Appendix F
Noise Technical Report

THE VILLAGE AT FAIRVIEW PROJECT

Noise Technical Report

Prepared for
1BCity of Burbank
Community Development Department
150 N. Third Street, 2nd Floor
Burbank, CA 91502

December 2024

ESA

THE VILLAGE AT FAIRVIEW PROJECT

Noise Technical Report

Prepared for
City of Burbank
Community Development Department
150 N. Third Street, 2nd Floor
Burbank, CA 91502

December 2024

633 West 5th Street
Suite 830
Los Angeles, CA 90071
213.599.4300
esassoc.com

ESA

Atlanta
Bend
Irvine
Los Angeles
Mobile
Oakland
Orlando
Palm Beach County
Pasadena
Pensacola
Petaluma
Portland
Rancho Cucamonga
Sacramento
San Diego
San Francisco
San Jose
Santa Barbara
Sarasota
Seattle
Tampa
Thousand Oaks

CONTENTS

Report Title

Figures

Tables

Appendices

Acronyms and Other Abbreviations

Abbreviation	Definition
APN	Assessor's Parcel Number
BMC	Burbank Municipal Code
CalOSHA	California Occupational Safety Health Administration
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibel
ESA	Environmental Science Associates
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	Heating, ventilation, and air conditioning
I-5	Interstate 5
Ldn	Day-Night sound or noise level
Leq	Equivalent (or average) sound or noise level
Lmax	Maximum sound or noise level
MTA	Metropolitan Transportation Authority
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety Health Administration
PDF	Project Design Feature
PPV	Peak particle velocity
TIA	Transportation Impact Assessment
TNM	Traffic Noise Model
USEPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

Homes and Hope (applicant) proposes redeveloping the Village at Fairview Project (Project) into a single larger complex with more affordable units of housing available for future and existing tenants. The Proposed Project would provide approximately 60,904 square feet of residential space consisting of 60 affordable units within a three- to four-story multi-family affordable residential development including 23 one-bedroom units, 22 two-bedroom units, 12 three-bedroom units, and 3 four-bedroom units. The Proposed Project is comprised of four separate adjacent lots totaling 27,192 square feet (or 0.62 acres) at 2321 – 2335 North Fairview Street, Burbank, CA 91504 (Assessor's Parcel Number [APN] 2464-005-030; 031; 073; and 033).

The report summarizes the potential for the Project to conflict with applicable noise and vibration regulations, standards, and thresholds. The findings of the analyses are as follows:

- Although the noise generated by project construction would be higher than the ambient noise levels, which may result in a temporary increase in ambient noise levels, construction noise would be temporary and cease once project construction is completed. Further, the project would be required to comply with the City's allowable construction hours. In accordance with Burbank Municipal Code (BMC) Section 9-1-1-105.10, Construction Hours, construction activities can occur between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. on Saturday. No construction activities are allowed on Sundays and holidays. which will be enforced through Project Design Feature (PDF)-NOISE-1. The Burbank2035 Noise Element acknowledges that (1) construction is a necessary part of community development and is acceptable during the least noise-sensitive hours of the day; (2) construction noise is exempt from applicable noise standards. Thus, the Project would not result in a substantial temporary or periodic increase in noise, and impacts would be less than significant. Regardless, as a conservative practice to try and minimize exposure to sensitive receptors, construction noise from the Project was compared to best practice construction noise criteria (Federal Transit Administration (FTA) construction noise criteria of 80 dBA Leq). It was established that construction of the Project would not exceed numerically quantified Federal Transit Administration (FTA) construction noise criteria of 80 dBA Leq with the implementation of PDF-NOISE-2.

- Operation of the Project would not exceed the City's traffic or operational stationary source noise standards. Thus, the Project would not result in a substantial permanent increase in ambient noise levels in the vicinity of the Project above levels existing without the Project, and impacts would be less than significant.

- The Project would not result in the generation of excessive groundborne vibration or groundborne noise levels from construction or operational activities. Thus, the Project would result in a less-than-significant impact from groundborne vibration and groundborne noise.

SECTION 1
Introduction

ESA has conducted an acoustical study to evaluate the potential noise and vibration impacts associated with construction activities, surface transportation, and other aspects of Project construction and operations that have the potential to impact noise sensitive land uses. The objectives of this noise study are to:

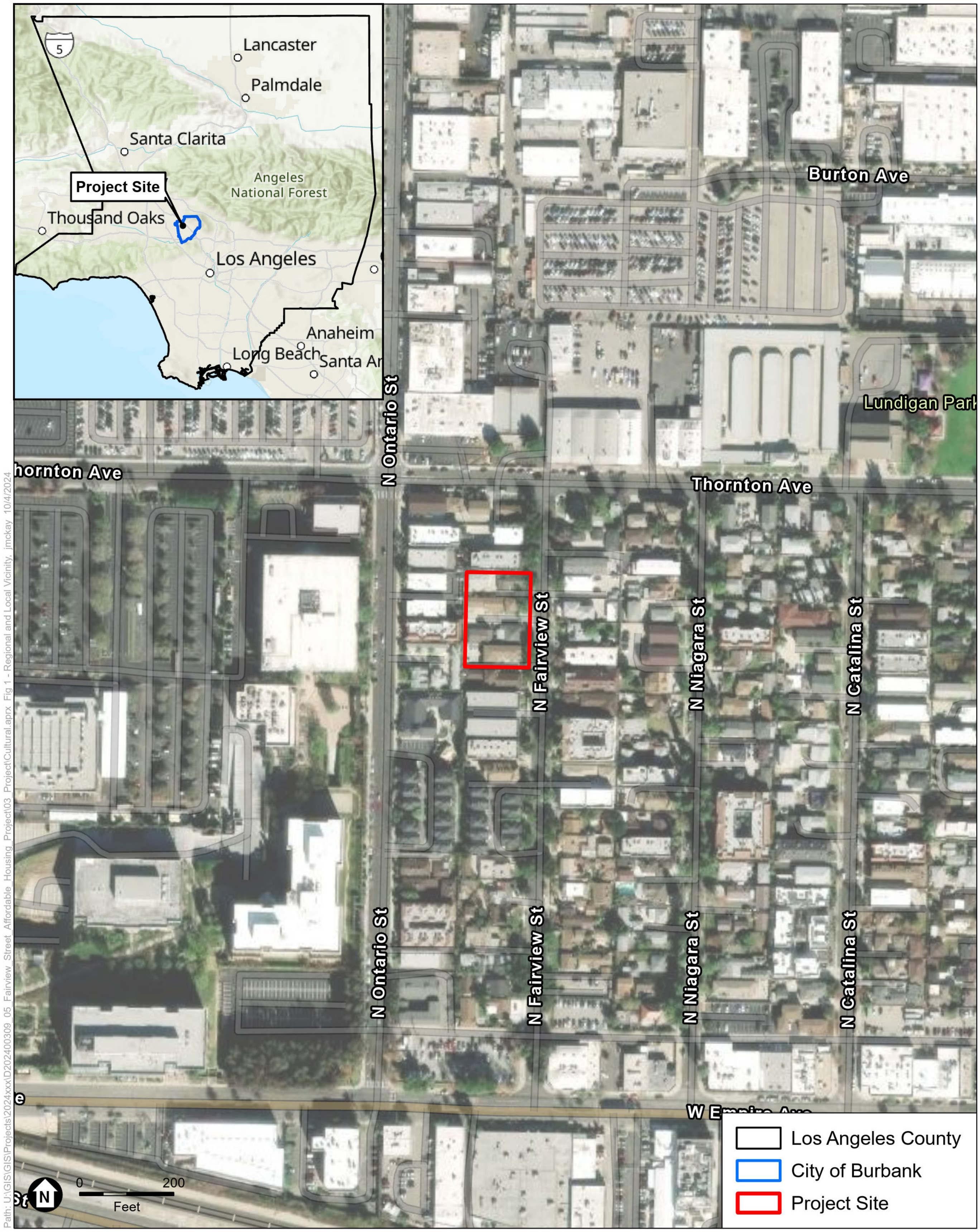
- Quantify the existing ambient noise environment at the Project Site;
- Evaluate the construction and operational noise and vibration impacts to noise sensitive receptors (i.e., residential uses) based on applicable standards and thresholds;
- Provide, if needed, noise Project Design Features to meet applicable noise regulations and standards as specified by the City of Burbank regulations.

1.1 Existing Conditions

The Proposed Project is comprised of four separate adjacent lots totaling 27,192 square feet (or 0.62 acres) at 2321 – 2335 North Fairview Street, Burbank, CA 91504 (Assessor's Parcel Number [APN] 2464-005-030; 031; 075; and 033). The Proposed Project is located within the City of Burbank in Los Angeles County. **Figure 1**, *Regional and Local Vicinity*, shows the location of the Project Site from a regional and local perspective. The Project Site abuts a mix of residential uses and is in close proximity to school uses. The Project Site is also within a one-mile radius from the nearby Hollywood Burbank Airport. **Figure 2**, *Aerial Photograph of Project Site and Vicinity*, shows the Project Site and surrounding land uses.

1.2 Project Description

The Proposed Project consists of a four-story multi-family affordable residential development inclusive of 60 affordable housing units, one-story subterranean parking garage, common open space, and extensive landscaping. The Proposed Project would provide approximately 60,904 square feet of residential space consisting of 60 affordable units within a three- to four-story multi-family affordable residential development including 23 one-bedroom units, 22 two-bedroom units, 12 three-bedroom units, and 3 four-bedroom units.

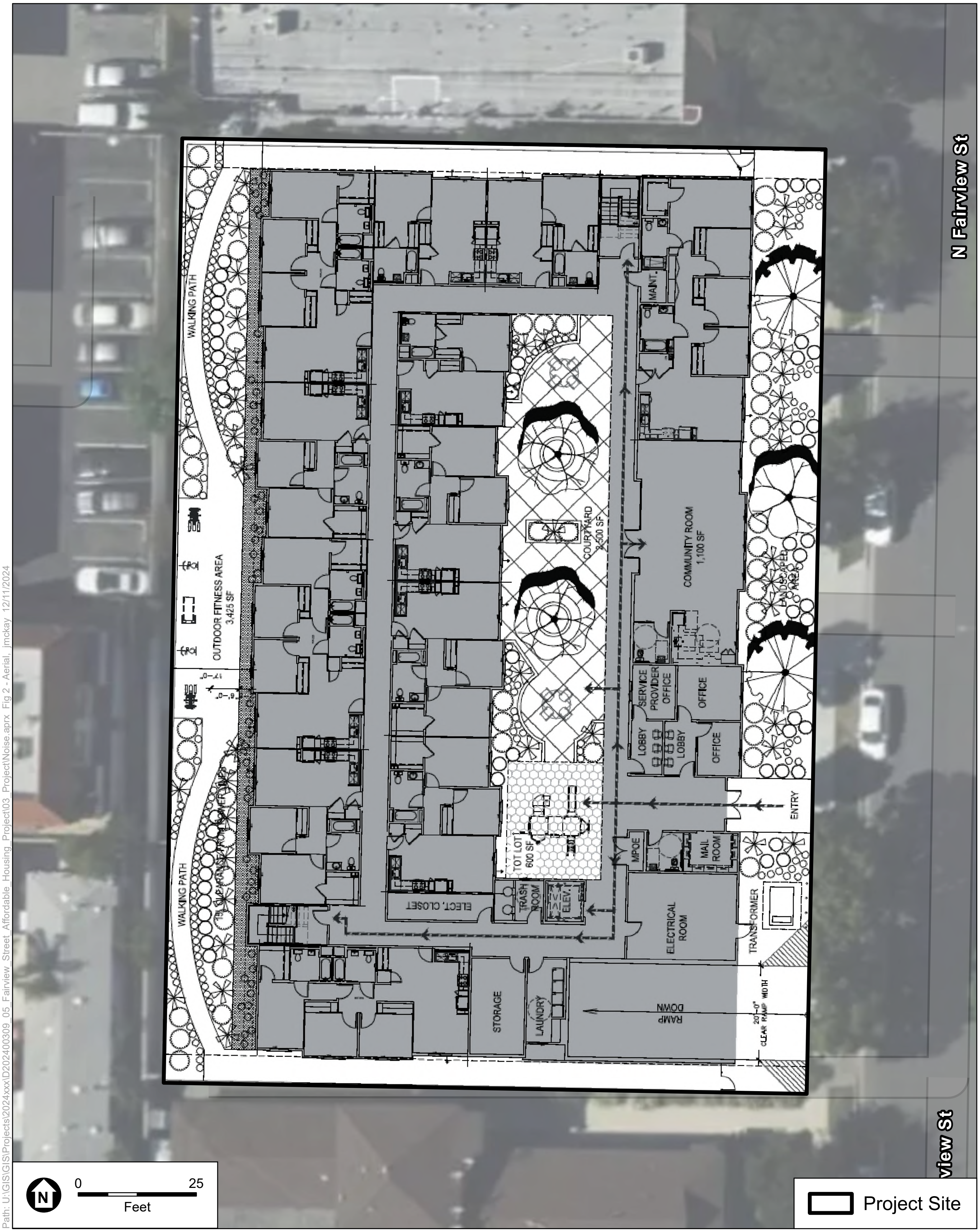


SOURCE: Los Angeles County, 2024; ESA, 2024

The Village at Fairview Project

Figure 1
Regional and Local Vicinity

ESA



SOURCE: Los Angeles County, 2024; ESA, 2024

The Village at Fairview Project

Figure 2
Aerial Photograph of Project Site and Vicinity

ESA

Regional access to the Project Site is provided via the Interstate 5 (I-5) to the north, Route 134 to the south, and Route 170 to the west. Local access to the Project Site is provided via North Hollywood Way to the west, designated as a major arterial; Empire Avenue to the south, designated as a major arterial; Thornton Avenue to the north, designated as a collector; and North Buena Vista Street to the east, designated as a secondary arterial.

Vehicular access to the Project Site would be provided via a two 18-foot-wide travel driveway along North Fairview Street in the southwestern most portion of the Project Site, inclusive of a ramp leading to the subterranean parking garage. Vehicular parking would be provided within a one-story subterranean parking garage consisting of 60 parking spaces. Additional on-street parking would be available along North Fairview Street.

Approximately 5,832 square feet of common open space would be provided throughout the Project Site inclusive of a 2,660 square foot landscaped courtyard and 3,172 square feet of common open area. Proposed amenities include a tot lot, outdoor fitness area, walking path, and a community room. Additionally, a total of 3,833 square feet of landscaping would be provided throughout the Project Site including 1,281 square feet of landscaping on the ground-level common areas and 2,552 square feet of podium landscaping.

1.3 Noise and Vibration Descriptors

1.3.1 Noise

Noise is most often defined as unwanted sound. Although sound can be easily measured, the perceptibility of sound is subjective, and the physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms, such as "noisiness" or "loudness." Sound pressure magnitude is measured and quantified using a logarithmic ratio of pressures, the scale of which gives the level of sound in decibels (dB). The human hearing system is not equally sensitive to sound at all frequencies. Therefore, to approximate the human, frequency-dependent response, the A-weighted filter system is used to adjust measured sound levels. The A-weighted decibel (dBA), typically applied to community noise measurements,[1] de-emphasizes low frequencies to which human hearing is less sensitive and focuses on mid- to high-range frequencies. The range of human hearing is approximately 3 to 140 dBA, with 110 dBA considered intolerable or painful to the human ear. In a non-controlled environment, a change in sound level of 3 dB is considered "just perceptible," a change in sound level of 5 dB is considered "clearly noticeable," and a change in 10 dB is perceived as a doubling of sound volume.[2] A change in sound level of 1 dB cannot be perceived by the human ear except in carefully controlled laboratory experiments.[3] Although the A-weighted scale accounts for a range of people's responses and is, therefore, commonly used to quantify individual event or general community sound levels, the degree of annoyance or other response effects also depends on several other factors. These factors include:

- Ambient (background) sound level;

1 M David Egan, *Architectural Acoustics*, Chapter 1, March 1988.

2 Bies & Hansen, Engineering Noise Control, 1988.

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

- Magnitude of sound event with respect to the background noise level;
- Duration of the sound event;
- Number of event occurrences and their repetitiveness; and
- Time of day that the event occurs.

In an outdoor environment, sound levels attenuate with distance. Such attenuation is called “distance loss” or “geometric spreading” and is influenced by the noise source configuration (i.e., point source or line source). For a point source, such as stationary equipment, the rate of sound attenuation is usually 6 dB per doubling of distance from the noise source at urban, acoustically “hard” sites, or highly acoustically reflective settings that preserve sound energy (water, asphalt, and concrete). Within such environments, a sound level of 50 dBA at a distance of 25 feet from the noise source would attenuate to 44 dBA at a distance of 50 feet. For a line source within an acoustically hard environment, such as a roadway with a constant flow of traffic, the rate of sound attenuation is 3 dB per doubling of distance.[4] In addition, structures (e.g., buildings and solid walls) and natural topography (e.g., hills) 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., line-of-sight not fully blocked), some barrier insertion loss would still occur but to a lesser extent. A receptor located on the same side of the wall as a noise source may actually experience an increase in the perceived noise level as the wall reflects noise back to the receptor, thereby compounding the noise. Noise barriers can provide noise level reductions ranging from approximately 5 dBA (where the barrier just breaks the line-of-sight between the source and receiver) up to 20 dBA with a more substantial barrier.[5]

Community noise levels usually change continuously during the day. The equivalent sound level (L_{eq}) is normally used to describe community noise. The L_{eq} is the equivalent steady-state A-weighted sound level that would contain the same acoustical energy as the time-varying A-weighted sound level during the same time interval. For intermittent noise sources, the maximum noise level (L_{max}) is normally used to represent the maximum noise level measured during the measurement. Maximum and minimum noise levels, as compared to the L_{eq}, are a function of the characteristics of the noise source. As an example, sources, such as generators, have maximum and minimum noise levels that are similar to L_{eq} since noise levels for steady-state noise sources do not substantially fluctuate. However, as another example, vehicular noise levels along local roadways result in substantially different minimum and maximum noise levels when compared to the L_{eq} since noise levels fluctuate during pass-by events.

To assess noise levels over a given 24-hour time period, the Community Noise Equivalent Level (CNEL) descriptor is used in land use planning. CNEL is the time average of all A-weighted sound levels for a 24-hour period with a 10-dBA adjustment (upward) added to the sound levels which occur in the night (10:00 p.m. to 7:00 a.m.) and a 5-dBA adjustment (upward) added to the sound levels which occur in the evening 7:00 p.m. to 10:00 p.m.). These penalties attempt to account for increased human sensitivity to noise during the quieter nighttime periods, particularly where sleep is the most probable activity. CNEL has been adopted

4 Caltrans, Technical Noise Supplement (TeNS), 2013.
5 Caltrans, Technical Noise Supplement (TeNS), 2013.

by the State of California to define the community noise environment for development of a community noise element of a General Plan and is also used by the City of Burbank for land use planning in the City's General Plan Noise Element (Noise Element).[6]

1.3.2 Vibration

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. The response of humans, buildings, and equipment to vibration is more accurately described using velocity or acceleration.[7] Vibration amplitudes are usually described in terms of peak levels, as in peak particle velocity (PPV). The peak level represents the maximum instantaneous peak of the vibration signal. In addition, vibrations can be measured in the vertical, horizontal longitudinal, or horizontal transverse directions. Ground vibrations are most often greatest and can damage buildings, when they propagate in the vertical direction.[8] Therefore, the analysis of groundborne vibration associated with the Project was evaluated in the vertical direction. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are, therefore, usually confined to short distances from the source (i.e., 50 feet or less). The vibration attenuation equation is presented below.

[Equation 1]

$$PPV_{equip} = PPV_{ref} (25/D)^{n}$$

where , PPVref = reference source vibration, D = Distance, and
n = factor for soil attenuation (typically n = 1.5).

1.4 Existing Noise Conditions

1.4.1 Noise-Sensitive Receptor Locations

Some land uses are considered more sensitive to noise than others due to the amount of noise exposure and the types of activities typically involved at the receptor location. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, nursing homes, and parks are generally more sensitive to noise than commercial and industrial land uses. Existing noise-sensitive uses in the vicinity of the Project Site are summarized below:

- **R1** – Residential: multi-family residential uses located adjacent to the west of the Project Site along North Ontario Street.

- **R2** – Residential: multi-family residential uses located adjacent to the north of the Project Site along North Fairview Street and Thornton Avenue.

- **R3** – Residential: single-family residential uses located adjacent to the south of the Project Site along North Fairview Street.

---

6 State of California, General Plan Guidelines, 2002.

7 FTA, Transit Noise and Vibration Impact Assessment Manual, p. 110, September 2018.

8 Caltrans, Transportation Related Earthborne Vibrations, page 4, February 2002.

The nearest sensitive land uses to the Project Site are shown in **Figure 3**, *Noise Measurements and Sensitive Receptor Locations*. Other noise-sensitive uses in the vicinity of the Project Site are located further away than those listed above and would be less impacted by Project-related noise and vibration.

1.4.2 Local Noise Sources and Ambient Noise Levels

Typically, to establish ambient noise levels, which are largely attributed to traffic noise, ambient noise measurements are taken at locations representing the nearby sensitive receptor land uses around a project. **Table 1**, *Ambient Noise Levels at Sensitive Receptors*, presents the ambient noise levels measured at each of the identified sensitive receptors in Section 1.4.1, above.

TABLE 1
AMBIENT NOISE LEVELS AT SENSITIVE RECEPTORS

Location, Duration, and Date of Measurements	Average L_{eq}
ST-1, Residential: multi-family residential uses located adjacent to the west of the Project Site along North Ontario Street. This measurement represents sensitive receptor location R1.	61.4
ST-2, Residential: multi-family residential uses located adjacent to the north of the Project Site along North Fairview Street and Thornton Avenue. This measurement represents sensitive receptor location R2.	65.1
ST-3, Residential: single-family residential uses located adjacent to the south of the Project Site along North Fairview Street. This measurement represents sensitive receptor location R3.	59.1
LT-1, Represents the existing noise levels within the Project Site over a Three-Day Average Starting on Wednesday 10/30/2024 to 11/2/2024.	55.8 (daytime) 42.8 (nighttime)

NOTE:
The ambient noise measurements were conducted using the Larson-Davis Soundtrack LxT1 Precision Integrated Sound Level Meter, which is a Type 1 standard instrument as defined in the American National Standard Institute S1.4. All instruments were calibrated and operated according to the applicable manufacturer specifications. The microphone was placed at a height of 5 feet above the local grade at the following locations.

SOURCE: ESA 2024

1.4.3 Vibration-Sensitive Receptor Locations

Groundborne vibration generated by man-made activities (i.e., rail and roadway traffic, mechanical equipment and typical construction equipment) diminishes rapidly as the distance from the source of the vibration become greater. The Federal Transportation Association (FTA) uses a screening distance of 100 feet for high vibration sensitive buildings (e.g., hospital with vibration sensitive equipment) and 50 feet for residential uses. When vibration-sensitive uses are located within those distances from a project site, vibration impact analysis may be warranted. With respect to structures, vibration-sensitive receptors generally include historic buildings with construction susceptible to damage, buildings in poor structural condition, and uses that require precision instruments (e.g., hospital operating rooms or scientific research laboratories). The nearest vibration-sensitive receptors are residential uses located approximately 10 feet to the south and southwest of the Project Site.

SOURCE: Los Angeles County, 2024; ESA, 2024

The Village at Fairview Project

Figure 3
Noise Monitoring Locations
Noise Measurements and Sensitive Receptor Locations

ESA

SECTION 2
Regulatory Setting

Government agencies have established noise regulations and policies to protect citizens from potential hearing damage and various other adverse physiological and social effects associated with noise and groundborne vibration.

2.1 Federal

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, the USEPA issued guidance levels for the protection of public health and welfare in residential land use areas of an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA. These guidance levels are not considered as standards or regulations and were developed without consideration of technical or economic feasibility.[9] There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the Project.

The FTA has developed noise criteria in its Transit Noise and Vibration Impact Assessment Manual.[10] For a general assessment of construction noise, which is warranted for projects in an early assessment stage when the equipment roster and schedule are undefined and only a rough estimate of construction noise levels is practical, the FTA assessment manual recommends noise criteria of 90 dBA L_{eq} (1-hour) during daytime for residential receptors. For a detailed assessment of construction noise, the FTA assessment manual recommends noise criteria of 80 dBA L_{eq} (8-hour) during daytime for residential receptors.

There are no federal vibration standards or regulations adopted by an agency that are applicable to evaluating vibration impacts from land use development projects such as the Project. However, the FTA has developed groundborne vibration criteria in its Transit Noise and Vibration Impact Assessment Manual.[11] The vibration damage criteria adopted by the FTA are shown in **Table 2,** *Construction Vibration Damage Criteria***.**

9 United States Environmental Protection Agency, EPA Identifies Noise Levels Affecting Health and Welfare. April 1974.

10 FTA, Transit Noise and Vibration Impact Assessment, September 2018.

11 FTA, Transit Noise and Vibration Impact Assessment, September 2018.

TABLE 2
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.

2.2 State of California

The State of California has established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. 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 that dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to exterior noise levels greater than 60 dBA CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

2.3 City of Burbank

The City of Burbank has adopted a number of policies, which are based in part on federal and State regulations, that are intended to control, minimize, or mitigate environmental noise effects. There are no City-adopted policies or standards that relate to groundborne vibration, but the FTA does have such standards and/or policies that can provide guidance for this analysis but are not regulatory requirements for the Project. The regulations and policies that are relevant to Project construction and operational noise levels are discussed below.

2.3.1 City of Burbank Noise Element of the General Plan

The Noise Element of the Burbank2035 General Plan is intended to identify sources of noise and provide goals, objectives, and policies that ensure that noise from various sources, including transportation and stationary sources, does not create an unacceptable noise environment. As shown in **Table 3**, *City of Burbank Maximum Allowable Noise Exposure from Transportation Sources*, the City has adopted land use compatibility standards for use in assessing the compatibility of various land use types that are exposed to noise levels generated by transportation sources (e.g., traffic, railroad operations, and aircraft). According to the City's standards shown in Table 2, ambient noise up to 65 dBA CNEL/Ldn is normally acceptable for mixed-use multi-family residential development and transient lodging land uses, while ambient noise up to 70 dBA CNEL/Ldn is normally acceptable for neighborhood parks. These standards also establish maximum interior noise levels for new residential development, requiring that enough insulation be provided to reduce interior ambient noise levels to 45 dBA CNEL/Ldn

TABLE 3
CITY OF BURBANK MAXIMUM ALLOWABLE NOISE EXPOSURE FROM TRANSPORTATION SOURCES

	Community Noise Exposure CNEL (dBA)			
Land Use	**Exterior Normally Acceptable[1]**	**Exterior Possibly Acceptable[2]**	**Exterior Normally Unacceptable[3]**	**Interior Acceptable[4]**
Residential – Low density, Single-Family, Duplex, Mobile Homes	Up to 60	61 – 70	71 and higher	45
Residential – Multiple Family	Up to 65	66 – 70	71 and higher	45
Residential – Multiple Family mixed – use	Up to 65	66 – 70	71 and higher	45
Transient Lodging – Motel, Hotels	Up to 65	66 – 70	71 and higher	45
Churches, Hospitals, Nursing Homes	Up to 60	61 – 70	71 and higher	45
Auditoriums, Concert Halls, Amphitheaters	Up to 60	61 – 70	71 and higher	35 dBA Leq[5]
Churches; meeting halls	Up to 60	61 – 70	71 and higher	40 dBA Leq[5]
Playgrounds; neighborhood parks	Up to 70	71 – 75	75 and higher	-
Schools; libraries; museums[6]	-	-	-	45 dBA Leq[5]
Offices[7]	-	-	-	45 dBA Leq[5]
Retail/commercial[7]	-	-	-	-
Industrial	-	-	-	-

NOTES:

1 Normally acceptable means that land uses may be established in areas with the stated ambient noise level, absent any unique noise circumstances.
2 Possibly acceptable means that land uses should be established in areas with the stated ambient noise level only when exterior areas are omitted from the Project or noise levels in exterior areas can be mitigated to the normally acceptable level.
3 Normally unacceptable means that land uses should generally not be established in areas with the stated ambient noise level. If the benefits of the Project in addressing other Burbank2035 goals and policies outweigh concerns about noise, the use should be established only where exterior areas are omitted from the Project or where exterior areas are located and shielded from noise sources to mitigate noise to the maximum extent feasible.
4 Interior acceptable means that the building must be constructed so that interior noise levels do not exceed the stated maximum, regardless of the exterior noise level. Stated maximums are as determined for a typical worst-case hour during periods of use.
5 The dBA Leq metric is as determine for a typical worst-case hour during periods of use.
6 Within the Airport Influence Area, these uses are not acceptable above 65 dBA CNEL if subject to the City's discretionary review procedures.
7 Within the Airport Influence Area, these uses may be acceptable up to 75 dBA CNEL following review for additional noise attenuation; in excess of 75 dBA CNEL these uses are not acceptable.

SOURCE: City of Burbank 2035 General Plan Noise Element, 2013

When stationary noise is the primary noise source, the City applies a second set of hourly daytime and nighttime performance standards (expressed in Leq) that are designed to protect noise-sensitive land uses adjacent to stationary sources from excessive noise. **Table 4**, *Maximum Allowable Noise Exposure from Stationary Noise Sources*, summarizes stationary-source noise standards for various land use types that represent acceptable noise levels at exterior spaces of the sensitive receptor.

TABLE 4
MAXIMUM ALLOWABLE NOISE EXPOSURE FROM STATIONARY NOISE SOURCES

Noise Source	Noise Level Descriptor	Exterior Spaces[1] Daytime (7 a.m. to 10 p.m.)	Exterior Spaces[1] Nighttime (10 p.m. to 7 a.m.)
Typical	Hourly dBA Leq	55[2]	45[2]
Tonal, impulsive, repetitive, or consisting primarily of speech or music	Hourly dBA Leq	50[2]	40[2]
Any	dBA Lmax	75	65

[1] Where the location of exterior spaces (i.e., outdoor activity areas) is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the exterior space.

[2]The City may impose noise level standards that are more or less restrictive than those specified above based upon determination of existing low or high ambient noise levels.

Source: City of Burbank 2035 General Plan Noise Element, 2013.

When construction noise is the primary noise source, the Noise Element of the General Plan acknowledges that the City exempts construction noise between the hours of 7:00 a.m.to 8:00 p.m. weekdays and 8:00 a.m. to 5:00 p.m. Saturdays but does not contain quantified noise level limits for construction activities. The regulatory exemption reflects the City's acknowledgement that construction noise is a necessary part of new development and does not create an unacceptable public nuisance when conducted during the least noise sensitive hours of the day, and when construction equipment is not properly equipped with noise control devices.

Furthermore, the following goals, objectives, and policies from the City's General Plan Noise Element are applicable to the Project:

Goal 1: Noise Compatible Land Uses

Burbank's diverse land use pattern is compatible with current and future noise levels.

Policy 1.1: Ensure the noise compatibility of land uses when making land use planning decisions.

Policy 1.2: Provide spatial buffers in new development projects to separate excessive noise generating uses from noise-sensitive uses.

Policy 1.3: Incorporate design and construction features into residential and mixed-use projects that shield residents from excessive noise.

Policy 1.4: Maintain acceptable noise levels at existing noise-sensitive land uses.

Policy 1.5: Reduce noise from activity centers located near residential areas, in cases where noise standards are exceeded.

Policy 1.6: Consult with movie studios and residences that experience noise from filming activities to maintain a livable environment.

Goal 2: Noise in Mixed-Use Development

Noise from commercial activity is reduced in residential portions of mixed-use projects.

Policy 2.1: Require the design and construction of buildings to minimize commercial noise within indoor areas of residential components of mixed-use projects.

Policy 2.2: Locate the residential portion of new mixed-use projects away from noise generating sources such as mechanical equipment, gathering places, loading bays, parking lots, driveways, and trash enclosures.

Goal 3: Vehicular Traffic Noise

Burbank's vehicular transportation network reduces noise levels affecting sensitive land uses.

Policy 3.1: Support noise-compatible land uses along existing and future roadways, highways, and freeways.

Policy 3.2: Encourage coordinated site planning and traffic management that minimizes traffic noise affecting noise-sensitive land uses.

Policy 3.3: Advocate the use of alternative transportation modes such as walking, bicycling, mass transit, and non-motorized vehicles to minimize traffic noise.

Policy 3.4: Install, maintain, and renovate freeway and highway right-of-way buffers and sound walls through continued work with the California Department of Transportation (Caltrans) and Los Angeles County Metropolitan Transportation Authority (MTA).

Policy 3.5: Monitor noise levels in residential neighborhoods and reduce traffic noise exposure through implementation of the neighborhood protection plans.

Policy 3.6: Prohibit heavy trucks from driving through residential neighborhoods.

Policy 3.7: Where feasible, employ noise-cancelling technologies such as rubberized asphalt, fronting homes to the roadway, or sound walls to reduce the effects of roadway noise on sensitive receptors.

Policy 3.8: Within the Airport Influence Area, seek to inform residential property owners of airport generated noise and any land use restrictions associated with high noise exposure. Mixed-use development contributes to a thriving community, but can place sensitive receptors adjacent to noisy businesses.

Goal 4: Train Noise

Burbank's train service network reduces noise levels affecting residential areas and noise-sensitive land uses.

Policy 4.1: Support noise-compatible land uses along rail corridors.

Policy 4.2: Require noise-reducing design features as part of transit-oriented, mixed-use development located near rail corridors.

Policy 4.3: Promote the use of design features, such as directional warning horns or strobe lights, at railroad crossings that reduce noise from train warnings.

Goal 5: Aircraft Noise

Burbank achieves compatibility between airport-generated noise and adjacent land uses and reduces aircraft noise effects on residential areas and noise-sensitive land uses.

Policy 5.1: Prohibit incompatible land uses within the airport noise impact area.

Policy 5.2: Work with regional, state, and federal agencies, including officials at Bob Hope Airport, to implement noise reduction measures and to monitor and reduce noise associated with aircraft.

Policy 5.3: Coordinate with the Federal Aviation Administration and Caltrans Division of Aeronautics regarding the siting and operation of heliports and helistops to minimize excessive helicopter noise.

Policy 5.4: Within the Airport Influence Area, seek to inform residential property owners of airport generated noise and any land use restrictions associated with high noise exposure.

Goal 6: Industrial Noise

Noise generated by industrial activities is reduced in residential areas and at noise-sensitive land uses.

Policy 6.1: Minimize excessive noise from industrial land uses through incorporation of site and building design features.

Policy 6.2: Require industrial land uses to locate vehicular traffic and operations away from adjacent residential areas.

Goal 7: Construction, Maintenance, and Nuisance Noise

Construction, maintenance, and nuisance noise is reduced in residential areas and at noise-sensitive land uses.

Policy 7.1: Avoid scheduling city maintenance and construction projects during evening, nighttime, and early morning hours.

Policy 7.2: Require project applicants and contractors to minimize noise in construction activities and maintenance operations.

Policy 7.3: Limit the allowable hours of construction activities and maintenance operations located adjacent to noise-sensitive land uses.

Policy 7.4: Limit the allowable hours of operation for and deliveries to commercial, mixed-use, and industrial uses located adjacent to residential areas.

2.3.2 City of Burbank Noise Restrictions Ordinance

The City's noise standards, found in the City of Burbank Municipal Code (BMC), set forth hours of operation for certain activities and standards for determining when noise is deemed to be a disturbance. Chapter 9-3-208 of the BMC prohibits the operation of any machinery, equipment, pump, fan, air conditioning apparatus, or similar mechanical device in such a manner as to cause the ambient noise level at an adjacent noise-sensitive property to be exceeded by more than five (5) dBA. According to Chapter 9-3-213 of the BMC, no person shall use or operate any radio receiving set, musical instrument, phonograph, television set or other machine or device for the producing or reproducing of sound in such manner as to cause disturbance and cause the ambient noise level at an adjacent noise-sensitive property to be exceeded by more than five (5) dBA. Similarly, according to Chapter 9-3-213.5 of the BMC, no person in a park (including public parking lots) or on a right of way adjacent to a park shall use or operate any radio receiving set, musical instrument, phonograph, television set or other machine or device for the producing or reproducing of sound or other sound amplification systems in such manner as to disturb the peace, quiet, and comfort of neighboring residents or any reasonable person of normal sensitiveness residing in the area. The BMC also designates hours of construction applicable to all construction, alteration, movement, enlargement, replacement, repair, equipment, maintenance, removal and demolition work. Chapter 9-1-1-105.8 of the BMC exempts construction activity between 7:00 a.m. and 7:00 p.m. Monday through Friday, between 8:00 a.m. and 5:00 p.m. on Saturdays. Construction may not happen outside of these specified hours in addition to any time on Sundays or national holidays unless an exemption is granted by the City.

2.3.3 Construction Noise Guidelines

As previously discussed, the Noise Element of the General Plan acknowledges that the City exempts construction noise between the hours of 7:00 a.m.to 8:00 p.m. weekdays and 8:00 a.m. to 5:00 p.m. Saturdays. In addition, the City of Burbank does not have quantified noise thresholds for temporary construction. Therefore, so far as construction occurs within the days and hours identified above, the Project would not result in a substantial temporary or periodic increase in noise, and impacts would be less than significant. Regardless, as a conservative practice to try and minimize exposure to sensitive receptors, construction noise from the Project was compared to best practice construction noise criteria from the Federal Transit Administration (FTA). The FTA threshold looks at whether Project construction activities would generate noise levels greater than 80 dBA Leq at the sensitive receptor property line.[12]

The use of 80 dBA Leq as a numeric criteria to evaluate the significance construction noise occurring during the hours specified in BMC Chapter 9-1-1-105.8 is consistent with the recommended construction noise limits in the FTA assessment manual but also considers the General Plan Noise Element, which recognizes that construction noise is a necessary part of new development and does not create an unacceptable public nuisance when conducted during the least noise sensitive hours of the day. With respect to ambient noise, the 80 dBA Leq (8-hour) criteria would be similar to a noise increase of approximately 10 dBA (based on an existing 70 dBA ambient noise level - a typical noise level along major roadways) to 25 dBA (based on an existing 55 dBA ambient noise level - a typical noise level in a quieter residential neighborhood) over the ambient noise level. Although the increase in ambient noise levels of 10 to 25 dBA would be noticeable, the construction noise would be temporary and would occur during daytime hours (outside of the sensitive sleeping hours). Furthermore, residents of urban areas are used to temporary construction noise and its increase to ambient noise levels of 10 to 25 dBA and higher, from time to time during daytime hours. While construction activities may generate an increase in noise over ambient levels, a temporary noise level of 80 dBA Leq would not cause hearing loss. Per Occupational Safety Health Administration (OSHA/CalOSHA), the noise limit for potential hearing loss is 90 dBA Leq (8-hour).[13] The National Institute for Occupational Safety and Health (NIOSH) has identified that hearing loss for workers during an 8-hour shift usually occurs

[12] FTA, Transit Noise and Vibration Impact Assessment Manual, p.179, September 2018.

[13] OSHA, Standard 1910.95 – Occupation noise exposure. In addition to the permissible noise level of 90 dBA (Leq(8- hour)), OSHA also specified an action level of 85 dBA (Leq(8-hour)) at which a hearing conservation program is required (OSHA Standard 1910.95(c)(1)).

in a noise environment in excess of 85 dBA.[14] Thus, the numeric criteria considers the potential for ambient noise increases and protection of human health.

2.3.4 Groundborne Vibration Guidelines

The City has not adopted policies or guidelines relative to groundborne vibration. As such, the following is a summary of Caltrans groundborne vibration policies and guidelines. With respect to groundborne vibration from construction activities, Caltrans has adopted guidelines/ recommendations to limit groundborne vibration based on the age and/or condition of the structures that are located in close proximity to construction activity. The FTA Transit Noise and Vibration Impact Assessment Manual provides a vibration damage potential threshold criteria for continuous sources of vibration of 0.12 inch-per-second PPV for Class IV buildings typically historic and very sensitive to vibration, 0.2 inch-per-second PPV for Class III buildings typically with wooden ceilings and walls in masonry, 0.3 inch-per-second PPV for Class II buildings typically built with foundation, floors, and walls in concrete or masonry, and 0.5 inch-per-second PPV for Class I buildings typically built from reinforced steel or reinforced concrete. Existing buildings that may be affected by Project groundborne vibration include Class III residential buildings.

A significant construction groundborne vibration impact would occur if:

- Vibration levels would exceed 0.20 inches/second (in/sec) peak particle velocity (PPV) at the façade of a non-engineered structure (e.g., wood-frame residential) at the nearby sensitive receptors which may cause structural damage.[15]

[14] National Institute for Occupational Safety and Health – Understanding Noise Exposure https://www.cdc.gov/niosh/noise/prevent/understand.html#:~:text=The%20NIOSH%20recommended%20exposure%20limit%20%28REL%29%20for%20occupational,employers%20must%20provide%20a%20hearing%20loss%20prevention%20program.

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

SECTION 3
Significance Thresholds

In accordance with Appendix G of the State *CEQA Guidelines*, the proposed Project would result in potentially significant impacts if it would result in:

NOISE-1: 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.

NOISE-2: Generation of excessive groundborne vibration or groundborne noise levels.

NOISE-3: 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?

The paragraphs below provide guidance for evaluating the Project against these thresholds.

3.1 Temporary or Permanent increase in Noise (NOISE-1)

3.1.1 Construction

Based on the City of Burbank Noise Element of the General Plan and Noise Restrictions Ordinance and based upon FTA guidance for permitted construction noise levels at sensitive receptors, Project construction would normally be considered to exceed threshold NOISE-1 if:

- Construction equipment emits noise at a level in excess of 80 dBA Leq when measured at the property line of surrounding sensitive receptors; or

- Construction activities would occur between 7:00 p.m. and 7:00 a.m. Monday through Friday, between 5:00 p.m. and 8:00 a.m. on Saturdays, and at any time on Sundays or national holidays.

3.1.2 Operations

Project operational noise would normally be considered to exceed thresholds NOISE-1:

- Project-related operational activities cause ambient noise levels to increase by 5 dBA or more at the property line in accordance with BMC Chapter 9-3-208.

- Project-related off-site noise sources (i.e., roadway traffic noise) cause the ambient noise levels measured at the property line of affected noise-sensitive uses to increase by 3 dBA in CNEL to or within the “normally unacceptable” category.

3.2 Groundborne Vibration (NOISE-2)

Project vibrations would normally be considered to exceed threshold NOISE-2 if Project-induced vibrations would cause structural damage and/or disrupt the operations of vibration sensitive land uses.

The CEQA Guidelines do not define the levels at which groundborne vibration or groundborne noises are considered "excessive." The City of Burbank has not adopted a significance threshold to assess vibration impacts for CEQA analyses from construction activities for land use development projects. Additionally, there are no federal, state, or local vibration regulations or guidelines directly applicable to the Project. However, the FTA has published a guidance document for the analysis of vibration relating to transportation and construction-induced vibration. The Project is not subject to FTA regulations; nonetheless, the FTA guidance serves as useful tool to evaluate groundborne vibration impacts. For the purpose of this analysis, the vibration criteria for structural damage established in Table 7-5 of the FTA's *Transit Noise and Vibration Impact Assessment*[16] are used to evaluate the potential vibration impacts of the Project on nearby buildings or structures. The buildings or structures nearest to the Project Site is a residential building located immediately to the south of the Project Site, approximately 20 feet when measured from the structure of the off-site façade to the existing on-site structures (to be demolished), which is a Category III building. Thus, Project construction and operational groundborne vibration would normally be considered to exceed threshold NOISE-2 if:

- Project construction activities cause groundborne vibration levels to exceed 0.2 in/sec PPV for Class III buildings for structural damage.

3.3 Airport or Airstrip Noise (NOISE-3)

Projects would normally be considered to exceed threshold NOISE-3 if the project site is located within the 65 dBA CNEL noise contour or greater of an airport or airstrip. Code of Federal Regulations (CFR) Title 14, Part 150 prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps, which typically includes a 65 dBA CNEL contour.

[16] FTA, Transit Noise and Vibration Impact Assessment Manual, September 2018.

SECTION 4
Methodology

4.1 Methodology

4.1.1 On-Site Construction Noise

On-site construction noise impacts were evaluated by determining the noise levels generated by the different types of construction activity anticipated (i.e., demolition, grading, foundations, building construction, and architectural coating), calculating the construction-related noise level at nearby sensitive receptor locations as identified in Section 1.4 of this Technical Report, and comparing these construction-related noise levels to existing ambient noise levels (i.e., noise levels without construction noise) at those receptors. More, specifically, the following steps were undertaken to assess construction-period noise impacts:

1. Typical noise levels for each type of construction equipment were obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model;

2. Distances between construction site locations (noise sources) and surrounding sensitive receptors were measured using Project architectural drawings and site plans;

3. Using the FWHA Roadway Construction Noise Model, construction noise levels were then calculated, in terms of hourly L_{eq}, for sensitive receptor locations based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance; and

4. Construction noise levels were then compared to the construction noise significance thresholds identified previously in Section 3.0 of this Technical Report.

4.1.2 Off-Site Roadway Noise

Off-site roadway noise impacts were evaluated qualitatively utilizing project information and the Project's Transportation Impact Analysis (TIA).[17] Based on the TIA, the Project would result in approximately 137 average daily trips. The Project's traffic noise impacts are evaluated based on the existing conditions and existing vehicle trips along the local roadway in the vicinity of the Proposed Project site.

4.1.3 Stationary Point-Source Noise (Operations)

Stationary point-source noise impacts were evaluated by identifying the noise levels generated by outdoor stationary noise sources for the Project, which includes rooftop mechanical equipment and hood vents. Evaluating noise from these point sources included calculating the hourly L_{eq} noise level from each noise

[17] Fehr & Peers, TIA 2321-2335 North Fairview Street Housing Project Memorandum, December 2024

source at sensitive receptor property lines and comparing such noise levels to existing ambient noise levels. More specifically, the following steps were undertaken to calculate outdoor stationary point-source noise impacts:

1. Distances between stationary noise sources and surrounding sensitive receptor locations were measured using Project architectural drawings and site plans;

2. Stationary-source noise levels were then calculated for each sensitive receptor location based on the standard point source noise-distance attenuation factor of 6.0 dBA for each doubling of distance;

3. Noise level increases were compared to the stationary source noise significance thresholds identified above; and

4. For outdoor mechanical equipment, the maximum allowable noise emissions from any and all outdoor mechanical equipment were specified such that noise levels would not exceed the significance threshold identified previously.

4.1.4 Groundborne Vibration

Groundborne vibration impacts were evaluated by identifying potential vibration sources, measuring the distance between vibration sources and surrounding structure locations, and making a significance determination based on the significance thresholds identified previously. Vibration levels are estimated using the vibration attenuation equation provided above in Section 1.3.2.

4.2 Project Characteristics and Project Design Features

4.2.1 Project Characteristics

The included Project design features (PDFs) (see Section 4.2.2 below) have the potential to reduce noise and vibration generation and were taken into account in the analysis of potential impacts.

4.2.2 Project Design Features

Consistent with the City's General Plan mitigation measures applicable and relevant to the proposed Project and consistent with the City's Noise Ordinance for stationary noise sources, the Project will incorporate—and the analysis assumes implementation of—the following general industry standard best practices to minimize noise and vibration impacts:

PDF-NOISE-1, Construction Times: Project construction would comply with the specified times for construction or repair work as indicated in Chapter 9-1-1-105.8 of the BMC.

PDF-NOISE-2, Construction Equipment Noise Control: Construction related equipment will be designed to incorporate appropriate noise muffling devices and/or noise enclosures, parapets, or shielding (e.g. sound blankets) so as not to exceed the FTA criteria for construction noise of more than 80 dBA at off-site residential receptors.

PDF-NOISE-3, Outdoor Mounted Mechanical Equipment: Building outdoor mounted mechanical and electrical equipment would be designed in accordance with general industry standard best practices to meet the requirements of the City's Noise Ordinance to prevent any adjoining unit to exceed the ambient noise level by more than five (5) decibels.

SECTION 5
Environmental Impacts

5.1 Construction Noise (NOISE-1)

5.1.1 On-Site Construction Noise

Noise impacts from construction activities are generally a function of the noise generated by construction equipment, equipment locations, the sensitivity of nearby land uses, and the timing and duration of the noise-generating activities. Construction would include the following activities: demolition, grading, foundations, building construction, paving, and architectural coating. Each activity would involve the use of different types of construction equipment, as denoted by the applicant, and, therefore, has its own distinct noise characteristics. The Project would comply with the City's construction noise standards as the applicant anticipates for construction to occur from 7:00 a.m. to 4:00 p.m. Monday through Friday which follows compliance with the construction times specified in Chapter 9-1-1-105.8 of the BMC.

Project construction would require the use of mobile heavy equipment with high noise-level characteristics. Individual pieces of construction equipment anticipated during Project construction could produce maximum noise levels of 74 dBA to 90 dBA at a reference distance of 50 feet from the noise source, as shown in **Table 5**, *Construction Equipment Noise Levels*. These maximum noise levels would occur when equipment is operating under full power conditions. The estimated usage factors for the equipment are also shown in Table 5. The usage factors are based on FHWA's *Roadway Construction Noise Model User's Guide*.[18] To more accurately characterize construction-period noise levels, the average (hourly L_{eq}) noise level associated with each construction stage is calculated based on the quantity, type, and usage factors for each type of equipment used during each construction stage and are typically attributable to multiple pieces of equipment operating simultaneously.

Construction noise levels were estimated based on an industry standard sound attenuation rate of 6 dBA per doubling of distance (from the 50-foot reference distance) for point sources (e.g., construction equipment). For the purposes of providing a conservative analysis, the noisiest construction equipment was assumed to operate simultaneously with an estimated usage factor at the construction area within a range of 50 feet to 250 feet from a chosen sensitive receptor. These assumptions represent a worst-case noise scenario as the noisiest construction equipment used in a given phase would not typically operate concurrently and at full power, and the location of activities are routinely spread across the construction site, rather than concentrated close to the nearest noise-sensitive receptors. In practice, equipment is used on construction sites intermittently over the course of a construction day and generally do not operate in close quarters at a single location in order to provide for on-site safety and accident prevention.

---

18 Federal Highway Administration (FHWA), Roadway Construction Noise Model User's Guide, 2006.

TABLE 5
CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Estimated Usage Factor, %	Maximum Noise Level at 50 feet from Equipment, dBA (L_{max})
Compressor (Air)	40	80
Concrete Saw	20	90
Drill Rig Truck	20	84
Dump Truck	40	76
Excavator	40	85
Forklift	10	75
Front End Loader	40	80
Generator	50	82
Man Lift	20	85
Pavement Scarifier	20	85
Paver	50	85
Pumps	50	77
Roller	20	85
Tractor / Loader / Backhoe	40	80
Vacuum Street Sweeper	10	80
Welder	40	73

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

A summary of construction noise impacts at the existing nearby sensitive receptors is provided in **Table 6,** *Estimated Construction Noise Levels (L_{eq}) at Off-Site Sensitive Receptors*. Detailed noise calculations for construction activities are provided in **Exhibit A**. As shown in Table 6, construction noise levels are estimated to reach a maximum noise level of up to approximately 78 dBA L_{eq} at the off-site receptor locations R1 with equipment operating at the specified distances. Furthermore, construction-related activity would occur during the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday and between the hours of 8:00 a.m. to 5:00 p.m. on Saturday in compliance with the City's Noise Ordinance as specified in PDF-NOISE-1. During those hours construction noise is exempt from the City of Burbank's noise thresholds. PDF-NOISE-2 would be implemented, which can reduce noise levels by a minimum of 6 dBA with the usage of improved mufflers. A study prepared for the U.S. Department of Transportation found that in cases where a particular piece of equipment either does not have or has a very poor muffler, the application of a good muffler will reduce the overall noise by 6 to 12 dBA (Toth 1979). Thus, noise levels would be below the FTA criteria for temporary construction noise of 80 dBA Leq. As such, the Project would not exceed the significance thresholds, and construction noise impacts would be less than significant.

TABLE 6
ESTIMATED CONSTRUCTION NOISE LEVELS (L_{EQ}) AT OFF-SITE SENSITIVE RECEPTORS

Noise-Sensitive Receptor	Distance between Nearest Receptor and Construction Equipment (feet)	Ambient Noise Level (see Table 1), (L_{eq} dBA)	Maximum Construction Noise Levels at the Noise-Sensitive Receptor,[a,b] (Hourly L_{eq} dBA)	Significance Threshold?	Exceed Significance Threshold
R1/R2/R3 Residential uses adjacent to the north, south, and west	50 to 250 feet	59.1-65.1	78	80	**No**

NOTES:
[a] Estimated construction noise levels represent the worst-case condition when the noisiest construction equipment are assumed to be located closest to the sensitive receptors and are assumed to be used for the entire duration of a construction work day.
[b] Estimated construction noise levels represent the noise levels that would be present assuming the incorporation of PDF-NOISE-2 which could result in a 6 dB reduction.

SOURCE: ESA 2024.

5.1.2 Off-Site Haul Truck Noise

Delivery and hauling truck trips would occur throughout the construction period. An estimated maximum of approximately 108 daily haul truck trips would occur during the mat foundation phase of construction. Construction truck traffic would be anticipated to take North Buena Vista Street south of the Interstate 5 and head west on Thornton Avenue to reach the Project Site. Trucks leaving the Project Site would be anticipated to head east on Thornton Avenue, turn north onto North Buena Vista Street, then turn westbound onto San Fernando Boulevard before heading back onto Interstate 5. Haul trucks generate a peak instantaneous noise level as a truck passes by a noise receiver. As the haul truck moves away from that stationary receiver, the noise level drops substantially with increasing distance between the truck and the stationary receiver.

Based on roadway truck traffic noise modeling using the FHWA TNM method, the noise level from Project haul trucks traveling along the haul route at 30 feet would be approximately 59.1 dBA L_{eq} based on 14 truck trips in a peak hour (108 truck trips per day spread over 8 hours). Since construction of the Project would generate approximately 108 truck trips spread out over an entire work day, the dBA L_{eq} noise metric is an appropriate representation of the overall sound environment from construction haul trucks and is the appropriate noise metric for comparison with the City's significance threshold. As shown previously in Table 1, existing noise levels in the Project area range from approximately 59.1 dBA L_{eq} to 65.1 dBA L_{eq}. When added to the existing noise levels, the construction haul trucks would result in an increase over the existing noise levels. At best, the haul trips would result in a 3 dB increase over ambient when added to the lowest noise measurement of 59.1 dBA L_{eq} at ST-3. At the other noise levels from ST-1 and ST-2, the haul trucks would result in less than a 1 dBA increase over ambient. Therefore, at times haul trucks would result in a barely perceptible change to the human ear at 3 dBA; however, they would be short lived and cease once the construction activity is finished. Detailed construction traffic noise calculations are provided in **Exhibit B**.

Furthermore, the construction haul trucks would only generate noise during daytime levels and not during the more sensitive nighttime hours. While it is expected that instantaneous sound levels from passing haul trucks may generate noise over the ambient noise levels, such increases would be sporadic and temporary with durations typically lasting several seconds as a truck passes by a noise receiver. Therefore, haul truck noise impacts would not substantially contribute to an increase in existing roadway noise levels and impacts would be less than significant.

5.1.3 Off-Site Construction Worker Trip Noise

In addition to soil haul trucks, construction of the Project would result in construction worker trips and vendor truck trips to and from the Project Site. Construction worker trips would occur before and after the haul truck trips on a construction workday. Construction workers would need to be on the Project Site before the haul trucks first arrive in order to prepare for truck loading activities. Additionally, construction workers would need to be on the Project Site after the haul trucks depart for the day in order to close down and secure the work site prior to leaving. Thus, construction worker trips generally do not occur concurrently with haul truck trips. Vendor truck trips would occur in order to deliver building materials to the Project Site. Thus, vendor truck trips generally do not occur concurrently with haul truck trips. The largest number of worker and vendor trips would occur during the building construction phase and would result in an estimated 160 worker trips per day and 10 vendor trips per day. An increase of 160 trips per day would not result in a doubling of traffic volumes on local roadways and would not temporarily result in a 3-dBA or 5 dBA increase in roadway noise levels. Since the temporary noise level increase would be less than a 3 dBA or a 5 dBA increase, noise from construction worker and vendor truck trips would not result in a substantial increase in roadway noise levels, and impacts would be less than significant.

5.2 Operational Noise (NOISE-1, NOISE-3)

5.2.1 Fixed Mechanical Equipment

The operation of mechanical equipment typically installed for developments like the Project, such as air conditioners, fans, generators, and related equipment, may generate audible noise levels. The mechanical equipment would generate noise distributed across all frequencies (i.e., white noise) and would not generate noise at a specific frequency.

Project mechanical equipment, including air conditioning condensers, would be installed on the building rooftop, with other equipment contained within the building. With incorporation of PDF-NOISE-3, Project mechanical equipment would be designed with appropriate noise control devices, such as sound attenuators, acoustic louvers, or sound screens/parapet walls to comply with noise limitation requirements provided in the City's Noise Ordinance, which prevents the noise from such equipment from causing an increase in the ambient noise level of more than five decibels. Additionally, the Proposed Project is replacing four older constructed buildings with one newly constructed building with HVAC equipment located on the rooftop. It can be assumed that the HVAC equipment would be quieter given its recent installation and having mechanical improvements compared to the old units on the existing buildings. In addition, current buildings are single to three story buildings and the proposed building is a 4-story structure. Therefore, if HVAC equipment is permanently mounted to the top of the proposed building, noise levels from the Proposed Project would be slightly lower over existing conditions as noise would be attenuated from the surrounding ground floors with the additional floor of the Proposed Project. Therefore, stationary equipment impacts would be less than significant.

5.2.4 Project-Related Traffic Noise

As stated in Section 4.1.2, above, traffic noise resulting from Project operations would be minimal because the Project would not result in a significant increase in trips along local roadways even with additional units being present compared to the existing units. The traffic analysis found that the Project would result in an additional 137 average daily trips over existing conditions. Vehicle trips to and from the Project Site would be distributed across the surrounding streets but would be expected to result in travel along Thorton Avenue, North Ontario Street, and Empire Avenue to reach the Project Site. The addition of vehicle trips from the Project to these streets would not result in a doubling of traffic volumes along either of these streets and would not increase noise levels by more than 5 dBA over the ambient condition. Therefore, noise impacts from off-site traffic noise would be less than significant.

5.3 Groundborne Vibration (NOISE-2)

5.3.1 Construction Vibration

Construction activities can generate varying degrees of ground vibration, depending on the construction procedures and the 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 varies depending on soil type, ground strata, and construction characteristics of the receptor buildings. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibration from construction activities rarely reaches levels that damage structures. The PPV for construction equipment pieces anticipated to be used during Project construction are listed in **Table 7**, *Typical Vibration Velocities for Potential Project Construction Equipment.*

TABLE 7
TYPICAL VIBRATION VELOCITIES FOR PROJECT CONSTRUCTION EQUIPMENT

Equipment	Reference Vibration Velocity Levels at 25 feet, PPV (inch/second) and RMS velocity in decibel (VdB)[a]
Large bulldozer	0.089 PPV (in/sec) / 87 VdB
Loaded Trucks	0.076 PPV (in/sec) / 86 VdB
Jackhammer	0.035 PPV (in/sec) / 79 VdB
Small Bulldozer	0.003 PPV (in/sec) / 58 VdB

NOTES:
a *PPV = Peak particle velocity.*

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

TABLE 8
CONSTRUCTION VIBRATION IMPACTS – STRUCTURAL DAMAGE

Maximum Impacted Off-Site Structure	Distance to Source[a]	Highest Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Equipment in Table 7 (in/sec PPV)	Highest Estimated Vibration Velocity Levels at the Nearest Off-Site Structures from the Equipment in Table 7 (RMS VdB)	Structural Damage (in/sec PPV) Significance Threshold	Exceed Significance Thresholds?
R3 - Multi-Family Residences adjacent to the Project Site to the South	20 feet	0.124 – Large Bulldozer	88.9 – Large Bulldozer	0.2 PPV	No

[a] Vibration impacts are assessed at the distance from the source to the building façade rather than to the property line.

SOURCE: FTA, Transit Noise and Vibration Impact Assessment Manual, 2018; ESA, 2024.

Construction of the Project would generate groundborne construction vibration during demolition and excavation activities. A summary of the highest construction vibration impacts is provided in **Table 8**, *Construction Vibration Impacts – Structural Damage*. Detailed noise calculations for construction activities are provided in **Exhibit C**. The nearest vibration-sensitive receptors are the residences approximately 20 feet to the north and south of the Project Site when measured up to the façade of the receptor from the façade of the existing buildings. The sensitive receptors to the south and north are not historic and are thus evaluated as a Class III structure, which has a significance threshold of 0.2-inch-per-second.[19]As shown in Table 8, the highest vibration levels anticipated from a large bulldozer would not exceed the 0.2 PPV-inch-per-second threshold at the nearest sensitive receptor and would not exceed the vibration building damage threshold. In accordance with Chapter 9-1-1-105.8 of the BMC, which prohibits construction activity between 7:00 p.m. and 7:00 a.m. Monday through Friday, between 5:00 p.m. and 8:00 a.m. on Saturdays, and at any time on Sundays or national holidays, construction vibration-generation activities would not occur during the nighttime hours when people normally sleep. Thus, compliance with Chapter 9-1-1-105.8 of the BMC would eliminate the potential for groundborne vibration and groundborne noise human annoyance impacts at the nearby residential uses during sensitive nighttime hours. Therefore, vibration impacts would be less than significant.

5.3.2 Operational Vibration

The Project's operations would include typical residential-grade stationary mechanical and electrical equipment for the proposed buildings, such as air handling units, condenser units, and exhaust fans, which would produce vibration. Groundborne vibration generated by each of the above-mentioned activities would generate approximately up to 0.005 inch-per-second PPV adjacent to the Project Site.[20] The potential vibration levels from Project operational sources at the closest sensitive receptor locations would be less than the threshold of perceptibility of 0.01 inch-per-second PPV. As such, vibration impacts associated

[19] California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2013, http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. Accessed August 2020.

[20] This vibration estimate is based on data presented in the Federal Transit Administration, 2018.

with operation of the Project would be below the significance threshold, and impacts would be less than significant.

5.4 Airport Noise (NOISE-3)

The nearest airport to the Project is the Hollywood Burbank Airport which is approximately 1,650 feet northwest of the Project site. Although the Project Site may be located within 2 miles of a public airstrip airport operations would not impede those working or residing on the Project Site. As shown by the Hollywood Burbank Airport Noise Contour Map, the Project Site is located outside of the 65 dBA CNEL contours of the Hollywood Burbank Airport.[21] Therefore, noise from the airport would not impede residents or workers at the Proposed Project Site. Impacts would be less than significant.

[21] City of Burbank, Real Estate Disclosure 2nd Quarter 2021 – 65 dB CNEL, August 2021, http://hollywoodburbankairport.com/wp-content/uploads/2021/09/Noise-Contour-Map-2Q21.pdf

SECTION 6
Cumulative Impacts

6.1 Construction

Cumulative construction impacts could occur when multiple construction projects are occurring simultaneously with the proposed Project. The cumulative noise levels would be intermittent, temporary and would cease at the end of the respective construction periods. It is not likely that maximum construction noise impacts from related projects would occur simultaneously, as sound levels vary from day to day depending on the construction activity performed that day and its location on the development site. Although there would be an increase in temporary ambient sound levels, each construction project would be expected to comply with the City's Noise Ordinance with construction being prohibited from occurring within the hours between 7:00 PM and 7:00 a.m. Monday through Friday, between 5:00 p.m. and 8:00 a.m. on Saturdays, and at any time on Sundays or national holidays. Furthermore, noise from construction activities is localized and would normally only affect the areas within 500 feet from individual construction sites due to the distance noise attenuation rate of 6 dBA per doubling of distance.

According to CEQA Guidelines Section 15300.2(b), cumulative impacts may occur if the impact of successive projects of the same type in the same place, over time is significant. Noise from the construction of development projects is generally localized to the immediate area of the project site and typically has the potential to affect noise-sensitive uses within 500 to 1,000 feet from the construction site, due to the effect of noise attenuation from increasing distance away from a site. As discussed above, the Project would result in a less than significant impact for construction with PDF-NOISE-1 and PDF-NOISE-2. The nearest related projects to the Proposed Project are the redevelopment of the Extra Space Storage facility at 2801 Thornton Avenue approximately 450 feet to the northeast of the Proposed Site, the Aloft Hotels and Residence Inn project approximately 500 feet to the west of the Proposed Site, the Media Studios North Expanded Entitlement project approximately 580 feet to the southwest of the Proposed Site, and the 3031 Thornton Avenue project approximately 850 feet to the northwest of the Proposed Site. Other related projects are located greater than 1,000 feet from the Project Site. Projects requiring discretionary approval would be required to conduct their own analysis under CEQA, demonstrate compliance with applicable City noise ordinance standards, and provide mitigation measures, if required. Because construction noise would be attenuated prior to reaching land uses proximate to the Project Site and the City imposes a timeframe limit on construction equipment, cumulative noise from cumulative construction projects would not be substantially different than that generated by the Project. As such, the Project would not result in a cumulatively considerable construction noise impact.

6.2 Operations

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to operation of the Project and cumulative projects, as traffic is the greatest source of operational noise in the Project area. The trip generation from the Project is not anticipated to result in a substantial or significant noise increase. As stated in Section 5.2.4, the Project would generate a noise level generally similar to the existing traffic noise levels because the Project would not generate substantially different traffic volumes compared to existing conditions. Furthermore, related projects are assumed to be consistent with the zoning and land use designations for these sites and would not result in growth beyond planning projections or, for those projects requiring discretionary approval, would be required to conduct their own analysis under CEQA, demonstrate compliance with applicable City noise ordinance standards, and provide mitigation measures, if required. Thus, when considered with the traffic noise from buildout of the General Plan, the traffic noise increase from the proposed Project would not be perceptible by the human ear in a non-controlled environment, such as in an urban environment. As a result, the Project's contribution to cumulative operational impacts would not be cumulatively considerable and impacts would be less than significant.

Stationary-source noise is generally localized to the immediate area. The Project's stationary noise sources (i.e., fixed mechanical equipment and parking activity) would not contribute to a perceptible increase in ambient noise levels at adjacent properties and would not exceed City standards. 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 proposed Project Site. Therefore, cumulative stationary source noise would be less than significant. As the Project's contribution to cumulative traffic impacts and stationary-source noise impacts would not be cumulatively considerable, cumulative operational noise impacts would be less than significant.

6.3 Groundborne Vibration

Groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are, therefore, usually confined to short distances from the source (i.e., 50 feet or less). Due to the rapid attenuation characteristics of groundborne vibration, there is no expected potential for cumulative construction- or operational-period impacts with respect to groundborne vibration from related projects. Therefore, cumulative vibration impacts would be less than significant.

SECTION 7
Summary of Results

Noise and vibration levels associated with the Project have been evaluated to determine the level of impact from construction activities and future operations of the Project.

7.1 Construction

Construction of the Project has the potential to generate an increase in temporary or periodic noise through the use of heavy-duty construction equipment and through vehicle trips generated from construction workers traveling to and from the Project Site. However, compliance with the City's Noise Ordinance and policies from the general plan would minimize the potential for noise generation. As shown in Table 6, noise from construction of the Project would not exceed the City's standards with the implementation of PDF-NOISE-1 and PDF-NOISE-2. Therefore, impacts related to construction noise would be less than significant.

Construction activities would generate vibration from the use of heavy equipment and haul trucks. However, as shown in Table 8, vibration levels at sensitive receptors would be below the thresholds. In addition, the proposed project is anticipated to be developed during the construction hours allowed by the City of Burbank. Those hours are not sensitive to groundborne vibration and groundborne noise as compared to nighttime hours when people are usually asleep. As a result, construction vibration impacts would be less than significant.

7.2 Operation

Project operations would generate an increase in ambient noise from roadway traffic and stationary noise. The Project would not result in a substantial increase in roadway traffic noise and would not exceed the significance thresholds. Stationary noise sources would be designed in accordance with City standards and would not exceed the allowable noise levels. As a result, operational noise impacts would be less than significant.

The Project's 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. In addition, the primary sources of transient vibration would include passenger vehicle circulation within the local streets. The potential vibration levels from Project operational sources at the closest existing and future sensitive receptor locations would be less than the significance threshold. As a result, operational vibration impacts would be less than significant.

Noise Measurements

Summary

File Name on Meter	LxT_Data.037.s
File Name on PC	LxT_0007057-20241029 234435-LxT_Data.037.ldbin
Serial Number	0007057
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2024-10-29 23:44:35
Stop	2024-11-01 23:44:35
Duration	72:00:00.0
Run Time	72:00:00.0
Pause	00:00:00.0
Pre-Calibration	2024-10-29 23:42:06
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Exponential		
Overload	144.0 dB		
	A	**C**	**Z**
Under Range Peak	**100.0**	97.0	102.0 dB
Under Range Limit	**37.2**	36.9	43.9 dB
Noise Floor	28.1	27.7	34.8 dB
	First	**Second**	**Third**
Instrument Identification			

Results

LASeq	55.8 dB	
LASE	109.9 dB	
EAS	10.949 mPa²h	
EAS8	1.217 mPa²h	
EAS40	6.083 mPa²h	
LApk (max)	2024-10-29 23:46:14	117.7 dB
LASmax	2024-11-01 13:21:21	93.0 dB
LASmin	2024-10-30 12:14:55	39.2 dB
SEA	-99.9 dB	

	Exceedance Counts	**Duration**
LAS > 85.0 dB	7	14.3 s
LAS > 115.0 dB	0	0.0 s
LApk > 135.0 dB	0	0.0 s
LApk > 137.0 dB	0	0.0 s
LApk > 140.0 dB	0	0.0 s

LCSeq	64.0 dB
LASeq	55.8 dB
LCSeq - LASeq	8.2 dB
LAIeq	62.0 dB
LAeq	55.8 dB
LAIeq - LAeq	6.2 dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	55.8					
Ls(max)	93.0	2024/11/01 13:21:21				
Ls(min)	39.2	2024/10/30 12:14:55				
Lpk(max)	117.7	2024/10/29 23:46:14				

Overload Count	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	0.01	0.07 %
Projected Dose	0.00	0.01 %
TWA (Projected)	6.6	21.4 dB
TWA (t)	22.4	37.2 dB
Lep (t)	65.3	65.3 dB

Ln Percentiles

LAS 5.00	60.3 dB
LAS 10.00	56.9 dB
LAS 33.30	51.9 dB
LAS 50.00	49.9 dB
LAS 66.60	47.9 dB
LAS 90.00	44.7 dB

Summary

File Name on Meter	LxT_Data.053.s
File Name on PC	LxT_0004161-20241022 063503-LxT_Data.053.ldbin
Serial Number	0004161
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2024-10-22 06:35:03
Stop	2024-10-22 06:50:03
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-10-22 06:13:38
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Exponential		
Overload	144.9 dB		
	A	**C**	**Z**
Under Range Peak	**100.8**	97.8	102.8 dB
Under Range Limit	**38.0**	37.6	44.7 dB
Noise Floor	28.8	28.5	35.5 dB
	First	**Second**	**Third**
Instrument Identification		626 Wilshire Blvd., Ste. 1100	Los Angeles, CA 90017

Results

LASeq	61.4 dB	
LASE	90.9 dB	
EAS	138.039 µPa²h	
EAS8	4.417 mPa²h	
EAS40	22.086 mPa²h	
LApk (max)	2024-10-22 06:37:51	96.5 dB
LASmax	2024-10-22 06:37:52	83.9 dB
LASmin	2024-10-22 06:35:48	43.7 dB
SEA	-99.9 dB	

	Exceedance Counts	**Duration**
LAS > 85.0 dB	0	0.0 s
LAS > 115.0 dB	0	0.0 s
LApk > 135.0 dB	0	0.0 s
LApk > 137.0 dB	0	0.0 s
LApk > 140.0 dB	0	0.0 s

LCSeq	69.2 dB
LASeq	61.4 dB
LCSeq - LASeq	7.8 dB
LAIeq	63.9 dB
LAeq	61.4 dB
LAIeq - LAeq	2.5 dB

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	61.4					
LS(max)	83.9	2024/10/22 6:37:52				
LS(min)	43.7	2024/10/22 6:35:48				
Lpk(max)	96.5	2024/10/22 6:37:51				

Overload Count	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.94	0.00 %
Projected Dose	-99.94	0.10 %
TWA (Projected)	-99.9	40.4 dB
TWA (t)	-99.9	15.4 dB
Lep (t)	46.3	46.3 dB

Ln Percentiles

LAS 5.00	65.6 dB
LAS 10.00	62.4 dB
LAS 33.30	53.8 dB
LAS 50.00	50.1 dB
LAS 66.60	48.2 dB
LAS 90.00	46.2 dB

Summary			
File Name on Meter	LxT_Data.052.s		
File Name on PC	LxT_0004161-20241022 061544-LxT_Data.052.ldbin		
Serial Number	0004161		
Model	SoundTrack LxT®		
Firmware Version	2.404		
User			
Location			
Job Description			
Note			

Measurement	
Description	
Start	2024-10-22 06:15:44
Stop	2024-10-22 06:30:44
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-10-22 06:13:38
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	A Weighting		
Detector	Slow		
Preamplifier	PRMLxT1		
Microphone Correction	Off		
Integration Method	Exponential		
Overload	144.9 dB		
	A	**C**	**Z**
Under Range Peak	**100.8**	97.8	102.8 dB
Under Range Limit	**38.0**	37.6	44.7 dB
Noise Floor	28.8	28.5	35.5 dB
	First	**Second**	**Third**
Instrument Identification		626 Wilshire Blvd., Ste. 1100	Los Angeles, CA 90017

Results		
LASeq	65.1 dB	
LASE	94.6 dB	
EAS	323.594 µPa²h	
EAS8	10.355 mPa²h	
EAS40	51.775 mPa²h	
LApk (max)	2024-10-22 06:30:40	95.0 dB
LASmax	2024-10-22 06:30:41	80.9 dB
LASmin	2024-10-22 06:18:43	45.4 dB
SEA	-99.9 dB	
	Exceedance Counts	**Duration**
LAS > 85.0 dB	0	0.0 s
LAS > 115.0 dB	0	0.0 s
LApk > 135.0 dB	0	0.0 s
LApk > 137.0 dB	0	0.0 s
LApk > 140.0 dB	0	0.0 s
LCSeq	71.9 dB	
LASeq	65.1 dB	
LCSeq - LASeq	6.8 dB	
LAIeq	67.5 dB	
LAeq	65.1 dB	
LAIeq - LAeq	2.4 dB	

	A		**C**		**Z**	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	65.1					
LS(max)	80.9	2024/10/22 6:30:41				
LS(min)	45.4	2024/10/22 6:18:43				
Lpk(max)	95.0	2024/10/22 6:30:40				

Overload Count	0
Overload Duration	0.0 s

Dose Settings		
Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results		
Dose	-99.94	0.00 %
Projected Dose	-99.94	0.04 %
TWA (Projected)	-99.9	33.9 dB
TWA (t)	-99.9	8.9 dB
Lep (t)	50.0	50.0 dB

Ln Percentiles	
LAS 5.00	71.3 dB
LAS 10.00	68.7 dB
LAS 33.30	63.4 dB
LAS 50.00	60.5 dB
LAS 66.60	57.5 dB
LAS 90.00	51.4 dB

Summary

File Name on Meter	LxT_Data.054.s
File Name on PC	LxT_0004161-20241022 065607-LxT_Data.054.ldbin
Serial Number	0004161
Model	SoundTrack LxT®
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement

Description	
Start	2024-10-22 06:56:07
Stop	2024-10-22 07:11:07
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-10-22 06:13:38
Post-Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting			
Peak Weight	A Weighting			
Detector	Slow			
Preamplifier	PRMLxT1			
Microphone Correction	Off			
Integration Method	Exponential			
Overload	144.9 dB			
	A	**C**	**Z**	
Under Range Peak	**100.8**	97.8	102.8	dB
Under Range Limit	**38.0**	37.6	44.7	dB
Noise Floor	28.8	28.5	35.5	dB
	First	**Second**	**Third**	
Instrument Identification		626 Wilshire Blvd., Ste. 1100	Los Angeles, CA 90017	

Results

LASeq	59.1 dB	
LASE	88.6 dB	
EAS	81.283 µPa²h	
EAS8	2.601 mPa²h	
EAS40	13.005 mPa²h	
LApk (max)	2024-10-22 07:00:19	103.6 dB
LASmax	2024-10-22 07:00:19	73.4 dB
LASmin	2024-10-22 07:03:34	41.2 dB
SEA	-99.9 dB	

	Exceedance Counts	Duration
LAS > 85.0 dB	0	0.0 s
LAS > 115.0 dB	0	0.0 s
LApk > 135.0 dB	0	0.0 s
LApk > 137.0 dB	0	0.0 s
LApk > 140.0 dB	0	0.0 s

LCSeq	64.5 dB
LASeq	59.1 dB
LCSeq - LASeq	5.4 dB
LAIeq	67.9 dB
LAeq	59.1 dB
LAIeq - LAeq	8.8 dB

	A		C		Z	
	dB	**Time Stamp**	**dB**	**Time Stamp**	**dB**	**Time Stamp**
Leq	59.1					
LS(max)	73.4	2024/10/22 7:00:19				
LS(min)	41.2	2024/10/22 7:03:34				
Lpk(max)	103.6	2024/10/22 7:00:19				

Overload Count	0
Overload Duration	0.0 s

Dose Settings

Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results

Dose	-99.94	-99.94	%
Projected Dose	-99.94	-99.94	%
TWA (Projected)	-99.9	-99.9	dB
TWA (t)	-99.9	-99.9	dB
Lep (t)	44.0	44.0	dB

Ln Percentiles

LAS 5.00	66.7 dB
LAS 10.00	63.8 dB
LAS 33.30	53.3 dB
LAS 50.00	49.6 dB
LAS 66.60	47.6 dB
LAS 90.00	44.2 dB

Exhibit A

Construction Equipment Noise Calculations

Project: Fairview Affordable Housing Project

Construction Noise Impact on Sensitive Receptors

Parameters

Leq to L10 factor	3

				R1-Residences Adjacent to the Project Site				
Construction Phase Equipment Type	No. of Equip.	Reference Noise Level at 50ft, Lmax	Acoustical Usage Factor	Distance (ft)	Lmax	Leq	L10	Estimated Noise Shielding, dBA
Demolition					*85*	*78*		
Concrete Saw	1	90	20%	50	84	77	80	6
Concrete Saw	1	90	20%	100	78	71	74	6
Excavator	1	81	40%	150	65	61	64	6
Front End Loader	1	79	40%	200	61	57	60	6
Compressor (air)	1	78	40%	250	58	54	57	6
Site Preparation					*84*	*77*		
Concrete Saw	1	90	20%	50	84	77	80	6
Excavator	1	81	40%	150	65	61	64	6
Front End Loader	1	79	40%	250	59	55	58	6
Grading/Excavation					*75*	*70*		
Drill Rig Truck	1	79	20%	50	73	66	69	6
Excavator	1	81	40%	100	69	65	68	6
Generator	1	81	50%	150	65	62	65	6
Front End Loader	1	79	40%	200	61	57	60	6
Tractor/Loader/Backhoe	1	78	40%	250	58	54	57	6
Foundations/Concrete					*75*	*71*		
Excavator	1	81	40%	50	75	71	74	6
Front End Loader	1	79	40%	150	63	59	62	6
Vacuum Street Sweeper	1	82	10%	250	62	52	55	6
Building Construction					*77*	*72*		
Man Lift	1	75	20%	50	69	62	65	6
Compressor (air)	1	78	40%	75	68	64	67	6
Compressor (air)	1	78	40%	100	66	62	65	6
Compressor (air)	1	78	40%	125	64	60	63	6
Compressor (air)	1	78	40%	150	62	58	61	6
Concrete Saw	1	90	20%	175	73	66	69	6
Excavator	1	81	40%	200	63	59	62	6
Pumps	1	81	50%	210	63	60	63	6
Forklift	1	75	10%	220	56	46	49	6
Forklift	1	75	10%	230	56	46	49	6
Front End Loader	1	79	40%	240	59	55	58	6
Tractor/Loader/Backhoe	1	78	40%	245	58	54	57	6
Welder	2	74	40%	250	57	53	56	6
Paving					*76*	*71*		
Dump Truck	1	76	40%	50	70	66	69	6
Paver	1	77	50%	100	65	62	65	6
Pavement Scarafier	1	90	20%	150	74	67	70	6
Roller	1	80	20%	200	62	55	58	6
Tractor/Loader/Backhoe	1	78	40%	250	58	54	57	6
Finishing/Painting					*72*	*66*		
Man Lift	1	75	20%	50	69	62	65	6
Compressor (air)	1	78	40%	100	66	62	65	6
Compressor (air)	1	78	40%	150	62	58	61	6
Compressor (air)	1	78	40%	250	58	54	57	6
Max Individual Noise Level						**78**		
Ambient Noise Level						**59.1**		
Threshold (80 dBA Leq)						**80**		
Significant Impact?						**No**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

#REF!

Exhibit B

Construction Traffic Noise Calculations

TRAFFIC NOISE ANALYSIS TOOL

Project Name: Caltech GCQPM
Analysis Scenario: Construction
Source of Traffic Volumes: Project Assumptions

Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)	Noise Level dBA CNEL
			Auto	MT	HT	Auto	MT	HT		
Truck Trips	Hard	30	30	30	25	0	0	14	59.1	59.4
Worker/Vendor Trips	Hard	30	30	30	25	160	10	0	58.1	58.4

Model Notes:
The calculation is based on the methodology described in FHWA Traffic Noise Model Technical Manual (1998).
The peak hour noise level at 50 feet was validated with the results from FHWA Traffic Noise Model Version 2.5.
Accuracy of the calculation is within ±0.1 dB when comparing to TNM results.
Noise propagation greater than 50 feet is based on the following assumptions:
For hard ground, the propagation rate is 3 dB per doubling the distance.
For soft ground, the propagation rate is 4.5 dB per doubling the distance.
Vehicles are assumed to be on a long straight roadway with cruise speed.
Roadway grade is less than 1.5%.
CNEL levels were obtained based on Figure 2-19, on page 2-58 Caltran's TeNS 2013.

Exhibit C

Construction Groundborne Vibration Calculations

PROJECT NAME
Vibration Level Calculations

				Receptor		
				N =	1.5	
Construction Equipment	**Project Equipment**	**Equipment Velocity Decibels @ 25 Feet* (VdB)**	**Equipment Peak Particle Velocity @ 25 Feet* (inches/second)**	**Distance to Structure (Feet)**	**Estimated Velocity Decibels @ Distance** (VdB)**	**Estimated Peak Particle Velocity @ Distance*** (inches/second)**
Pile Driver (Impact - Upper Range)		112	1.518	25	0.0	0.000
Pile Driver (Impact - Typical)		104	0.644	25	0.0	0.000
Pile Driver (Sonic - Upper Range)		105	0.734	25	0.0	0.000
Pile Driver (Sonic - Typical)		93	0.170	25	0.0	0.000
Clam Shover Drop (Slurry Wall)		94	0.202	25	0.0	0.000
Hydromill (Slurry Wall - In Soil)		66	0.008	25	0.0	0.000
Hydromill (Slurry Wall - In Rock)		75	0.017	25	0.0	0.000
Vibratory Roller		94	0.210	25	0.0	0.000
Hoe Ram		87	0.089	25	0.0	0.000
Large Bulldozer	Yes	87	0.089	20	88.9	0.124
Caisson Drilling		87	0.089	25	0.0	0.000
Loaded Trucks	Yes	86	0.076	20	87.9	0.106
Jackhammer	Yes	79	0.035	20	80.9	0.049
Small Bulldozer	Yes	58	0.003	20	59.9	0.004

Source:
Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, 2018.

Notes:
* Values taken from Table 7-4.
** Based on the formula VdB(D) = VdB(25ft) - 30 x LOG10 (D/25), where D is equal to the distance (see page 185).
*** Based on the formula PPV(D) = PPV(25 ft) x $(25/D)^N$, where D is equal to the distance (see page 185).
N = soil type classification factor (typically ranges from 1 to 1.5)