IV. Environmental Impact Analysis

G. Noise

1. Introduction

This section of the Draft EIR analyzes potential noise and vibration impacts of the Project. Included in this section is a description of the existing noise environment within the Project Site area, an estimation of future noise and vibration levels at surrounding sensitive land uses associated with construction and operation of the Project, a description of the potential significant impacts, and the inclusion of mitigation measures to address any identified potential significant impacts. Additionally, this section of the Draft EIR evaluates the Project's incremental contribution to potential cumulative noise and vibration impacts resulting from past, present, and probable future projects. Noise worksheets and technical information and data used in the off-site construction noise and vibration analyses and on-site and off-site operational noise and vibration analyses are included in Appendix H of this Draft EIR. The mobile source noise analysis is based on traffic data included in the Transportation Assessment prepared by Gibson Transportation Consulting, Inc., dated April 2020, which is included in Appendix J of this Draft EIR.

2. Environmental Setting

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

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.

[1] M. David Egan, Architectural Acoustics, Chapter 1, March 1988.

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

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency but, rather, a broad band of frequencies varying in levels of magnitude. When all of the audible frequencies of the 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]

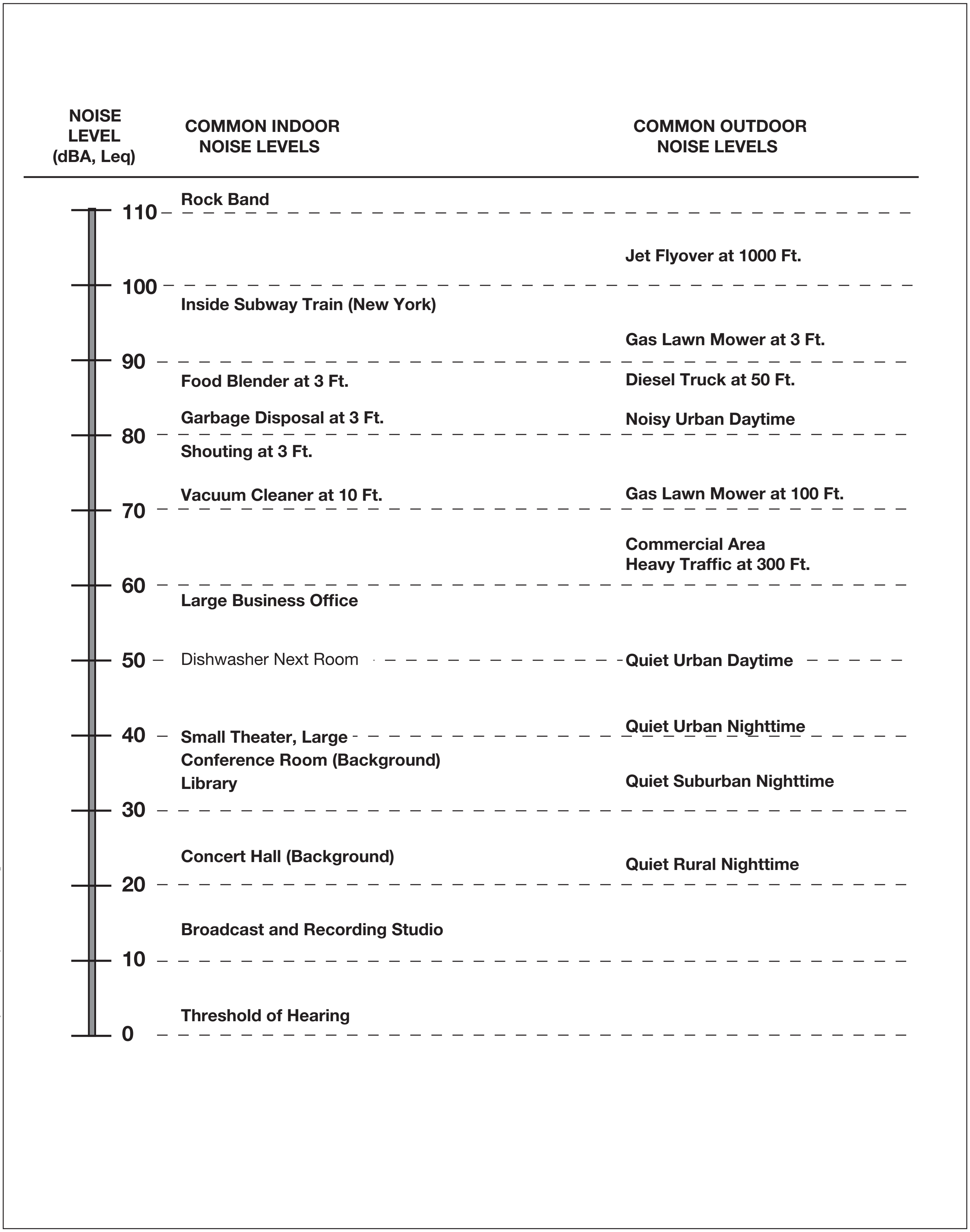
The typical human ear is not equally sensitive to the frequency range from 20 to 20,000 Hz. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human 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.G-1, *Decibel Scale and Common Noise Sources***.

[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/m2.

[3] M. David Egan, Architectural Acoustics, Chapter 1, March 1988, pages 2, 3, 10, and 11.

[4] M. David Egan, Architectural Acoustics, Chapter 1, March 1988, pages 2, 3, 10, and 11.

[5] M. David Egan, Architectural Acoustics, Chapter 1, March 1988, pages 2, 3, 10, and 11.



SOURCE: State of California, Department of Transportation (Caltrans), Technical Noise Supplement (TeNS). October 1998. Available: http://www.dot.ca.gov/hq/env/noise/pub/Technical Noise Supplement.pdf

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Figure IV.G-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.

In an outdoor environment, sound energy attenuates through the air as a function of distance. Such attenuation is called “distance loss” or “geometric spreading” and is based on the type of source configuration (i.e., a point source or a line source). The rate of sound attenuation for a point source, such as a piece of mechanical or electrical equipment (e.g., air conditioner or bulldozer), is six dBA per doubling of distance from the noise source to the receptor over acoustically “hard” sites (e.g., asphalt and concrete surfaces) and 7.5 dBA per doubling of distance from the noise source to the receptor over acoustically “soft” sites (e.g., soft dirt, grass or scattered bushes and trees).[7] For example, an outdoor condenser fan that generates a sound level of 60 dBA at a distance of 50 feet from a point source at an acoustically hard site would attenuate to 54 dBA at a distance of 100 feet from the point source and attenuate to 48 dBA at 200 feet from the point source. The rate of sound attenuation for a line source, such as a constant flow of traffic on a roadway, is three dBA per doubling of distance from the point source to the receptor for hard sites and 4.5 dBA per doubling of distance for soft sites.[8]

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

[6] California Department of Transportation (Caltrans), Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.2.2.1, September 2013.
[7] Caltrans, Technical Noise Supplement, Chapter 2.1.4.2, 2009.
[8] Caltrans, Technical Noise Supplement, Chapter 2.1.4.2, 2009.

the noise. Noise barriers can provide noise level reductions ranging from approximately five 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.[9] Additionally, structures with closed windows can further attenuate exterior noise by a minimum of 20 dBA to 30 dBA.[10]

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.[11]

L_{eq}: The equivalent sound level over a specified period of time, typically, one hour (L_{eq}). The L_{eq} may also be referred to as the 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 dB to measured noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account 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 average A-weighted noise level during a 24-hour day that includes an addition of five dB to measured noise levels between the hours of 7:00 p.m. to 10:00 p.m. and an addition of 10 dB to noise levels between the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

[9] Caltrans, Technical Noise Supplement, Chapter 2.1.4.2, 2009.
[10] Caltrans, Technical Noise Supplement, Chapter 2.1.4.2, 2009.
[11] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.2.2.2, September 2013.

(3) Effects of Noise on People

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

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

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep.[12]

The World Health Organization's Guidelines for Community Noise details the adverse health effects of noise, 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.[13]

With regard to the subjective effects, an individuals' response 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

[12] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.2.1, September 2013.

[13] World Health Organization, Occupational and Environmental Health Team, Berglund et al, Guidelines, Berglund, Birgitta, Lindvall, Thomas, Schwela, Dietrich H & World Health Organization, Guidelines for community noise, 1999.

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:[14]

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

These relationships between change in noise level and human hearing response occur in part because of the logarithmic nature of sound and the dB scale. Because the dBA scale is based on logarithms, two noise sources do not combine in a simple additive fashion but, rather, logarithmically. Under the dBA scale, a doubling of sound energy corresponds to a three-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 three dBA higher than one of the sources under the same conditions. For example, if two identical noise sources produce noise levels of 50 dBA at the same receiver location, 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 five 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.[15]

(4) Noise Attenuation

When noise propagates over a distance, the noise level reduces 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.” Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (i.e., reduce) at a rate between six dBA for acoustically “hard” sites and 7.5 dBA for “soft” sites for each doubling of distance from the reference measurement, as their energy is continuously spread out over a spherical surface (e.g., for hard surfaces, 80 dBA at 50 feet attenuates to 74 dBA at 100 feet, 68 dBA at 200 feet,

[14] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.2.1, September 2013.

[15] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.2.1.1, September 2013.

etc.).[16] 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.[17] 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.[18] 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).[19]

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. Noise from a line source propagates over a cylindrical surface, often referred to as "cylindrical spreading."[20] Line sources (e.g., traffic noise from vehicles) attenuate at a rate between three dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement.[21] Therefore, noise due to a line source is attenuated less with distance than that of a point source with increased distance.

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.[22] Atmospheric temperature inversion (i.e., increasing temperature with elevation) can increase sound levels at long distances (e.g., more than 500 feet). Other factors, such as air temperature, humidity, and turbulence, can also have an effect on noise levels.[23]

[16] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.2, September 2013.

[17] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.2, September 2013.

[18] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.2, September 2013.

[19] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.2, September 2013.

[20] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.1, September 2013.

[21] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.1, September 2013.

[22] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.3, September 2013.

[23] Caltrans, Technical Noise Supplement to the Traffic Noise Analysis Protocol, Section 2.1.4.3, September 2013.

(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.[24] 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 construction activities, such as blasting, pile-driving, and operation of heavy earth-moving equipment.[25] 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 that 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.[26] 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.[27] 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 six times greater than RMS vibration velocity; FTA uses a crest factor of four.[28] 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

[24] Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment Manual, Section 7, September 2018.
[25] FTA, Transit Noise and Vibration Impact Assessment Manual, Section 7, September 2018.
[26] FTA, Transit Noise and Vibration Impact Assessment Manual, Section 5.1, September 2018.
[27] FTA, Transit Noise and Vibration Impact Assessment Manual, Section 5.1, September 2018.
[28] FTA, Transit Noise and Vibration Impact Assessment Manual, Section 5.1, September 2018.

structures), locations where people sleep, and locations with vibration sensitive equipment.[29]

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.[30] The relationship between groundborne vibration and groundborne noise depends on the frequency of the vibration and the acoustical absorption characteristics of the receiving room. For typical buildings, groundborne vibration that causes low frequency noise (i.e., the vibration spectrum peak is less than 30 Hz) results in a groundborne noise level that is approximately 50 decibels lower than the velocity level. For groundborne vibration that causes mid-frequency noise (i.e., the vibration spectrum peak is 30 to 60 Hz), the groundborne noise level will be approximately 35 to 37 decibels lower than the velocity level.[31] Therefore, for typical buildings, the groundborne noise decibel level is lower than the groundborne vibration velocity level.

b) Regulatory Framework

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

- Noise Control Act of 1972
- Federal Transportation Administration Vibration Standards
- Occupational Safety and Health Act of 1970
- California Office of Planning and Research Guidelines for Noise Compatible Land Use
- 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
- City of Los Angeles Guidelines for Noise Compatible Land Use
- City of Los Angeles Groundborne Vibration and Noise

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

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

[31] FTA, Transit Noise and Vibration Impact Assessment Manual, Table 6-3 and Table 6-14, September 2018, pages 126 and 146.

(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 Ldn of 55 dBA and an indoor Ldn of 45 dBA.[32] 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, FTA has adopted vibration criteria vibration criteria for use in evaluating vibration impacts from construction activities.[33] The vibration damage criteria adopted by FTA are shown in **Table IV.G-1, *Construction Vibration Damage Criteria***.

TABLE IV.G-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, September 2018.

32 United States Environmental Protection Agency (USEPA), EPA Identifies Noise Levels Affecting Health and Welfare, April 1974.

33 FTA, Transit Noise and Vibration Impact Assessment Manual, Table 7-5, September 2018, page 186.

The FTA has also adopted standards associated with human annoyance for determining the groundborne vibration and noise impacts from groundborne noise on the following three land-use categories: Category 1 – High Sensitivity, Category 2 – Residential, and Category 3 – Institutional.[34] 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 still potentially involve activities that could be disturbed by vibration. The vibration thresholds associated with human annoyance for these three land-use categories are shown in **Table IV.G-2, *Groundborne Vibration and Groundborne Noise Impact Criteria for General Assessment***. No thresholds have been adopted or recommended for commercial or office uses.

TABLE IV.G-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

[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.

[34] FTA, Transit Noise and Vibration Impact Assessment Manual, Table 6-1, September 2018, page 124.

(c) Occupational Safety and Health Act of 1970

Under the Occupational Safety and Health Act of 1970 (29 U.S.C. §1919 et seq.), the Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure. These regulations list permissible noise level exposure as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, ensuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.[35]

(2) State

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

The State of California does not have standards for environmental noise, but the Governor's Office of Planning and Research (OPR) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as presented in **Figure IV.G-2, *Guideline for Noise Compatible Land Use***.[36] 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 levels, which vary in range according to land use type: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." The City has developed its own compatibility guidelines in the Noise Element of the General Plan based in part on OPR Guidelines. California Government Code Section 65302 requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(f) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The State of California 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, California Code of Regulations). 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 noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

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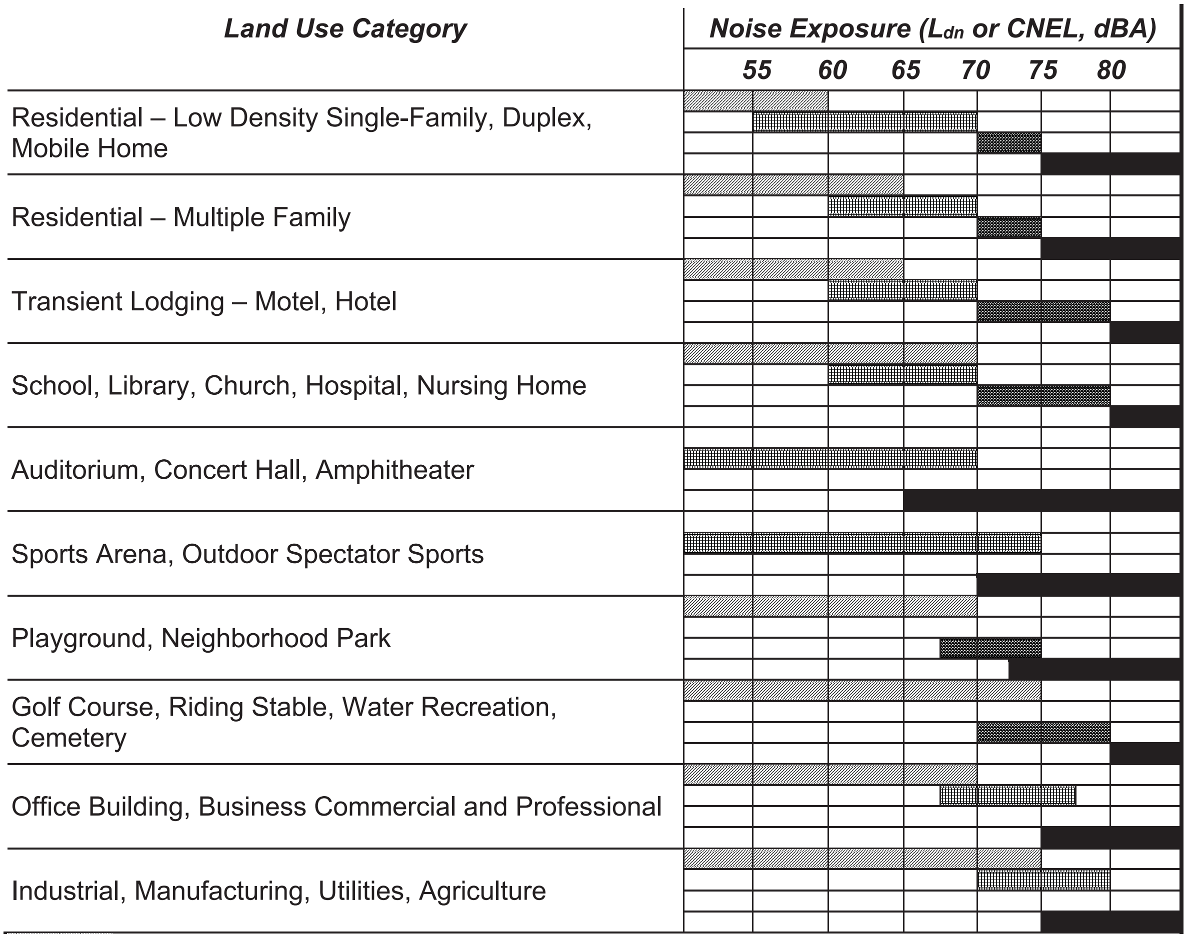
35 United States Department of Labor, OSH Act of 1970.

36 State of California Governor's Office of Planning and Research (OPR), General Plan 2017 Guidelines, page 377.



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

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

(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, the California Department of Transportation (Caltrans) in its Transportation and Construction Vibration Guidance Manual recommends the vibration thresholds shown in **Table IV.G-3, *Guideline Vibration Damage Potential Threshold Criteria*** that are more practical than those provided by the FTA.

TABLE IV.G-3
GROUNDBORNE VIBRATION IMPACT CRITERIA FOR HUMAN ANNOYANCE

	Maximum PPV (inch/sec)	
Structure and Condition	**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

[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, 2013.

(3) Regional

The Project Site is located within the City of Los Angeles and adjacent to the City of Beverly Hills. Noise-sensitive receptors in proximity to the Project Site are located in both cities; therefore, noise regulations for both cities applicable and relevant to Project construction and operations are discussed below.

(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

The Project Site is located within the City of Los Angeles and adjacent to the City of Beverly Hills. Noise-sensitive receptors in proximity to the Project Site are located in both cities; therefore, noise regulations for both cities applicable and relevant to Project construction and operations are discussed below.

(a) City of 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 five 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 five dBA allowance for a noise source that causes noise lasting more than five but less than 15 minutes in any one-hour period, and an additional five dBA allowance (for a total of 10 dBA) for a noise source that causes noise lasting five minutes or less in any one-hour period.[37]

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

37 Los Angeles Municipal Code, Chapter XI, Article I, Section 111.02-(b).

TABLE IV.G-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

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 five 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.[38] 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 that do not fall on Sundays, such as Christmas and New Year's, 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

38 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.

therefore has been duly obtained beforehand from the Board of Police Commissioners.

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

(b) City of Los Angeles General Plan Noise Element

The Noise Element of the City's General Plan policies include the CNEL guidelines for land use compatibility as shown in **Table IV.G-5, *Relevant General Plan Noise Element Objectives and Policies***, and includes a number of goals, objectives, and policies for land use planning purposes.

TABLE IV.G-5
RELEVANT GENERAL PLAN NOISE ELEMENT OBJECTIVES AND POLICIES

Objective/Policy	Description
Objective 2 (Non-Airport)	Reduce or eliminate non-airport related intrusive noise, especially relative to noise sensitive uses.
Policy 2.2	Enforce and/or implement applicable city, state, and federal regulations intended to mitigate proposed noise producing activities, reduce intrusive noise and alleviate noise that is deemed a public nuisance.
Objective 3 (Land Use Development)	Reduce or eliminate noise impacts associated with proposed development of land and changes in land use.
Policy 3.1	Develop land use policies and programs that will reduce or eliminate potential and existing noise impacts.

SOURCE: City of Los Angeles Department of City Planning, Noise Element of the Los Angeles City General Plan, adopted February 3, 1999.

Exhibit I of the Noise Element also contains guidelines for noise compatible land uses.[39] **Table IV.G-6, *City of Los Angeles Guidelines for Noise Compatible Land Use**,* summarizes these guidelines, which are based on OPR guidelines from 1990.

[39] City of Los Angeles, General Plan Noise Element, February 3, 1999, page I-1.

TABLE IV.G-6
CITY OF LOS ANGELES GUIDELINES FOR NOISE COMPATIBLE LAND USE

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

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

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

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

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

SOURCE: City of Los Angeles, Noise Element of the Los Angeles City General Plan, adopted February 3, 1999.

(c) City of Beverly Hills

(i) General Plan Noise Element

The Noise Element of the City of Beverly Hills General Plan contains noise goals and policies that address unnecessary, excessive, and annoying noise levels and sources, such as vehicles, construction, and stationary sources (e.g., heating and cooling systems, mechanical rooms, etc.). Potentially sensitive land uses in the City of Beverly Hills include residences (including residences for the elderly), schools, churches, and libraries. Commercial uses are not defined as noise sensitive receptors. [40]

[40] City of Beverly Hills, Noise Element of the General Plan, April 2010.

(ii) Beverly Hills Municipal Code

The City of Beverly Hills also has noise standards and regulations to control unnecessary, excessive, and annoying noise, as set forth in the Beverly Hills Municipal Code (BHMC), Title 5.[41]

Section 5-1-202 of the BHMC prohibits any person from operating machinery or mechanical devices in a manner which creates a noise increase of more than 5 dBA above the ambient noise level at any property.

Section 5-1-205 of the BHMC prohibits construction activity between the hours of 6:00 PM and 8:00 AM any day, and on Sundays and public holidays. Further, construction work within 500 feet of a residential zone is prohibited on Saturdays.

Section 5-1-206 of the BHMC prohibits any person to create any noise on any street, sidewalk, or public place adjacent to any school, institution of learning, or church while the same is in use, or adjacent to any hospital; which noise substantially and unreasonably interferes with the workings of such institutions.

The Project's construction site is adjacent to the City of Beverly Hills, but is wholly within the City of Los Angeles. The Project may generate construction truck traffic along roadways in the City of Beverly Hills in the vicinity of the Project Site (i.e., within 500 feet).

(iii) Guidelines for Noise-Compatible Land Uses

The City of Beverly Hills provides land use noise compatibility guidelines in Appendix B of the City of Beverly Hills's General Plan, established by the California Department of Health, Office of Noise Control, for use in assessing the compatibility of various land use types with a range of noise levels in terms of the CNEL. CNEL guidelines for specific land uses are classified into four categories: "normally acceptable," "conditionally acceptable," "normally unacceptable," and (4) "clearly unacceptable," similar to the CNEL guidelines for the City of Los Angeles.[42]

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41 Beverly Hill Municipal Code (BHMC), Title 5, Section 1, Article 2, October 2019.

42 For applicable uses in the project area, compared to the City of Los Angeles, the City of Beverly Hills General Plan Land Use Compatibility Guidelines specify the "Clearly Unacceptable" CNEL range for single-family, duplex, and mobile homes as 75-85 dBA, which has a higher upper range than the City of Los Angeles, which is 75-80 dBA. The "Normal Acceptable Range" for office buildings, business and professional commercial is 50-75 dBA in Beverly Hills, which is less stringent than the City of Los Angeles at 50-65 dBA. The "Normally Acceptable" and "Clearly Unacceptable" levels for playgrounds and neighborhood parks are 50-70 dBA and 72.5-85 dBA, respectively, in Beverly Hills, which is slightly less stringent than the "Normally Acceptable" and "Clearly Unacceptable" levels of 50-65 dBA and 75-80 dBA, respectively, in the City of Los Angeles. There are no golf courses, riding stables, water recreation, or cemeteries in the vicinity (i.e., 500 feet) of the Project Site. Therefore, the CNEL guidelines for the City of Los Angeles, as shown in Table IV.G-6, are slightly more stringent than the City of Beverly Hills for applicable land uses.

(iv) Vibration

The City of Beverly Hills has not adopted standards or regulations addressing groundborne vibration or groundborne noise impacts from land use development projects, such as the Project.

c) Existing Conditions

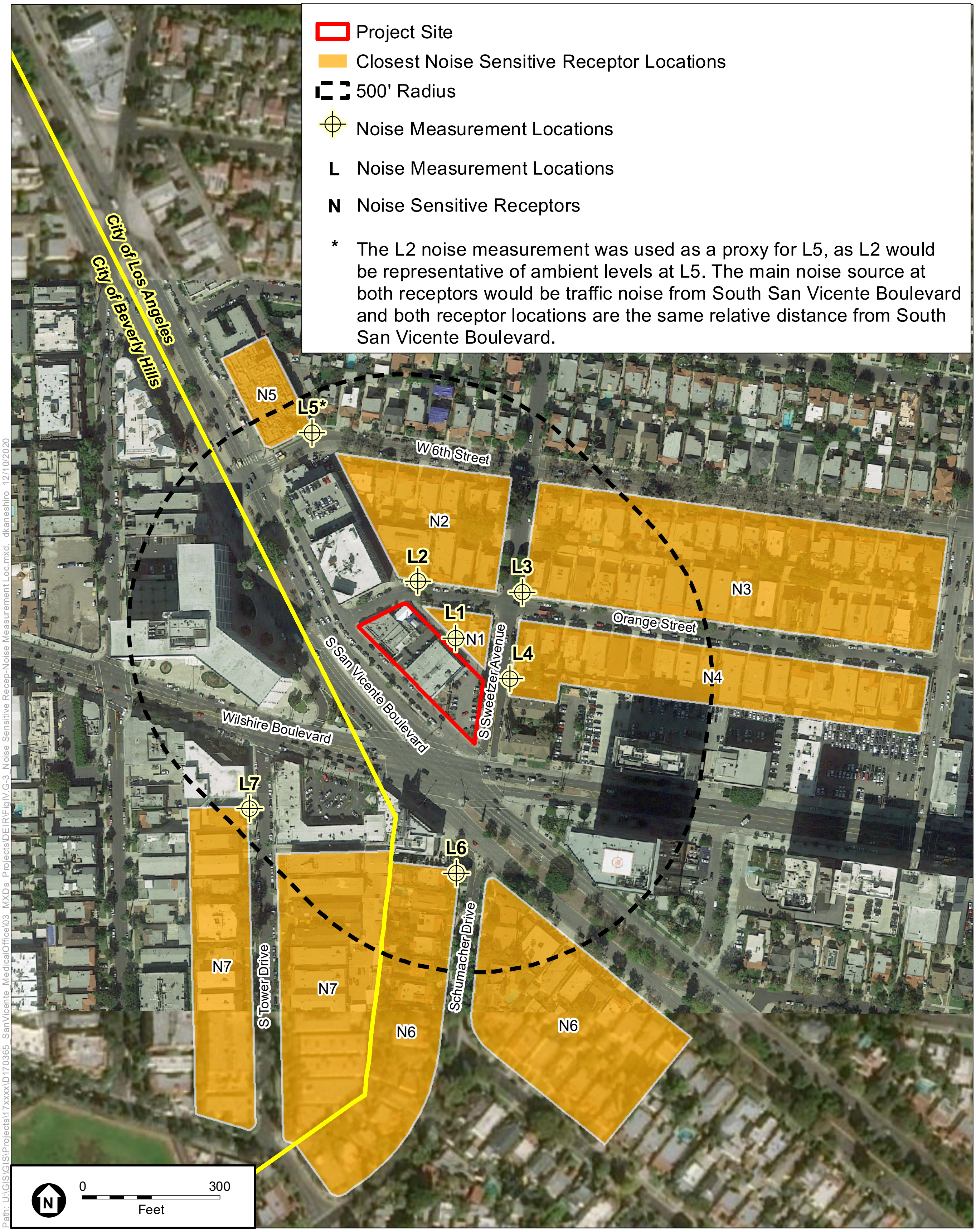
(1) Noise-Sensitive Receptor Locations

Some land uses are considered more sensitive to noise than others due to the types of activities typically involved at the receptor location, and the effect that noise can have on those activities and the persons engaged in them. According to the City of Los Angeles 2006 L.A. CEQA Thresholds Guide, "noise-sensitive uses include residences, transient lodgings, schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks."[43] The City's definition of noise-sensitive uses is generally consistent with those of the Federal Highway Administration (FHWA).[44] The Noise Element of the City of Beverly Hills General Plan defines potentially noise-sensitive land uses in the City of Beverly Hills as residences (including residences for the elderly), schools, churches, and libraries; commercial uses are not defined as noise sensitive receptors. Existing noise-sensitive uses, or receptors, within 500 feet of the Project Site include the following, as shown in **Figure IV.G-3, *Noise-Sensitive Receptors and Noise Measurement Locations***:

- N1: Multi-family residential uses approximately 20 feet to the northeast fronting the west side of South Sweetzer Avenue at Orange Street in the City of Los Angeles;
- N2: Multi-family residential uses approximately 50 feet to the north across Orange Street in the City of Los Angeles;
- N3: Multi-family residential uses approximately 185 feet to the northeast fronting the south side of Orange Street at South Sweetzer Avenue in the City of Los Angeles;
- N4: Multi-family residential uses approximately 60 feet to the east fronting the east side of South Sweetzer Avenue at Orange Street in the City of Los Angeles;

43 City of Los Angeles, 2006 L.A. CEQA Thresholds Guide, 2006, pages I.1-3, I.3-3, I.4-3, and I.4-4.

44 The Federal Highway Administration (FHWA) identifies "land uses that are not considered sensitive to noise such as agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing." Federal Highway Administration. Noise Policy FAQs – Frequently Asked Questions, http://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/faq_nois.cfm, accessed March 30, 2020.



SOURCE: Google Earth, 2016 (Aerial).

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Figure IV.G-3
Noise Sensitive Receptors and Noise Measurement Locations

- N5: Nursing home approximately 410 feet to the northwest in the City of Los Angeles
- N6: Multi-family residential uses approximately 280 feet to the south along Schumacher Drive in the City of Los Angeles; and
- N7: Multi-family residential uses approximately 300 feet to the southwest along South Tower Drive in the City of Beverly Hills

All other noise-sensitive uses are located at greater distances from the Project Site and would experience lower noise levels from potential sources of noise on the Project Site due to distance loss. There are no schools within 500 feet of the Project Site (refer to Figure IV.G-3).

(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. 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. Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Issues with groundborne vibration and noise from these sources are usually localized to areas within approximately 100 feet for highly vibration-sensitive buildings (e.g., historic buildings, hospitals with vibration sensitive equipment, Category 1) and 50 feet for residential uses (Category 2) from the vibration source.[45] Therefore, structures, with respect to potential structural damage, and people, with respect to human annoyance, in proximity (adjacent) to the Project Site are considered vibration sensitive.

As shown in Table IV.G-1, the structural category/construction type (i.e., reinforced-concrete, engineered concrete, non-engineered timber, or building susceptible to damage) determines the vibration damage criteria for a specific building/structure.[46]

With respect to human annoyance, vibration 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. Industrial or commercial (including office) land uses are not considered vibration-sensitive.[47] Therefore, all buildings and

[45] FTA, Transit Noise and Vibration Impact Assessment Manual, Table 6-8, September 2018.

[46] 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.

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

structures adjacent to the Project Site have been considered vibration-sensitive for potential structural damage, while all adjacent inhabited buildings, except for industrial and commercial uses, have been considered for human annoyance.

Existing vibration-sensitive uses within 100 feet of the Project Site include those listed in **Table IV.G-7, *Vibration-Sensitive Uses within 100 feet of the Project Site*** and shown in **Figure IV.G-4, *Vibration Sensitive Receptor Locations***:

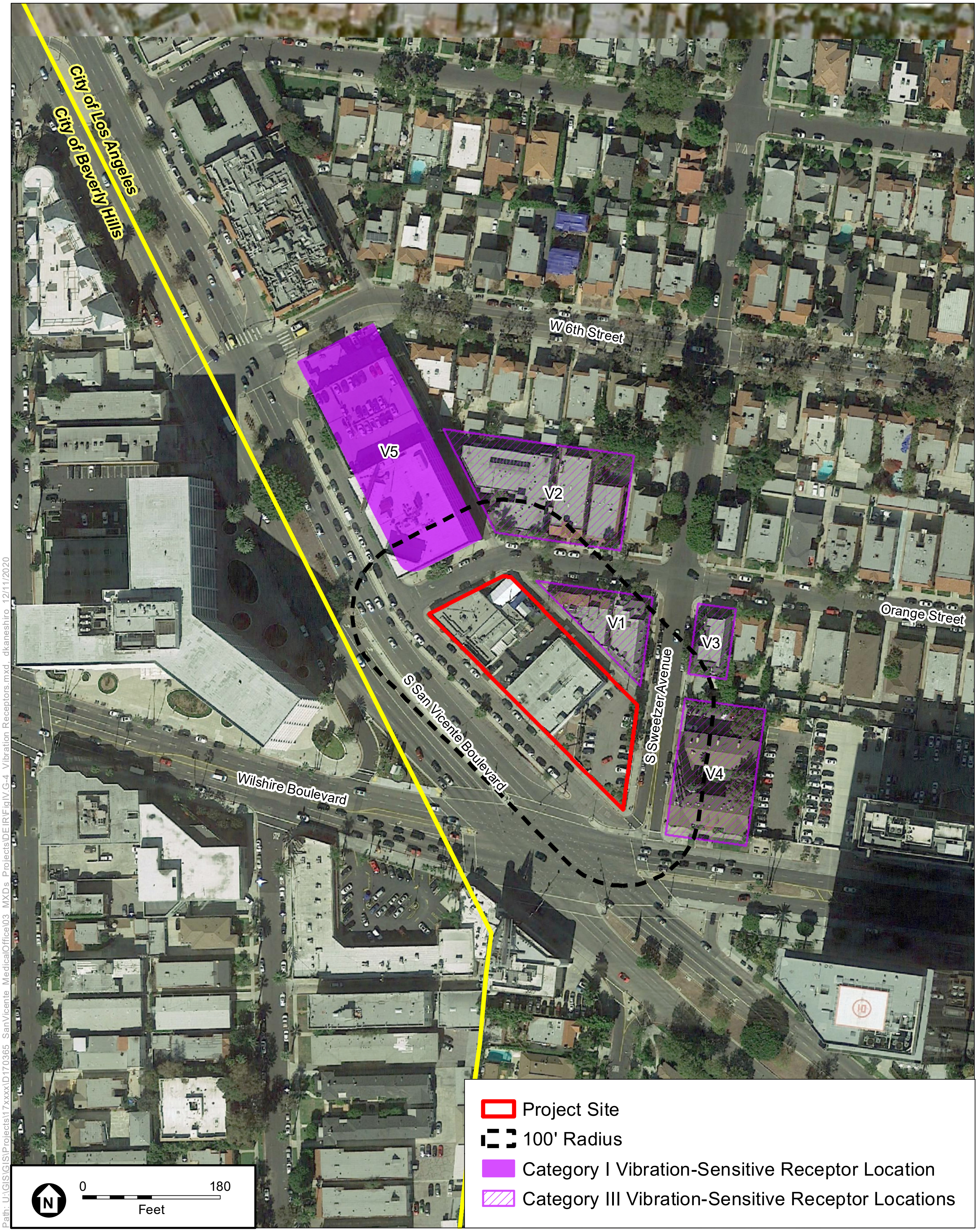
TABLE IV.G-7
VIBRATION-SENSITIVE USES WITHIN 100 FEET OF THE PROJECT SITE

Off-Site Structure [a]	Location	Land Use	Distance to Structure from Project Site	FTA Building Category
V1	Multi-family residential uses to the northeast across an alley, fronting the south side of Orange Street at South Sweetzer Avenue in the City of Los Angeles	Multi-family Residential	20 feet	Category III
V2	Multi-family residential uses to the north across Orange Street in the City of Los Angeles.	Multi-family Residential	60 feet	Category III
V3	Multi-family residential uses to the east fronting the east side of South Sweetzer Avenue at Orange Street in the City of Los Angeles.	Multi-family Residential	65 feet	Category III
V4	Two-story brick office building to the east of the Project Site across South Sweetzer Avenue in the City of Los Angeles.	Commercial	60 feet	Category III
V5	Five-story office building with an associated four-story parking structure to the northwest along South San Vicente Boulevard at Orange Street in the City of Los Angeles.	Commercial	55 feet	Category I

NOTE: Receptors V1 through V4 are conservatively assumed to be Category III structures for purposes of this analysis with a significance threshold of 0.2 in/sec PPV. Receptor V5 would consist of newly constructed structures and foundations. Therefore, receptor V5 would be a Category I receptor with a significance threshold of 0.5 in/sec PPV.

SOURCE: ESA, 2020.

Other structures and residences are located at greater distances from the Project Site to be potentially impacted by structural damage and human annoyance.



SOURCE: Google Earth, 2016 (Aerial).

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Figure IV.G-4
Vibration Receptors

(3) Ambient Noise Levels

The predominant existing noise source near the Project Site is vehicle traffic noise from South San Vicente Boulevard to the west, Wilshire Boulevard to the south, Sweetzer Avenue to the east, and Orange Street to the north. Other noise sources include general residential and commercial activities associated with refuse collection and truck loading and unloading, stationary mechanical equipment (e.g., generators, fans, condenser units, etc.).

To establish a conservative baseline for ambient noise levels, short-term, 15-minute (see "L" designations in Figure IV.G-3, above) daytime ambient noise measurements were conducted at six locations corresponding to noise-sensitive receptors (see "N" designations in Figure IV.G-3, above) in the vicinity of the Project Site on February 19, 2020 from approximately 7:00 a.m. to 9:00 a.m. One noise measurement location (L2) represents noise levels at multiple noise sensitive receptor locations (N2 and N5). 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 noise levels are used as the baseline conditions for the purposes of determining Project impacts. The measurement locations representing the existing noise environment are shown in Figure IV.G-3.

The City's methodology for noise analysis is to compare estimated Project-related noise levels to measured short-term (15-minute) weekday daytime ambient noise levels at sensitive receptors. Long-term (24-hour) noise measurements were not required to be conducted, as the operation of the proposed medical office building would be limited to daytime and evening hours with no nighttime business operations. Long term measurements are typically used to assess noise sources that would affect Community Noise Equivalent Levels (CNEL) over a 24-hour period. The proposed retail/restaurant portion of the Project would have a very small outdoor dining area (815 square feet) at the corner of Wilshire Boulevard and Sweetzer Avenue and would be primarily a daytime and evening use. Furthermore, given the very small outdoor dining area, the dining space would not be used for noise-generating events and would not generate noise equal to or in excess of already existing traffic noise on Wilshire Boulevard and Sweetzer Avenue. Because the Project's impacts are determined based on Project-related increases in baseline ambient noise levels at sensitive receptors, noise measurements were conducted outside of the peak traffic window to ensure that baseline levels do not represent elevated traffic noise and, accordingly, provide a more conservative impact analysis.[48] The measured noise levels are provided in **Table IV.G-8, *Summary of Ambient Noise Measurements at Noise Sensitive Receptors***.

48 Project impacts are determined based on increases to the measured ambient noise level. If the documented ambient noise level is elevated by peak traffic noise, the impact threshold for the Project would also be elevated.

TABLE IV.G-8
SUMMARY OF AMBIENT NOISE MEASUREMENTS AT NOISE SENSITIVE RECEPTORS

Receptor Location	Approximate Distance from Project Site to Property Line, Feet	Measured Daytime Ambient Noise Levels,[a] dBA L_{eq}
L1. Multi-family residential uses along Orange Street at South Sweetzer Avenue	20	61.1
L2. Multi-family residential uses along Orange Street between South San Vicente Boulevard and South Sweetzer Avenue	50	59.2
L3. Multi-family residential uses along Orange Street at South Sweetzer Avenue	185	59.0
L4. Multi-family residential uses along South Sweetzer Avenue at Orange Street	60	55.9
L5. Nursing home approximately 400 feet to the northeast in the City of Los Angeles	410	59.2 [b]
L6. Multi-family residential uses along Schumacher Drive	280	66.8
L7. Multi-family residential uses along South Tower Drive	300	62.7

[a] Based on measured 15-minute ambient noise levels at measurement receptors L1 through L7. Refer to Figure IV.G-3.

[b] The L2 noise measurement was used as a proxy for L5, as L2 would be representative of ambient levels at L5. The main noise source at both receptors would be traffic noise from South San Vicente Boulevard and both receptor locations are the same relative distance from South San Vicente Boulevard.

Detailed measured noise data, including hourly L_{eq} levels, are provided in Appendix H of this Draft EIR.

Noise levels for all locations are based on short-term (15-minute) measurements.

SOURCE: ESA, 2020.

(1) Existing Roadway Noise Levels

In July 2019, the City adopted new Transportation Assessment Guidelines (TAG), which changed the focus of traffic analysis pursuant to CEQA from being primarily based on assessment of intersection levels of service (LOS) to one based primarily on vehicle miles traveled (VMT). In February 2020, the Project's Memorandum of Understanding (MOU) for the Project's Traffic Assessment was executed with LADOT.[49] The intersections identified in the Project's MOU with LADOT, still serve

[49] Gibson Transportation Consulting, Inc., Transportation Assessment for the 656 South San Vicente Medical Office Project, November 2020. Provided in Appendix J-1 of this Draft EIR.

as the basis for the mobile source noise analysis provided in this section of the Draft EIR.

Existing roadway noise levels were calculated (in CNEL) for roadway segments located within the study area, based on traffic volume turning movement data at intersections identified for traffic impact analysis by the City.[50] Turning movements at each studied intersection were used to determine traffic volumes along 23 roadway segments within the Project vicinity. 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).

Existing roadway CNEL noise levels were calculated using the FHWA's Highway Traffic Noise Model (FHWA-TNM)[51] and traffic volumes at the study intersections reported in the Project's Transportation Assessment.[52] FHWA-TNM calculates the 24-hour average CNEL noise levels along roadway segments based on the traffic volumes, average speeds, and site environmental conditions. The traffic noise levels along these roadway segments are presented in **Table IV.G-9, *Modeled Existing Traffic Noise Levels***.

As shown in Table IV.G-9, the ambient noise environment in the Project Site vicinity can be characterized by 24-hour CNEL levels attributable to existing traffic volumes on local roadway segments, at a reference distance of 30 feet perpendicular in each direction from the roadway centerline towards receptor locations. The calculated CNEL from existing traffic volumes on the analyzed roadway segments ranged from 51.5 to 72.3 dBA for residential, educational, and commercial areas.

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[50] Gibson Transportation Consulting, Inc., Transportation Assessment for the 656 South San Vicente Medical Office Project, November 2020. The MOU is provided in Appendix J-1 of this Draft EIR.

[51] 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 Transportation Assessment provided in Appendix J of this Draft EIR. This methodology, considered an industry standard, allows for the definition of roadway configurations, barrier information (if any), and receiver locations.

[52] Gibson Transportation Consulting, Inc., Transportation Assessment for the 656 South San Vicente Medical Office Project, November 2020. The MOU is provided in Appendix J-1 of this Draft EIR.

TABLE IV.G-9
MODELED EXISTING TRAFFIC NOISE LEVELS

Roadway Segment	Existing Land Uses Located Along Roadway Segment	CNEL (dBA)	Land Use Compatibility (Levels Defined at the Bottom of the Table) [a]
6th Street			
Between San Vicente Boulevard and Sweetzer Avenue	Residential	64.3	A
Between Sweetzer Avenue and La Jolla Avenue	Residential	64.0	A
East of La Jolla Avenue	Residential	63.2	A
La Cienega Boulevard			
North of Wilshire Boulevard	Commercial	72.0	C
South of Wilshire Boulevard	Commercial	71.9	C
La Jolla Avenue			
Between 6th Street and Wilshire Boulevard	Residential/Commercial	60.3	A
North of 6th Street	Residential	60.3	A
South of Wilshire Boulevard	Residential/Commercial	51.5	A
McCarthy Vista/Carrillo Drive			
South of San Vicente Boulevard	Residential/Commercial /Educational	66.0	C
North of San Vicente Boulevard	Residential	66.5	C
Orange Street			
Between San Vicente Boulevard Frontage Road and Sweetzer Avenue	Residential/Commercial	53.9	A
San Vicente Boulevard			
Between Wilshire Boulevard and McCarthy Vista/Carrillo Drive	Residential/Commercial	71.6	C
East of McCarthy Vista/Carrillo Drive	Residential	69.9	C
Between 6th Street and Orange Street	Commercial	69.6	C
North of 6th Street	Commercial	72.3	C
San Vicente Boulevard Frontage Road			
Between Orange Street and Wilshire Boulevard	Commercial	69.0	C
Sweetzer Avenue			
Between 6th Street and Orange Street	Residential	55.5	A
Between Orange Street and Wilshire Boulevard	Residential/Commercial	53.6	A
North of 6th Street	Residential	57.5	A

TABLE IV.G-9
MODELED EXISTING TRAFFIC NOISE LEVELS

Roadway Segment	Existing Land Uses Located Along Roadway Segment	CNEL (dBA)	Land Use Compatibility (Levels Defined at the Bottom of the Table) [a]
Wilshire Boulevard			
Between La Cienega Boulevard and San Vicente Boulevard	Commercial	71.4	C
Between San Vicente Boulevard and La Jolla Avenue	Commercial	70.6	C
East of La Jolla Avenue	Commercial	70.3	C
West of La Cienega Boulevard	Commercial	71.4	C

[a] Refer to Table IV.G-6. As discussed therein:

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

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

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

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

SOURCE: ESA, 2020.

(1) Existing Groundborne Vibration Levels

Aside from periodic construction work occurring throughout the City, field observations noted that other sources of groundborne vibration in the vicinity of the Project Site would be limited to heavy-duty vehicles (refuse trucks, delivery trucks, etc.) traveling on local roadways. Trucks traveling on a roadway typically generate groundborne vibration velocity levels of 65 VdB (approximately 0.0068 in/sec PPV) at a reference distance of 50 feet perpendicular from a roadway.[53]

3. Project Impacts

a) Thresholds of Significance

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

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

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 structural damage and human annoyance will, as appropriate, to assist in answering the Appendix G Threshold questions. The factors to evaluate noise impacts are listed below.

(1) Construction

The 2006 L.A. CEQA Thresholds Guide, states that a project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA 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 five dBA or more at a noise-sensitive use; or
- Construction activities would exceed the ambient noise level by five dBA 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.

The City of Beverly Hills also has noise standards and regulations to control unnecessary, excessive, and annoying construction noise, as set forth in the BHMC, Title 5:[54]

- Section 5-1-205 of the BHMC prohibits construction activity between the hours of 6:00 PM and 8:00 AM any day, and on Sundays and public holidays. Further, construction work within 500 feet of a residential zone is prohibited on Saturdays.

[54] BHMC, Title 5, Section 1, Article 2, October 2019.

As discussed in **Chapter II, *Project Description***, of this Draft EIR, construction of the Project is anticipated to commence as early as 2021 and be completed as early as 2023. 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 five dBA L_{eq} or more at a noise sensitive use.

(2) Operations

The following criteria are applied to the Project, as set forth in the 2006 L.A. CEQA Thresholds Guide and the City's Noise Regulations, with the more restrictive provisions applied, to evaluate operational noise. The Project would have a significant impact from project operations if:

- The project causes the ambient noise level measured at the property line of affected uses to increase three dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" categories: or
- The Project causes the ambient noise levels measured at the property line of affected uses to increase by five dBA CNEL or more increase in noise level; or
- Project-related operational on-site (i.e., non-roadway) noise sources such as outdoor building mechanical/electrical equipment, outdoor activities, or parking facilities increase the ambient noise level (L_{eq}) at noise sensitive uses by five dBA L_{eq}.

The City of Beverly Hills also has noise standards and regulations to control unnecessary, excessive, and annoying operational noise, as set forth in the BHMC, Title 5: [55]

- Section 5-1-202 of the BHMC prohibits any person from operating machinery or mechanical devices in a manner which creates a noise increase of more than five dBA above the ambient noise level at any property.

In summary, for operational noise, the criterion for on-site operational noise is an increase in the ambient noise level of five dBA L_{eq} at an adjacent property line, in accordance with the LAMC.[56] The LAMC does not apply to off-site traffic (i.e., vehicle traveling on public roadways) noise levels. Therefore, the criteria for off-site traffic noise associated with Project operations is based on the 2006 L.A. CEQA Thresholds Guide. In addition, the criteria for composite noise levels (on-

[55] BHMC, Title 5, Section 1, Article 2, October 2019.

[56] Since the noise levels are measured at exterior locations at property lines, the noise levels inside buildings would be less than the values used for determining impacts. With windows closed, the minimum exterior-to-interior noise attenuation for typical structures in California is approximately 25 to 30 dBA or potentially more with improved noise abatement materials or techniques. See: Gordon, C.G., W.J. Galloway, B.A. Kugler, and D.L. Nelson. NCHRP Report 117: Highway Noise: A Design Guide for Highway Engineers. Washington, D.C.: Transportation Research Board, National Research Council, 1971.

site and off-site sources) are also based on the 2006 L.A. CEQA Thresholds Guide as, again, the LAMC does not apply to off-site traffic noise. Therefore, the criteria used for determining impacts related to off-site operational noises and composite operational noise are an increase in the ambient noise level of five dBA CNEL or three dBA CNEL to or within the "normally unacceptable" or "clearly unacceptable" categories, respectively, depending on the existing noise conditions at the affected noise-sensitive land use.

(3) Groundborne Vibration

The City has not adopted criteria to assess vibration impacts during construction. Thus, for this Project, the City has determined to use the FTA's criteria for structural damage and human annoyance, as described in Tables IV.G-1 and IV.G-2, respectively, to evaluate potential impacts related to Project construction and operation, as summarized below.

- Potential Structural 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 Structural 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 Structural 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 Structural 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 structural 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 theater uses.
- Project construction and operational activities cause groundborne vibration levels to exceed 75 VdB at off-site institutional uses.

b) Methodology

The methodology for evaluating off-site construction noise and vibration and on-site and off-site operational noise and vibration is also discussed below and the calculation assumptions and results are also provided in Appendix H of this Draft EIR.

(1) On-Site Noise (Construction)

Construction noise impacts due to on-site construction activities associated with the Project were evaluated by calculating the construction-related noise levels at nearby sensitive receptor locations and comparing these estimated construction-related noise levels associated with construction of the Project to the existing ambient noise levels (i.e., noise levels without construction noise from the Project). On-site construction noise associated with the Project was analyzed based on the Project's potential construction equipment inventory, construction durations, and construction schedule. This information is provided in Appendix H of this Draft EIR. The construction equipment noise levels are based on the published noise data (equipment source levels) by FHWA's Roadway Construction Noise Model (RCNM).[57] 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 six 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 noise attenuation (i.e., reduction) was assigned for receptor locations where the acoustic line-of-sight would be just interrupted (i.e., around the edge of a building) and a 10-dBA noise attenuation for receptor locations where the acoustic line-of-sight would be fully interrupted (i.e., by intervening buildings).

(2) On-Site Noise (Operations)

Stationary noise impacts were evaluated qualitatively by identifying the noise levels generated by outdoor stationary noise sources, such as, rooftop mechanical equipment, parking structure, and loading area activity, and accounting for these facilities to be enclosed, comparing such noise levels to existing ambient noise levels. For people gathering and talking in open spaces, the hourly L_{eq} noise level was calculated at the nearest sensitive receptor property lines. Operational noise, based on the above methodology and assumptions, would result in potentially significant impacts if noise levels exceed the significance threshold identified above in **Subsection IV.G.3.a),** ***Thresholds of Significance***.

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

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

Roadway noise impacts were evaluated using the FHWA TNM based on the roadway traffic volume data provided in the Transportation Assessment prepared for the Project and included Appendix H of this Draft EIR.[58] This method allows for the definition of roadway configurations, barrier information (if any), and receiver locations. Roadway noise attributable to Project development was calculated and compared to baseline noise levels that would occur under the "Without Project" condition.

(4) Groundborne Vibration (Construction and Operation)

Groundborne vibration impacts due to the Project's construction activities were evaluated by identifying potential vibration sources (i.e., construction equipment), estimating the vibration levels at the potentially affected receptor, and comparing the Project's activities to the applicable vibration significance thresholds. Vibration levels were calculated based on the FTA published standard vibration velocities for various construction equipment operations.[59] The vibration velocities were calculated based on a point source with standard distance propagation conditions, pursuant to FTA procedures. Construction of the Project would not use impact pile driving methods, and as such, impact pile driving vibration is not included in this construction vibration analysis. However, this analysis includes use of augured or drilled piles, as proposed for use by the Project, which are less vibration-intensive than impact pile driving.

c) Project Design Features

The following project design feature related to noise and vibration would be implemented as part of the Project:

- **NOI-PDF-1: Impact Pile Driving and Blasting Prohibitions.** The Project will not use or allow impact pile drivers and will not require or allow blasting during construction activities. Augured or drilled piles are allowed.

[58] Gibson Transportation Consulting, Inc., Transportation Assessment for the 656 South San Vicente Medical Office Project, November 2020. Provided in Appendix J-1 of this Draft EIR.

[59] FTA, Transit Noise and Vibration Impact Assessment Manual, Table 7-4, September 2018.

d) Analysis of Project Impacts

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

(1) Impact Analysis

(a) Construction

(i) On-Site Construction Noise

Project construction activities would be required to comply with the Ordinance Nos. 144,331 and 161,574, which prohibit the emission or creation of noise higher than 75 dBA at 50 feet from the equipment, unless technically infeasible.[60] In addition, the Project would be subject to LAMC Section 91.106.4.8 (Construction Site Notice, Ordinance No. 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 location of the equipment, the timing and duration of the noise-generating construction activities, and the relative distance to noise-sensitive receptors. Construction activities of the Project would generally include site demolition, site preparation, grading/excavation, drainage/utilities/trenching, building construction, foundation concrete pouring, architectural coating, and paving. Each phase of construction would involve the use of various types of construction equipment and would, therefore, have its own distinct noise characteristics. A list of the construction equipment that would be used during each phase of construction is provided below and in Appendix H of this Draft EIR. Noise from construction equipment would generate both steady-state and episodic noise that could be heard within and adjacent to the Project Site.

Construction noise levels fluctuate throughout a given workday as construction equipment move from one location to another within a project site. When construction equipment would be in use further away from a sensitive receptor

60 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.

location, construction noise levels would be lower than the calculated values provided herein, which assumes construction equipment would be in use nearest to a sensitive receptor location. Exposure to fluctuating construction noise levels that would at times be lower than the noise levels shown in the analysis below would not rise to the level that would result in hearing loss[61] or adverse health impacts.

Individual pieces of construction equipment that would be used for Project construction produce maximum noise levels of 75 to 90 dBA L_{max} at a reference distance of 50 feet from the noise source, as shown in **Table IV.G-10, *Project Construction Equipment Reference Noise Levels and Usage Factors***. The construction equipment noise levels at 50 feet (Referenced Maximum Noise Levels) are based on the FHWA RCNM User's Guide,[62] which is a technical report containing actual measured noise data for construction equipment. These maximum noise levels would occur when equipment is operating under full power conditions (i.e., the equipment engine at maximum speed). However, equipment used on construction sites often operates under less than full power conditions or part power. To more accurately characterize construction-period noise levels, the average (hourly L_{eq}) noise level associated with each construction phase is calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each construction phase.[63] These noise levels are typically associated with multiple pieces of equipment operating simultaneously.

TABLE IV.G-10
PROJECT CONSTRUCTION EQUIPMENT REFERENCE NOISE LEVELS AND USAGE FACTORS

Type of Equipment	Number of Equipment	Reference Noise Level at 50 Feet, L_{max}	Estimated Usage Factor
Demolition			
Concrete Saw	1	90	20%
Tractor/Loader/Backhoe	2	80	25%
Excavator	2	81	40%
Forklift	1	75	10%
Dozer	2	82	40%
Front End Loader	1	79	40%

61 United States Department of Labor, Occupational Safety and Health Administration, Occupational Safety and Health Standards Part 1910, Standard 1910.95.

62 FHWA, Roadway Construction Noise Model, 2006.

63 Pursuant to the FHWA Roadway Construction Noise Model User's Guide, 2005, the usage factor is the percentage of time during a construction noise operation that a piece of construction is operating at full power.

TABLE IV.G-10
PROJECT CONSTRUCTION EQUIPMENT REFERENCE NOISE LEVELS AND USAGE FACTORS

Type of Equipment	Number of Equipment	Reference Noise Level at 50 Feet, L_{max}	Estimated Usage Factor
Site Preparation			
Forklift	1	75	10%
Front End Loader	1	79	40%
Tractor/Loader/Backhoe	3	80	25%
Grading/Excavation			
Bore/Drill Rig Truck	2	79	20%
Excavator	2	81	40%
Compactor (ground)	1	83	20%
Forklift	1	75	10%
Rubber Tired Loader	1	79	40%
Front End Loader	1	79	40%
Tractor/Loader/Backhoe	3	80	25%
Drainage/ Utilities/ Trenching			
Excavator	1	81	40%
Forklift	2	75	10%
Front End Loader	1	79	40%
Tractor/Loader/Backhoe	2	80	25%
Other Equipment	1	85	50%
Foundations			
Cement and Mortar Mixers	4	79	40%
Cranes	1	81	16%
Forklift	2	75	10%
Pumps	2	81	50%
Front End Loader	1	79	40%
Tractor/Loader/Backhoe	2	80	25%
Building Construction			
Man Lift	1	75	20%
Air Compressor	1	78	40%
Cement and Mortar Mixers	1	79	40%
Cranes	1	81	16%
Forklift	4	75	10%
Generator Sets	3	81	50%

TABLE IV.G-10
PROJECT CONSTRUCTION EQUIPMENT REFERENCE NOISE LEVELS AND USAGE FACTORS

Type of Equipment	Number of Equipment	Reference Noise Level at 50 Feet, L_{max}	Estimated Usage Factor
Concrete Saw	4	90	20%
Welders	6	75	10%
Architectural Coating			
Air Compressor	1	78	40%
Paving			
Paver	2	77	50%
Other Equipment	2	85	50%
Roller	2	80	20%
Forklift	1	75	10%

SOURCE: FHWA, Roadway Construction Noise Model User's Guide, 2006, Table 1.

Table IV.G-11, *Construction Noise Levels at Off-Site Sensitive Receptor Locations*, provides the estimated construction noise levels at the off-site sensitive uses for construction activities at the Project Site. To present a conservative impact analysis, the estimated noise levels were calculated with all pieces of construction equipment assumed to operate simultaneously and located at construction areas nearest to the affected receptors. In addition, the analysis accounts for overlapping construction phases that would occur on the Project Site. **As indicated in Table IV.G-11, the estimated noise levels due to overlapping construction activities would exceed the significance threshold at receptors, and, therefore, construction noise impacts would be potentially significant.**

TABLE IV.G-11
CONSTRUCTION NOISE LEVELS AT OFF-SITE SENSITIVE RECEPTOR LOCATIONS

		Estimated Noise Levels by Construction Phase, dBA (L_{eq})											
Location	**Distance to Const. Site, feet**	**Demo-lition**	**Site Preparation**	**Grading/ Excavation**	**Drainage/ Utilities/ Trenching**	**Foun-dations**	**Building Construc-tion**	**Architectural Coating**	**Paving**	**Building Construction + Foundations**	**Building Construction + Arch Coatings + Paving**	**Significance Threshold,[a] dBA (L_{eq})**	**Potentially Significant Impact?**
L1	20	**92**	**87**	**90**	**85**	**89**	**92**	**82**	**94**	**94**	**96**	66.1	**Yes**
L2	50	**84**	**79**	**83**	**78**	**82**	**85**	**74**	**86**	**87**	**89**	64.2	**Yes**
L3	185	**69**	63	**67**	**65**	**68**	**75**	58	**70**	**76**	**76**	64.0	**Yes**
L4	60	**83**	**77**	**81**	**76**	**80**	**84**	**72**	**84**	**86**	**87**	60.9	**Yes**
L5	410	**67**	61	**65**	63	**65**	**73**	56	**68**	**74**	**74**	64.2[b]	**Yes**
L6	280	70	64	68	66	68	**75**	59	71	**76**	**77**	71.8	**Yes**
L7	300	**70**	64	**68**	67	**69**	**77**	58	**70**	**78**	**78**	67.7	**Yes**

[a] Significance thresholds are equivalent to the measured daytime ambient noise levels plus five dBA.
[b] The L2 significance threshold was used as a proxy for L5, as L2 would be representative of ambient levels at L5. The main noise source at both receptors would be traffic noise from South San Vicente Boulevard and both receptor locations are the same relative distance from South San Vicente Boulevard.

Bold-faced represents noise levels exceeded the significance threshold.

SOURCE: ESA, 2020.

(i) Off-Site Construction Noise

Construction truck trips would occur throughout the construction period and would be associated with hauling material and excavated soil from the Project Site and delivering building materials, supplies, and concrete to the Project Site. For purposes of this off-site construction noise analysis, the concrete pour stage was analyzed, which represents the worst-case day with the most construction traffic an estimated maximum of approximately 20 worker's vehicle round trips, six vendor truck trips, and approximately 92 haul truck round trips would occur per day. The analysis conservatively assumes all workers arrive during a peak hour while vendor and haul truck trips are spread out over a six-hour construction haul period resulting in approximately one vendor trip and 15 haul truck trips during a peak hour.

As discussed in the Project's Transportation Assessment (refer to Appendix J of this Draft EIR), Project haul trucks (e.g., trucks hauling dirt) would be required to use City-approved haul truck routes. For haul trucks, several approved haul routes are available to and from the Project Site, depending on the location of the receiving landfills used to deposit materials. Landfills may include Sunshine Canyon, Chiquita Landfill, or other County or regional sites. If the landfill is accessed via I-10, one available outbound haul route is from the Project Site westbound via Wilshire Boulevard and southbound on South La Cienega Boulevard to the I-10 eastbound or westbound on-ramps. The inbound haul route would use the I-10 northbound or southbound off-ramps, northbound on South La Cienega Boulevard, and eastbound on Wilshire Boulevard to the Project Site. Another inbound and/or outbound haul route would be northbound South San Vicente Boulevard, westbound on North Santa Monica Boulevard, and northbound or southbound on the I-405 freeway on-ramps.

Concrete trucks and worker vehicles would not be subject to the City-approved haul route. Because concrete trucks and worker vehicles would come from a variety of locations and it would be speculative to assume which roadways would be traveled by concrete trucks and worker vehicles, noise associated with all peak hour worker and concrete truck trips have been assumed for all segments that are considered for the operational traffic analysis. This analysis represents worst-case construction traffic conditions and the studied segments encompass the possible haul routes for the haul trucks.

As shown in **Table IV.G-12, *Estimate of Off-Site Construction Traffic Noise Levels***, the Project's construction trips by themselves would not increase traffic noise levels exceeding thresholds. **Therefore, off-site construction traffic noise impacts would be less than significant.**

TABLE IV.G-12
ESTIMATE OF OFF-SITE CONSTRUCTION TRAFFIC NOISE LEVELS

Roadway Segment	Existing Land Uses Located Along Roadway Segment	dBA L_{eq} Existing (A)	Construction Traffic (B)	Existing Plus Construction Traffic (A+B=C)	Project Increment (C-A)	Exceed Threshold?
La Cienega Boulevard						
North of Wilshire Boulevard	Commercial	72.0	60.3	72.3	0.3	No
South of Wilshire Boulevard	Commercial	71.9	60.3	72.1	0.3	No
San Vicente Boulevard						
Between Wilshire Boulevard and McCarthy Vista/Carrillo Drive	Residential/Commercial	71.6	60.3	71.9	0.3	No
East of McCarthy Vista/Carrillo Drive	Residential	69.9	60.3	70.3	0.5	No
Between 6th Street and Orange Street	Commercial	69.6	60.3	70.0	0.5	No
North of 6th Street	Commercial	72.3	60.3	72.6	0.3	No
San Vicente Boulevard Frontage Road						
Between Orange Street and Wilshire Boulevard	Commercial	69.0	60.3	69.5	0.6	No
Wilshire Boulevard						
Between La Cienega Boulevard and San Vicente Boulevard	Commercial	71.4	60.3	71.7	0.3	No
Between San Vicente Boulevard and La Jolla Avenue	Commercial	70.6	60.3	70.9	0.4	No
East of La Jolla Avenue	Commercial	70.3	60.3	70.7	0.4	No
West of La Cienega Boulevard	Commercial	71.4	60.3	71.8	0.3	No

SOURCE: ESA, 2020; Gibson Transportation Consulting, Inc., 2020.

(b) Operation

(i) On-Site Operational Noise

(a) Fixed Mechanical Equipment

Mechanical equipment, such as heating, ventilation, and air conditioning (HVAC) units and cooling towers, would be located on the rooftops of the proposed building. The rooftop equipment noise levels would attenuate greatly given their positions above and out of the line-of-sight from the street level. Therefore, the noise contribution from mechanical equipment would be minimal and far less than the ambient noise levels at the sensitive receptors. **Therefore, the mechanical equipment would not result in noise levels above the applicable standards, and impacts would be less than significant.**

(b) Outdoor Spaces

As discussed in **Chapter II, *Project Description***, of the Draft EIR, the Project would incorporate publicly accessible open space and amenities, available to the general public, as well as common and private open space for use by employees. The ground floor would include 815 square feet dedicated to outdoor seating for the proposed restaurant use. In addition, Floors 6 through 10 would include small terraced landscaped patios overlooking South San Vicente Boulevard for exclusive use by the building tenants. In particular, Floor 6 would include 1,864 square feet of landscaped floor area: Floor 7, 328 square feet; Floor 8, 570 square feet: Floor 9, 533: and Floor 10, 533 square feet. Because of the height of Project buildings and the location of certain outdoor spaces on upper floors/rooftops, the height of Project buildings has been accounted for to calculate the distance of outdoor spaces to the nearest sensitive receptor.

The occupant load of Project outdoor spaces was estimated based on the occupancy load factors according to the California Building Code Table 1004.5, Maximum Floor Area Allowances Per Occupant.[64] Although this occupancy load factor may result in an overestimation of the occupancy load within passive landscaped areas, it has been applied to the square footage of the Project's outdoor spaces to provide conservative worst-case analysis.

Noise from female adults, male adults, and children talking normally is approximately 55 dBA, 58 dBA, and 58 dBA, respectively, at a reference distance of three feet.[65] As a conservative analysis, the analysis for each outdoor spaces assumes that each outdoor space would be at full capacity 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 (assuming approximately half of the occupants talking and the other half listening). At the maximum estimated capacities for each open space area, occupants would be dispersed throughout the areas and were modeled as such.

Accounting for distance attenuation (six dBA per doubling of distance) and barrier-insertion loss by the existing buildings (minimum 15 dBA insertion loss), noise levels of approximately 39 dBA at 102 feet (the nearest sensitive receptor to the Project's ground-floor outdoor uses). Therefore, the noise contribution from

64 California Building Standards Commission, 2019 Title 24, Part 2, Volume 1 – California Building Code.

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

outdoor spaces would be minimal and far less than the ambient noise levels at the sensitive receptors. **Therefore, the outdoor spaces would not increase the ambient noise levels greater than five dBA and would not result in noise levels above the applicable standards, and impacts would be less than significant.**

(c) Parking Facilities

As discussed in **Chapter II, *Project Description***, of the Draft EIR, the Project proposes the construction of above-grade structured parking spanning the buildings' footprints. Parking provided would meet City parking requirements. The above-grade level parking would be completely enclosed on all sides, therefore, noise generated within the parking structures would be shielded from off-site sensitive receptor locations in the immediate vicinity of the Project Site. **Therefore, noise generated by vehicles within the parking structures would be minimal, and impacts would be less than significant.**

(c) Loading Dock and Refuse Collection

The Project would include a loading dock, generator, compactors, biohazardous storage area, and receiving storage area would be located on the western portion of the Project Site. The loading dock would serve the office and retail-commercial uses and would be located and accessed from Orange Street. No vehicular access would be provided through the alley. Loading areas for vendors, deliveries, and trash pickups would be completely enclosed and would shield the surrounding sensitive receptors from any noise from loading/unloading and refuse operations. **Therefore, noise from the loading docks and refuse collection would not result in excess noise levels at the surrounding sensitive receptors, and impacts would be less than significant.**

(d) Emergency Generators

Stationary sources would also include emergency generator capacity for the building on the Project Site with an estimated capacity rated at approximately 1,500 kilowatts (2,012 horsepower), which would provide emergency power primarily for lighting and other emergency building systems. The emergency generators would be located within an enclosure in the loading dock area that would substantially minimize noise levels to the environment. **Given their location within an enclosure, and their limited use, emergency generators would not contribute to an increase in day-to-day operational ambient noise levels, and impacts would be less than significant.**

(e) On-Site Composite Noise Levels

The composite noise levels would include all operational sources including fixed mechanical equipment, outdoor spaces, parking facility, loading dock and refuse collection, and emergency generator at each sensitive receptor. **Given the enclosure of these sources or limited activity or noise level (outdoor spaces)**

would be below the threshold of five dBA over ambient at all off-site sensitive receptors. Therefore, operational noise impacts would be less than significant.

(ii) Off-Site Operational Noise

(a) Impacts Under Existing Traffic Baseline Conditions

Existing roadway noise levels were calculated along various arterial segments adjacent to the Project Site. Roadway noise attributable to Project operation was calculated using the traffic noise model previously described and was compared to existing noise levels in the vicinity.

Project impacts are shown in **Table IV.G-13, *Off-Site Traffic Noise Impacts – Existing Plus Project Conditions***. As indicated, the increase in traffic noise levels along all roadway segments, would not exceed the significance threshold of at three dBA CNEL increase to or within the "normally unacceptable" or "clearly unacceptable" categories or the significance threshold of five dBA CNEL or greater noise increase (refer to Table IVGI-3). **Therefore, operation under Existing Plus Project Conditions would not result in off-site traffic-related noise impacts in excess of City standards, and impacts would be less than significant.**

TABLE IV.G-13
OFF-SITE TRAFFIC NOISE IMPACTS – EXISTING PLUS PROJECT CONDITIONS

		CNEL (dBA)			
Roadway Segment	**Existing Land Uses Located Along Roadway Segment**	**Existing (A)**	**Existing with Project (B)**	**Project Increment (B-A)**	**Exceed Threshold?**
6th Street					
Between San Vicente Boulevard and Sweetzer Avenue	Residential	64.3	64.6	0.3	No
Between Sweetzer Avenue and La Jolla Avenue	Residential	64.0	64.1	0.2	No
East of La Jolla Avenue	Residential	63.2	63.5	0.3	No
La Cienega Boulevard					
North of Wilshire Boulevard	Commercial	72.0	72.0	0.0	No
South of Wilshire Boulevard	Commercial	71.9	71.9	0.1	No
La Jolla Avenue					
Between 6th Street and Wilshire Boulevard	Residential/Commercial	60.3	60.3	0.0	No
North of 6th Street	Residential	60.3	60.3	0.0	No
South of Wilshire Boulevard	Residential/Commercial	51.5	51.5	0.0	No

TABLE IV.G-13
OFF-SITE TRAFFIC NOISE IMPACTS – EXISTING PLUS PROJECT CONDITIONS

Roadway Segment	Existing Land Uses Located Along Roadway Segment	CNEL (dBA)			
		Existing (A)	Existing with Project (B)	Project Increment (B-A)	Exceed Threshold?
McCarthy Vista/Carrillo Drive					
South of San Vicente Boulevard	Residential/Commercial/ Educational	66.0	66.0	0.0	No
North of San Vicente Boulevard	Residential	66.5	66.5	0.0	No
Orange Street					
Between San Vicente Boulevard Frontage Road and Sweetzer Avenue	Residential/Commercial	53.9	58.0	4.1	No
San Vicente Boulevard					
Between Wilshire Boulevard and McCarthy Vista/Carrillo Drive	Residential/Commercial	71.6	71.7	0.1	No
East of McCarthy Vista/Carrillo Drive	Residential	69.9	70.0	0.2	No
Between 6th Street and Orange Street	Commercial	69.6	69.9	0.4	No
North of 6th Street	Commercial	72.3	72.4	0.1	No
San Vicente Boulevard Frontage Road					
Between Orange Street and Wilshire Boulevard	Commercial	69.0	69.4	0.4	No
Sweetzer Avenue					
Between 6th Street and Orange Street	Commercial	55.5	59.8	4.3	No
Between Orange Street and Wilshire Boulevard	Residential/Commercial	53.6	54.5	0.9	No
North of 6th Street	Residential	57.5	57.6	0.1	No
Wilshire Boulevard					
Between La Cienega Boulevard and San Vicente Boulevard	Commercial	71.4	71.6	0.1	No
Between San Vicente Boulevard and La Jolla Avenue	Commercial	70.6	70.6	0.1	No
East of La Jolla Avenue	Commercial	70.3	70.4	0.1	No
West of La Cienega Boulevard	Commercial	71.4	71.5	0.1	No

SOURCE: ESA, 2020.

(b) Impacts Under Future (2023) Plus Project Condition

Future (2023) roadway noise levels were calculated along various arterial segments adjacent to the Project as compared to 2023 traffic noise levels that would occur with implementation of the Project. Project impacts are shown in **Table IV.G-14, *Off-Site Traffic Noise Impacts – Future (2023) Plus Project Condition***. As indicated, the increase in traffic noise levels along all roadway segments would not exceed the significance threshold of three dBA CNEL increase to or within the “normally unacceptable” or “clearly unacceptable” categories or the significance threshold of any five dBA CNEL or greater noise increase (refer to Table IV.G-6). **Therefore, operation under Future (2023) Plus Project condition would not result in off-site traffic-related noise impacts in excess of City standards, and impacts would be less than significant.**

TABLE IV.G-14
OFF-SITE TRAFFIC NOISE IMPACTS – FUTURE (2023) PLUS PROJECT CONDITION

Roadway Segment	Existing Land Uses Located Along Roadway Segment	CNEL (dBA)			
		Future (A)	Future with Project (B)	Project Increment (B-A)	Exceed Threshold?
6th Street					
Between San Vicente Boulevard and Sweetzer Avenue	Residential	64.5	64.8	0.3	No
Between Sweetzer Avenue and La Jolla Avenue	Residential	64.3	64.4	0.2	No
East of La Jolla Avenue	Residential	63.6	63.9	0.3	No
La Cienega Boulevard					
North of Wilshire Boulevard	Commercial	72.4	72.4	0.0	No
South of Wilshire Boulevard	Commercial	72.2	72.3	0.1	No
La Jolla Avenue					
Between 6th Street and Wilshire Boulevard	Residential/Commercial	60.8	60.8	0.0	No
North of 6th Street	Residential	60.7	60.7	0.0	No
South of Wilshire Boulevard	Residential/Commercial	51.7	51.7	0.0	No
McCarthy Vista/Carrillo Drive					
South of San Vicente Boulevard	Residential/Commercial/ Educational	66.1	66.1	0.0	No
North of San Vicente Boulevard	Residential	66.7	66.7	0.0	No

TABLE IV.G-14
OFF-SITE TRAFFIC NOISE IMPACTS – FUTURE (2023) PLUS PROJECT CONDITION

Roadway Segment	Existing Land Uses Located Along Roadway Segment	CNEL (dBA)			
		Future (A)	Future with Project (B)	Project Increment (B-A)	Exceed Threshold?
Orange Street					
Between San Vicente Boulevard Frontage Road and Sweetzer Avenue	Residential/Commercial	54.8	58.4	3.6	No
San Vicente Boulevard					
Between Wilshire Boulevard and McCarthy Vista/Carrillo Drive	Residential/Commercial	71.8	71.9	0.1	No
East of McCarthy Vista/Carrillo Drive	Residential	70.2	70.4	0.2	No
Between 6th Street and Orange Street	Residential/Commercial	69.8	70.2	0.3	No
North of 6th Street	Commercial	72.6	72.6	0.1	No
San Vicente Boulevard Frontage Road					
Between Orange Street and Wilshire Boulevard	Commercial	69.2	69.6	0.4	No
Sweetzer Avenue					
Between 6th Street and Orange Street	Residential	57.2	60.5	3.3	No
Between Orange Street and Wilshire Boulevard	Residential/Commercial	54.6	56.0	1.4	No
North of 6th Street	Residential	57.7	57.8	0.1	No
Wilshire Boulevard					
Between La Cienega Boulevard and San Vicente Boulevard	Commercial	71.8	71.9	0.1	No
Between San Vicente Boulevard and La Jolla Avenue	Commercial	71.0	71.0	0.1	No
East of La Jolla Avenue	Commercial	70.9	70.9	0.1	No
West of La Cienega Boulevard	Commercial	71.9	71.9	0.1	No

SOURCE: ESA, 2020.

(2) Mitigation Measures

The following mitigation measures would reduce potentially significant construction-related noise impacts at the off-site noise sensitive receptors:

- **NOI-MM-1:** The Project shall provide temporary ground-level construction noise barriers, with a minimum height of eight feet and up to a height of 15 feet along the alleyway along the northeast property line, equipped with noise blankets or equivalent noise reduction materials rated to achieve sound level reductions of at least 10 dBA between the Project Site and ground-level sensitive receptor locations. These temporary noise barriers shall be used to block the line-of-sight between the construction equipment and the noise-sensitive receptor(s) during the duration of construction activities. Prior to obtaining any permits, documentation prepared by a noise consultant verifying compliance with this measure shall be submitted to the Department of City Planning.

- **NOI-MM-2:** Noise- and vibration-generating construction equipment whose specific location on the Project Site may be flexible (e.g., compressors and generators) shall be located away from the nearest off-site sensitive land uses (at least 100 feet away), 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 state-of-the-art noise shielding and muffling devices. Flexible sound control curtains shall be placed around all drilling apparatuses, drill rigs, and jackhammers when in use that shall achieve a sound level reduction of at least 10 dBA between the Project Site and ground-level sensitive receptor locations.

- **NOI-MM-4:** A construction liaison shall be provided to inform the nearby receptors when peak noise and vibration activities are scheduled to occur. Two weeks prior to the commencement of construction at the Project Site, notification shall be provided to properties identified as sensitive receptors that discloses the construction schedule, including the various types of activities and equipment that would be occurring throughout the duration of the construction period.

(3) Level of Significance After Mitigation

Implementation of the Mitigation Measures NOI-MM-1 through NOI-MM-4, 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.[66] However, with implementation of technical feasible mitigation, construction noise impacts at

[66] 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.

noise-sensitive receptors would still exceed the significance threshold at L1, L2, L3, L4, and L7, as shown in **Table IV.G-15, *Mitigated Construction Noise Levels at Off-Site Sensitive Receptor Locations,*** below. Therefore, construction noise impacts associated with on-site noise sources would remain temporarily significant and unavoidable. While construction noise impacts would be temporarily significant and unavoidable, construction noise levels fluctuate throughout a given workday as construction equipment move from one location to another within a project site. When construction equipment would be in use further away from a sensitive receptor location, construction noise levels would be lower than the calculated values provided herein, which assumes construction equipment would be in use nearest to a sensitive receptor location.

Operational noise impacts were determined to be less than significant. Therefore, no mitigation measures were required or included, and the operational impact level remains less than significant.

TABLE IV.G-15
MITIGATED CONSTRUCTION NOISE LEVELS AT OFF-SITE SENSITIVE RECEPTOR LOCATIONS

Location	Distance to Const. Site, feet	Estimated Noise Levels by Construction Phase, dBA (L_{eq})										Significance Threshold,[a] dBA (L_{eq})	Potentially Significant Impact?
		Demo-lition	Site Preparation	Grading/ Excavation	Drainage/ Utilities/ Trenching	Foun-dations	Building Construc-tion	Architectural Coating	Paving	Building Construction + Foundations	Building Construction + Arch Coatings + Paving		
L1	20	**82**	**77**	**80**	**75**	**79**	**82**	**72**	**84**	**84**	**86**	66.1	**Yes**
L2	50	**74**	**69**	**73**	**68**	**72**	**75**	64	**76**	**77**	**79**	64.2	**Yes**
L3	185	59	53	57	55	58	**65**	48	60	**66**	**66**	64.0	**Yes**
L4	60	**73**	**67**	**71**	**66**	**70**	**74**	**62**	**74**	**76**	**77**	60.9	**Yes**
L5	410	47	41	45	43	45	53	36	48	54	54	64.2 [b]	**No**
L6	280	60	54	58	56	58	65	49	61	66	67	71.8	**No**
L7	300	60	54	58	57	59	67	48	60	**68**	**68**	67.7	**Yes**

[a] Significance thresholds are equivalent to the measured daytime ambient noise levels plus five dBA.
[b] The L2 significance threshold was used as a proxy for L5, as L2 would be representative of ambient levels at L5. The main noise source at both receptors would be traffic noise from South San Vicente Boulevard and both receptor locations are the same relative distance from South San Vicente Boulevard.

Bold-faced represents noise levels exceeded the significance threshold.

SOURCE: ESA, 2020.

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

(1) Impact Analysis

(a) Construction

(i) Structural Damage

Construction activities can generate varying degrees of ground vibration, depending on the construction procedures and the type of construction equipment used. The operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies, depending on soil type, ground strata, and construction characteristics of the receptor buildings.

Construction activities can generate varying degrees of ground vibration, depending on the construction procedures and the type of construction equipment used. The operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies, depending on soil type, ground strata, and construction characteristics of the receptor buildings.

Construction activities at the Project Site have the potential to generate relatively low levels of groundborne vibration from the operation of heavy equipment (e.g., backhoe, dozer, excavators, drill rig, loader, scraper, and haul trucks), which generates vibrations that propagate through the ground and diminish in intensity with distance from the source. In accordance with Project Design Feature NOI-PDF-1, impact pile driving is not a part of the construction program and has therefore not been included in the on-site construction vibration analysis. Installation of piles for shoring and foundation would utilize drilling methods to minimize vibration generation.

Project construction would generate a range of ground vibration levels, depending on the construction activities and the construction equipment used. The FTA reference vibration velocity levels for several types of heavy-duty construction equipment, estimated at increasing distances, are identified in **Table IV.G-16, *Construction Vibration Impacts – Structural Damage***.

TABLE IV.G-16
CONSTRUCTION VIBRATION IMPACTS – STRUCTURAL DAMAGE

Off-Site Structure[a]	Distance to Source	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Source of Vibration (in/sec PPV)[b]					Significance Threshold[c]	Exceed Significance Thresholds?
Off-Road Construction Equipment								
		Large Bulldozer	**Drill Rig**	**Loaded Trucks**	**Jack-hammer**	**Small Bulldozer**		
FTA Reference Vibration Levels	*25 feet*	*0.089*	*0.089*	*0.076*	*0.035*	*0.003*	--	--
V1	20 feet	0.124	0.124	0.106	0.049	0.004	0.2	No
V2	60 feet	0.024	0.024	0.020	0.009	0.001	0.2	No
V3	65 feet	0.021	0.021	0.018	0.008	0.001	0.2	No
V4	60 feet	0.024	0.024	0.020	0.009	0.001	0.2	No
V5	55 feet	0.027	0.027	0.023	0.011	0.001	0.5	No

[a] Represents off-site building structures located nearest to the Project Site to the north, south, and west.
[b] Vibration level calculated based on FTA reference vibration level at 25-foot reference distance.
[c] FTA criteria for reinforced-concrete, steel, or timber (no plaster) structures (0.5 in/sec PPV) and for buildings susceptible to vibration damage (0.12 in/sec PPV).

SOURCE: FTA, Transit Noise and Vibration Impact Assessment Manual, 2018; ESA, 2020.

Table IV.G-16 provides the estimated vibration velocity levels at the nearest off-site structures to the Project Site, which include V1 (multi-family residential uses approximately 20 feet to the northeast across an alley), V2 (multi-family residential uses approximately 60 feet to the north), V3 (Multi-family residential uses approximately 65 feet to the northeast), V4 (Two-story brick office building approximately 60 feet to the east and V5 (a five-story office building with an associated parking structure approximately 55 feet to the north). All other buildings in the area would be located at greater distances to the Project Site and would experience lower vibration velocities from on-site construction activity.

Receptors V1 through V4 are conservatively assumed to be Category III structures for purposes of this analysis with a significance threshold of 0.2 in/sec PPV.[67]

Receptor V5 would consist of newly constructed structures and foundations. Therefore, receptor V5 would be a Category I receptor with a significance threshold of 0.5 in/sec PPV. [68]

[67] FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018, page 186.
[68] FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018, page 186.

As indicated in Table IV.G-16, the estimated vibration velocity levels from construction equipment would not exceed the significance threshold of 0.2 in/sec PPV at V1 through V4 or the significance threshold of 0.5 in/sec PPV at V5. **Therefore, structural damage vibration impacts from on-site construction activities would be less than significant.**

As described above, on-road rubber-tired construction trucks would travel to and from the Project Site along the local roadway network. According to the FTA's *Transit Noise and Vibration Impact Assessment*, on-road rubber-tired haul trucks traveling on roadways rarely create vibration levels that exceed 70 VdB, which would be equivalent to 0.012 in/sec PPV, would not exceed the significance thresholds for structural damage of 0.02 in/sec PPV and 0.50 in/sec PPV.[69] Therefore, on-road rubber-tired construction trucks would not exceed thresholds of 0.20 in/sec PPV, or 0.50 in/sec PPV. **Therefore, the potential vibration impacts for structural damage due to off-site haul trucks would be less than significant, and no mitigation measures would be required.**

(ii) Human Annoyance

With respect to human annoyance, FTA's *Transit Noise and Vibration Impact Assessment Manual* identifies residential buildings, not commercial buildings, as vibration sensitive receptors for human annoyance. As discussed above, per FTA guidance, the significance criteria for human annoyance is 72 VdB for sensitive uses, including residential uses, assuming a minimum of 70 vibration events occurring during a typical construction day. **Table IV.G-17, *Construction Vibration Impacts – Human Annoyance*,** provides the estimated vibration levels at the off-site vibration sensitive uses for human annoyance (i.e., residential V1 through V3, not commercial V4 and V5) due to construction equipment operation and compares the estimated vibration levels during construction to the specified significance criteria for human annoyance. As indicated in Table IV.G-17, the estimated vibration levels due to construction equipment would exceed the vibration significance threshold for human annoyance at receptors V1 through V3. **Therefore, the on-site vibration impacts pursuant to the significance criteria for human annoyance during construction of the Project would be potentially significant.**

69 FTA, Transit Noise and Vibration Impact Assessment Manual, Table 7-5, September 2018.

TABLE IV.G-17
CONSTRUCTION VIBRATION IMPACTS – HUMAN ANNOYANCE

Off-Site Structure[a]	Distance to Source	Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Project Construction Equipment (VdB)[b]					Significance Threshold[c]	Exceed Significance Thresholds?
Off-Road Construction Equipment								
		Large Bulldozer	**Drill Rig**	**Loaded Trucks**	**Jack-hammer**	**Small Bulldozer**		
FTA Reference Vibration Levels	*25 feet*	*86.9*	*86.9*	*85.6*	*78.8*	*57.5*	--	--
V1	20 feet	89.9	89.9	88.5	81.7	60.4	72	**Yes**
V2	60 feet	7	75.5	74.2	67.4	46.1	72	**Yes**
V3	65 feet	74.5	74.5	73.1	66.4	45.1	72	**Yes**

[a] Represents off-site building structures located nearest to the Project Site to the north, south, and west.
[b] Vibration level calculated based on FTA reference vibration level at 25-foot reference distance.
[c] FTA criteria for residences or buildings where people normally sleep (72 VdB).
SOURCE: FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018; ESA, 2020.

As described above, the vibration generated by a typical on-road rubber-tired heavy-duty truck would be up to approximately 70 VdB, which would not expose vibration sensitive uses to groundborne vibration above the 72 VdB human annoyance significance criteria from the construction trucks. Furthermore, it is noted that each individual haul truck would pass vibration sensitive receptors along the haul routes and generate vibrations for only a few seconds at a receptor location and that truck travel would occur during typically daytime hours, avoiding sensitive nighttime hours when people are normally asleep. **Therefore, the potential vibration impacts for human annoyance due to off-site haul trucks would be less than significant, and no mitigation measures would be required.**

(b) Operation

The Project's day-to-day operations 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 structural damage or human annoyance impacts to the Project buildings or on-site occupants and would not cause vibration impacts to the off-site environment. In addition, the primary sources of transient vibration would include passenger vehicle circulation within the proposed parking area. 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 one foot.[70] It is anticipated that Project mechanical equipment, including air handling units, condenser units, and exhaust fans, would be located on building rooftops. Therefore, groundborne vibration from the operation of such mechanical equipment would not impact any of the off-site sensitive receptors. **Therefore, structural damage and human annoyance vibration impacts from the Project operation would be less than significant.**

(2) Mitigation Measures

Vibration impacts from both on-site and off-site construction activities as it relates to structural damage were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included.

On-site vibration impacts for human annoyance were determined to be potentially significant. However, there are no feasible mitigation measures that could be implemented to reduce the temporary vibration impacts from on-site construction associated with human annoyance at the vibration-sensitive receptors V1 though V5. As no feasible mitigation measures can be proposed, the impact from on-site vibration for human annoyance would remain significant and unavoidable.

Off-site vibration impacts for human annoyance due to off-site haul trucks were determined to be less than significant. Therefore, no mitigation measures are required.

Operational vibration impacts were determined to be less than significant without mitigation. Therefore, no mitigation measures are required for operational impacts.

(3) Level of Significance After Mitigation

Vibration impacts from on-site and off-site construction activities as it relates to structural damage were determined to be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the on-site and off-site construction vibration impact level as it relates to structural damage remains less than significant.

Vibration impacts regarding human annoyance at the nearby noise sensitive receptors would exceed the significance threshold (72 VdB at residential uses). Potential mitigation measures to reduce vibration impacts from on-site construction activities with respect to human annoyance 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 the Project construction.[71] Per the Caltrans

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

[71] Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.

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. Furthermore, it would not be feasible to construct the proposed Project by reducing the types and number of equipment analyzed herein without impacting the ability to build the proposed Project within a reasonable schedule and the ability to safely and adequately construct the proposed Project buildings and facilities without access to the full range of the needed equipment. **Thus, there are no feasible mitigation measures that could be implemented to reduce the temporary vibration impacts from on-site construction associated with human annoyance at the vibration-sensitive receptors V1 though V5. Therefore, Project-level vibration impacts from on-site construction activities with respect to human annoyance would be significant and unavoidable.**

Off-site vibration impacts for human annoyance due to off-site haul trucks were determined to be less than significant. Therefore, no mitigation measures were required or included, and the off-site vibration impact level for human annoyance remains less than significant.

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

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

As discussed in **Section VI, *Other CEQA Considerations***, of this Draft EIR, and as included in the Initial Study, provided in Appendix A, of this Draft EIR, the Project Site is not located within the vicinity of a private airstrip or an airport land use plan, or within two miles of public airport or a public use airport. **Therefore, no impacts would occur, and no further analysis is warranted.**

e) Cumulative Impacts

(1) Impact Analysis

(a) Construction

(i) On-Site Construction Noise

The potential for cumulative construction noise impacts from on-site construction activities to occur is based on the distance between the Project and each of the related projects. Noise from construction activities would normally affect the areas immediately adjacent to each of the construction sites, specifically areas that are less than 500 feet from a construction site (500 feet is the distance identified in the 2006 L.A. CEQA Thresholds Guide as the Screening Criterion with respect to construction activities). That is, cumulative noise impacts could occur at receptor locations that are within 500 feet from two different construction sites. As such, based on the 500-foot Screening Criterion distance, the cumulative construction noise impacts analysis is limited to related projects within 1,000 feet of the Project Site. The 1,000-foot distance is based on an assumption that a noise-sensitive receptor would be located halfway between the Project Site and the related project.

As discussed in **Chapter III, *Environmental Setting***, and **Figure III-1 *Related Projects Map***, of this Draft EIR, there are four known related projects identified within 0.25 miles of the Project Site. The nearest related projects in the City of Los Angeles are 6401-6419 Wilshire Boulevard (approximately 750 feet from the Project Site), which began construction in 2019 and is undergoing vertical building construction as of December 2020, and 488 South San Vicente Boulevard (approximately 1,600 feet from the Project Site), which has been approved, but is not yet under construction as of December 2020.[72]

The nearest related project in the City of Beverly Hills is 55 North La Cienega Boulevard (approximately 1,350 feet from the Project Site), which has not yet been approved and environmental documentation pursuant to CEQA has not yet been filed as of December 2020.[73] In addition, there is one infrastructure project, the Metro Purple Line Extension (approximately 150 feet from the Project Site), that may potentially contribute to cumulative impacts. The Metro Purple Line Extension Final Environmental Impact Statement/Environmental Impact Report determined that adverse construction noise effects would remain after mitigation.[74] Noise from

[72] City of Los Angeles, 488 S San Vicente Blvd, ENV-2016-2204-CE, Notice of Exemption, Filed March 21, 2018.

[73] City of Beverly Hills, Current Development Activity Projects List (Planning Commission/City Council), 55 N La Cienega Blvd. (Stinking Rose site), December 2, 2020.

[74] Los Angeles County Metropolitan Transportation Authority (Metro), Westside Subway Extension, Final Environmental Impact Statement/Environmental Impact Report, March 2012, page 4-363.

on-site construction activities are localized and would normally affect the areas within 500 feet of the individual construction sites.

Of these projects, only the 6401-6419 Wilshire Boulevard and the Metro Purple Line Extension related projects could contribute to cumulative noise effects because they could impact common noise receptors within 500 feet of the proposed Project and the related projects. However, as mentioned above, the 6401-6419 Wilshire Boulevard related project is in the latter half of its construction phase (vertical building construction) and, thus, would likely be completed or substantially completed by the time the proposed Project would begin construction in mid- to late-2021 if the proposed Project were approved. The Metro Purple Line Extension related project is expected to be completed in 2023. Thus, given that the nearby noise-sensitive receptor locations (refer to Figure III-1) are located within 500 feet of the Metro Purple Line Extension and that the Metro Purple Line Extension related project would still be under construction if the proposed Project were to be approved and begin construction in 2021, cumulative noise impacts may occur from simultaneous on-site construction.

Therefore, the Project's contribution to cumulative construction noise impacts on sensitive receptors would be cumulatively considerable and would represent a significant cumulative impact.

(ii) Off-Site Construction Noise

If construction of related projects 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. As discussed above, the 6401-6419 Wilshire Boulevard related project is in the latter half of its construction phase (vertical building construction) and, thus, would likely be completed or substantially completed by the time the proposed Project would begin construction in mid- to late-2021 if the proposed Project were approved. Thus, it would be unlikely to generate substantial construction truck trips at the same time as the proposed Project. The Metro Purple Line Extension Final Environmental Impact Statement/Environmental Impact Report determined that adverse construction noise effects would remain after mitigation, inclusive of construction traffic mitigation.[75] Further, the expected haul route could overlap with the proposed Project along Wilshire Boulevard, San Vicente Boulevard, or La Cienega Boulevard during construction of the Wilshire/La Cienega Station. Thus, cumulative noise impacts may occur from simultaneous construction truck activities. **Therefore, the Project's contribution to construction noise would be cumulatively considerable and would represent a significant cumulative impact along common travel routes.**

[75] Metro, Westside Subway Extension, Final Environmental Impact Statement/Environmental Impact Report, March 2012, page 4-363.

(iii) Groundborne Vibration

Due to rapid attenuation characteristics of groundborne vibration, only related projects located adjacent to the sensitive receptors identified for the Project would result in cumulatively considerable vibration impacts as it relates to structural damage or human annoyance. Despite the Project having a significant vibration impact related to human annoyance, there are no related projects that are located adjacent to the Project's sensitive receptors. **As such, the Project's contribution to impacts related to groundborne vibration during construction would not be cumulatively considerable. Therefore, cumulative impacts would be less than significant.**

(b) Operation

(i) On-Site Operational Noise

With respect to on-site noise sources, as is the case for the Project, compliance with the LAMC-required provisions that limit stationary source noise from items such as mechanical equipment would ensure that noise levels would be less than significant at the property line for each related project. In addition, on-site noise generated by each related project would be sufficiently low and sufficiently distant from the Project Site that it would not result in an additive increase to Project-related noise levels. Further, noise from other on-site sources, including parking lots, open space activity, emergency generator, and loading docks would be limited to areas in the immediate vicinity of each related project. Although each related project could potentially impact an adjacent sensitive use, that potential impact would be localized to that specific area and would not contribute to cumulative noise conditions at or adjacent to the Project Site. **As such, the Project's contribution to impacts related to on-site operational noise would not be cumulatively considerable. Therefore, cumulative impacts would be less than significant.**

(ii) Off-Site Operational Noise

Cumulative off-site noise impacts would occur primarily as a result of increased traffic on local roadways due to operation of the Project and the related projects, as traffic is the greatest source of operational noise in the Project Site area. Cumulative off-site traffic-generated noise impacts were assessed based on a comparison of the noise levels generated by the future cumulative plus Project traffic volumes to the noise levels generated by the existing base traffic volumes. The future cumulative plus Project traffic volumes represent an estimate of the ambient background growth, related projects traffic, and the Project traffic volumes. As such, the cumulative increase represents the increase in traffic volumes attributed to ambient background growth, related project traffic, and the Project traffic volumes over existing conditions.

The results of that comparison are provided in **Table IV.G-18, *Off-Site Traffic Noise Impacts – Future (2023) Plus Project Cumulative Increment***. As shown in Table IV.G-18, the maximum cumulative increase in traffic noise levels over existing levels would not be greater than five dBA. Thus, increases in traffic noise along this segment would not be significant. **As such, the Project's contribution to impacts related to traffic noise increases under the Future (2023) Plus Project condition would not be cumulatively considerable. Therefore, cumulative impacts would be less than significant.**

TABLE IV.G-18
OFF-SITE TRAFFIC NOISE IMPACTS – FUTURE (2023) PLUS PROJECT CUMULATIVE INCREMENT

		CNEL (dBA)				
Roadway Segment	**Existing Land Uses Located Along Roadway Segment**	**Existing (A)**	**Future Plus Project (B)**	**Cumulative Increment (B-A)**	**Project Increment**	**Exceed Threshold?**
6th Street						
Between San Vicente Boulevard and Sweetzer Avenue	Residential	64.3	64.8	0.5	0.3	No
Between Sweetzer Avenue and La Jolla Avenue	Residential	64.0	64.4	0.5	0.2	No
East of La Jolla Avenue	Residential	63.2	63.9	0.7	0.3	No
La Cienega Boulevard						
North of Wilshire Boulevard	Commercial	72.0	72.4	0.4	0.0	No
South of Wilshire Boulevard	Commercial	71.9	72.3	0.4	0.1	No
La Jolla Avenue						
Between 6th Street and Wilshire Boulevard	Residential/Commercial	60.3	60.8	0.5	0.0	No
North of 6th Street	Residential	60.3	60.7	0.3	0.0	No
South of Wilshire Boulevard	Residential/Commercial	51.5	51.7	0.2	0.0	No
McCarthy Vista/Carrillo Drive						
South of San Vicente Boulevard	Residential/Commercial/ Educational	66.0	66.1	0.2	0.0	No
North of San Vicente Boulevard	Residential	66.5	66.7	0.2	0.0	No
Orange Street						
Between San Vicente Boulevard Frontage Road and Sweetzer Avenue	Residential/Commercial	53.9	58.4	4.5	3.6	No
San Vicente Boulevard						
Between Wilshire Boulevard and McCarthy Vista/Carrillo Drive	Residential/Commercial	71.6	71.9	0.3	0.1	No
East of McCarthy Vista/Carrillo Drive	Residential	69.9	70.4	0.5	0.2	No
Between 6th Street and Orange Street	Commercial	69.6	70.2	0.6	0.3	No
North of 6th Street	Commercial	72.3	72.6	0.3	0.1	No

TABLE IV.G-18
OFF-SITE TRAFFIC NOISE IMPACTS – FUTURE (2023) PLUS PROJECT CUMULATIVE INCREMENT

Roadway Segment	Existing Land Uses Located Along Roadway Segment	CNEL (dBA)				
		Existing (A)	Future Plus Project (B)	Cumulative Increment (B-A)	Project Increment	Exceed Threshold?
San Vicente Boulevard Frontage Road						
Between Orange Street and Wilshire Boulevard	Commercial	69.0	69.6	0.7	0.4	No
Sweetzer Avenue						
Between 6th Street and Orange Street	Commercial	55.5	60.5	5.0	3.3	No
Between Orange Street and Wilshire Boulevard	Residential/Commercial	53.6	56.0	2.4	1.4	No
North of 6th Street	Residential	57.5	57.8	0.3	0.1	No
Wilshire Boulevard						
Between La Cienega Boulevard and San Vicente Boulevard	Commercial	71.4	71.9	0.5	0.1	No
Between San Vicente Boulevard and La Jolla Avenue	Commercial	70.6	71.0	0.5	0.1	No
East of La Jolla Avenue	Commercial	70.3	70.9	0.7	0.1	No
West of La Cienega Boulevard	Commercial	71.4	71.9	0.5	0.1	No

SOURCE: ESA, 2020.

(iii) Groundborne 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. **As such, the Project's contribution to impacts related to groundborne vibration during operation would not be cumulatively considerable. Therefore, cumulative impacts would be less than significant.**

(2) Mitigation Measures

Refer to Mitigation Measures NOI-MM-1 through NOI-MM-4 to reduce cumulative construction noise impacts. Cumulative impacts related to construction vibration impacts and operational noise and vibration would not occur. No additional mitigation measures are required.

(3) Level of Significance After Mitigation

(a) On-Site Construction Noise

After implementation of mitigation, the Project would result in significant and unavoidable construction noise impacts. The Metro Purple Line Extension related project was determined to result in significant and unavoidable noise impacts after implementation of mitigation. Therefore, the Project's contribution to cumulative construction noise would be cumulatively considerable and would represent a significant and unavoidable impact.

(b) Off-Site Construction Noise

The Project would result in less than significant off-site construction noise impacts. However, the Metro Purple Line Extension related project was determined to result in significant and unavoidable noise impacts after implementation of mitigation, inclusive of construction traffic mitigation. Therefore, the Project's contribution to cumulative off-site construction noise would be cumulatively considerable and would represent a significant and unavoidable impact.

(c) Construction Groundborne Vibration

Cumulative impacts regarding construction groundborne vibration would be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

(d) On-Site Operational Noise

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

(e) Off-Site Operational Noise

Cumulative impacts regarding off-site operational noise would be less than significant without mitigation. Therefore, no mitigation measures were required or included, and the impact level remains less than significant.

(f) Operational Groundborne Vibration

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

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