce off-site traffic volumes 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. The "future plus project" conditions include traffic volumes from future ambient growth, related projects, and the Project. **Table IV.K-25**, *Cumulative Off-Site Roadway Traffic Noise Impacts,* provides a summary of the cumulative off-site traffic noise analysis under the "future (2025) plus project" condition. As indicated in Table IV.K-25, cumulative traffic noise during the 3-4 p.m. hour would result in a maximum increase of 0.5 dBA along Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard) and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue). Cumulative traffic noise increase at all other analyzed roadway segments would be less than 0.5 dBA. During the 5-6 p.m. hour, the cumulative traffic noise would result in a maximum increase of 0.7 dBA along Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue). The cumulative traffic with the Special Events under the "left turn allowed at Valleyheart Drive" would result in an increase of 0.1 dBA along Whitsett Avenue (between Moorpark Street and Valley Spring Lane) and Moorpark Street (between Coldwater Canyon Avenue and Whitsett Avenue), 0.5 dBA along Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard) and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue), and 0.6 dBA along Whitsett Avenue (between Valley Spring Lane and Ventura Boulevard). Project-related traffic with the Special Events under the "left turn not allowed at Valleyheart Drive" would result in an increase of 0.6 dBA along Whitsett Avenue (between Valley Spring Lane and Ventura Boulevard), Coldwater Canyon Avenue (between Moorpark Street and Ventura Boulevard) and Ventura Boulevard (between Coldwater Canyon Avenue and Whitsett Avenue). **The estimated cumulative noise increases would be below the 5-dBA significance threshold. Therefore, the Project's contribution to off-site traffic noise would not be cumulatively considerable, and off-site cumulative traffic noise impacts associated with the Project would be less than significant.**

TABLE IV.K-25
CUMULATIVE OFF-SITE ROADWAY TRAFFIC NOISE IMPACTS

Roadway Segment	Calculated Traffic Noise Levels,[a] Hourly L_{eq} (dBA)				Increase in Noise Levels, Hourly L_{eq} (dBA)		
	Existing Without Project		Future with Project				
	3-4 p.m.	5-6 p.m.	3-4 p.m.	5-6 p.m. A/B/C [b]	3-4 p.m.	5-6 p.m. A/B/C [b]	Significant Impact?
Whitsett Avenue							
Between Moorpark St. and Valley Spring Ln.	69.9	70.4	70.2	70.7/70.8/70.7	0.3	0.3/0.4/0.3	No
Between Valley Spring Ln. and Ventura Blvd.	69.4	69.7	69.8	70.2/70.7/70.7	0.4	0.5/1.0/1.0	No
Coldwater Canyon Avenue							
Between Moorpark St. and Ventura Blvd.	71.3	71.3	71.8	71.9/72.3/72.4	0.5	0.6/1.0/1.1	No
Moorpark Street							
Between Coldwater Canyon Ave. and Whitsett Ave.	70.7	70.8	70.9	71.0/71.1/71.0	0.2	0.2/0.3/0.2	No
Between Whitsett Ave. and Laurel Canyon Blvd.	70.6	70.8	70.7	70.9/70.9/70.9	0.1	0.1/0.1/0.1	No
Valley Spring Lane							
Between Bellaire Ave. and Whitsett Ave.	57.3	57.6	57.5	57.5/57.5/57.5	0.2	0.0/0.0/0.0	No
Between Whitsett Ave. and Laurel Canyon Blvd.	60.1	60.9	60.1	60.9/60.9/60.9	0.0	0.0/0.0/0.0	No
Ventura Boulevard							
Between Coldwater Canyon Ave. and Whitsett Ave.	72.0	72.0	72.5	72.7/73.0/73.1	0.5	0.7/1.0/1.1	No

NOTES:

[a] Detailed calculation worksheets, are included in Appendix K of this Draft EIR.

[b] Traffic conditions during the 5-6 p.m. hour:
A – Future (2025) condition with Project
B – Future (2025) condition with Project and Special Event, assuming Left-Turn out allowed at Valleyheart Drive.
C – Future (2025) condition with Project and Special Event, assuming Left-Turn out not allowed at Valleyheart Drive.

SOURCE: AES, 2022.

(c) Construction - Groundborne Vibration

(i) On-Site Construction Vibration

Due to rapid attenuation characteristics of groundborne vibration, only related projects located adjacent to the same sensitive receptors would result in cumulatively considerable vibration impacts. None of the related projects are located adjacent to the sensitive receptors identified for the Project. Related Project Nos. 1 and 5 are approximately 630 feet west of the Project Site, and Related Project Nos. 2, 3, and 4 are approximately 530 feet south of the Project Site. There are residences along Sunswept Drive (represented by receptor R7), which could be exposed to the construction vibration from both the Project and these related projects. These related projects are located approximately 150 to 400 feet from the receptor R7. At the distances described above, operation of vibratory construction equipment would not exceed structural damage or human annoyance thresholds. Other related projects are further away from the Project Site and sensitive receptors and would experience lower levels of vibration. **Therefore, construction of the Project, when considered together with Related Project Nos. 1, 2, 3, 4, and 5 would not result in a cumulatively considerable contribution and would have a less-than-significant cumulative impact with regard to groundborne vibration (structural damage and human annoyance) at receptor locations R1 through R7.**

(ii) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp: Construction Equipment Vibration

Due to rapid attenuation characteristics of groundborne vibration, only related projects located adjacent to the same sensitive receptors would result in cumulatively considerable vibration impacts. Related Project Nos. 1 and 5 are approximately 120 feet south of the nearest residential use to the proposed Coldwater Canyon Avenue Riverwalk Path Ramp location. At the distances described above, operation of vibratory construction equipment would not exceed structural damage thresholds. However, groundborne vibration exceeding the human annoyance threshold at receptor location R8 would occur as a result of construction of the proposed Coldwater Canyon Avenue Riverwalk Path Ramp, and Related Projects could contribute to the human annoyance vibration impact. **Therefore, construction of the Project, when considered together with Related Project Nos. 1, 2, 3, 4, and 5 would not result in a cumulatively considerable contribution and would have a less-than-significant cumulative impact with regard to groundborne vibration (structural damage) at receptor location R8, but would result in a cumulatively considerable contribution and would have a significant cumulative impact with regard to groundborne vibration (human annoyance) at receptor location R8.**

(d) Operation - Groundborne Vibration

Related Project Nos. 1 and 5 are approximately 630 feet west of the Project Site and approximately 120 feet south of the nearest residential use to the proposed Coldwater Canyon Avenue Riverwalk Path Ramp location. Related Project Nos. 2, 3, and 4 are approximately 530 feet south of the Project Site and there are residences along Sunswept Drive (represented by receptor R7), which could be exposed to the operational vibration from both the Project and these related projects. These related projects are located approximately 150 to 400 feet from the receptor R7. At the distances described above, operation of vibratory operational equipment would not exceed structural damage or human annoyance thresholds. Other related projects are further away from the Project Site and sensitive receptors and would experience lower levels of vibration. Due to the rapid attenuation characteristics of groundborne vibration and distance from each of the related projects to the Project Site, there is no potential for cumulative operational impacts with respect to groundborne vibration. **Therefore, operation of the Project, when considered together with Related Project Nos. 1, 2, 3, 4, and 5 would not result in a cumulatively considerable contribution and would have a less-than-significant cumulative impact with regard to groundborne vibration.**

(2) Mitigation Measures

Refer to Mitigation Measures NOI-MM-1, NOI-MM-2, and NOI-MM-3 to reduce cumulative construction noise impacts.

Cumulative impacts related to off-site construction traffic noise levels could occur if the related projects contribute an additional 38 truck trips per hour on the same roadway segment at the same time as the Project. Residential land uses comprise the majority of existing sensitive uses in the Project Site vicinity that could be impacted by the temporary increase in construction traffic generated noise levels. Construction of sound barriers would be inappropriate for residential land uses that face the roadway as it would be impractical and create aesthetic and access concerns. Thus, there are no feasible mitigation measures that could be implemented to reduce the temporary cumulative off-site construction traffic noise impacts.

Cumulative impacts related to construction vibration (structural damage) and operational noise and vibration (both structural and human annoyance) would be less than significant. Therefore, no additional mitigation measures are required.

Cumulative impacts related to construction vibration (human annoyance) would be less than significant at receptor locations R1 through R7 but would result in a cumulatively considerable contribution and would have a significant cumulative impact at receptor location R8. Potential mitigation measures to reduce vibration impacts from construction activities with respect to human annoyance could include 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 feasible for temporary applications, such as Project construction.[70] Per the Caltrans Transportation and Construction Vibration Guidance Manual, the wave barrier would need to be at least two-thirds of the seismic wavelength and the length of the barrier must be at least one wavelength (typical wavelength can be up to 500 feet). In addition, constructing a wave barrier to reduce the Project's construction-related vibration impacts would, in and of itself, generate groundborne vibration from the excavation equipment. Thus, it is concluded that there are no feasible mitigation measures that could be implemented to reduce the temporary cumulative vibration impacts from construction vibration impacts with human annoyance at the vibration-sensitive receptor location R8.

(3) Level of Significance After Mitigation

(a) On-Site Construction Noise

Cumulative construction noise impacts associated with on-site construction equipment could be significant in the event that construction activities as part of Related Project Nos. 1 through 5 occur within 500 feet of the Project Site. The Project would implement Mitigation Measures NOI-MM-1, NOI-MM-2, and NOI-MM-3 to reduce construction noise impacts. Implementation of these mitigation measures would reduce the Project's construction noise impacts at receptor locations R4, R5, R6, and R7 to less than significant at the Project-level; however, construction noise impacts at receptor locations R1, R2, and R3 would continue to be significant. Although it is expected that Related Project Nos. 1 through 5 would implement mitigation that would reduce construction noise impacts similar to the Project, overlapping construction activities could result in significant cumulative impacts. As previously explained, the Project and Related Project Nos. 1 and 5 could contribute to construction noise at receptor location R1 that may exceed the significance threshold. The Project and Related Project Nos. 2, 3, or 4 could contribute to construction noise at receptor location R7 that could potentially exceed the significance threshold. **Thus, it is conservatively concluded that the Project's contribution to cumulative construction noise associated with on-site construction equipment would be cumulatively considerable and would represent a significant and unavoidable cumulative impact.**

(b) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp: Construction Equipment Noise

Cumulative construction noise impacts associated with the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp would be significant in the event that construction activities as part of Related Project Nos. 1 through 5 occur within 500 feet of the Project Site. Construction of the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp would implement Mitigation Measure NOI-MM-3 to reduce construction noise impacts. However, construction noise impacts at receptor location R8 would continue to be significant. **Thus, it is concluded that the Project's**

[70] Caltrans, *Transportation and Construction Vibration Guidance Manual*, p. 41. September 2020.

contribution to cumulative construction noise associated with construction equipment for the off-site improvements at the Coldwater Canyon Avenue Riverwalk Path Ramp would be cumulatively considerable and would represent a significant and unavoidable cumulative impact.

(c) Off-Site Construction Traffic Noise

Cumulative construction noise impacts associated with off-site construction truck traffic from multiple related projects could potentially overlap with the Project on some days and generate noise in excess of the significance threshold if the related projects contribute more than 38 truck trips per hour at the same time as the Project's maximum truck trips of 50 per hour. No additional feasible mitigation measures are available for the Project to implement to further reduce impacts. Residential land uses comprise the majority of existing sensitive uses within the Project Site area that could be impacted by the increase in traffic generated noise levels. Construction of sound barriers would be inappropriate for residential land uses that face the roadway as it would be impractical and create aesthetic and access concerns. **Thus, it is conservatively concluded that the Project's contribution to cumulative construction noise associated with off-site construction truck traffic would be cumulatively considerable and would represent a significant and unavoidable cumulative impact.**

(d) Off-Site Improvements at Coldwater Canyon Avenue Riverwalk Path Ramp: Construction Equipment Vibration

Construction vibration as a result of construction of the proposed Coldwater Canyon Avenue Riverwalk Path Ramp would result in a significant and unavoidable groundborne vibration (human annoyance) impact at receptor location R8. **Thus, the Project's contribution to cumulative construction groundborne vibration associated with construction of the proposed Coldwater Canyon Avenue Riverwalk Path Ramp would be cumulatively considerable and would represent a significant and unavoidable cumulative impact.**