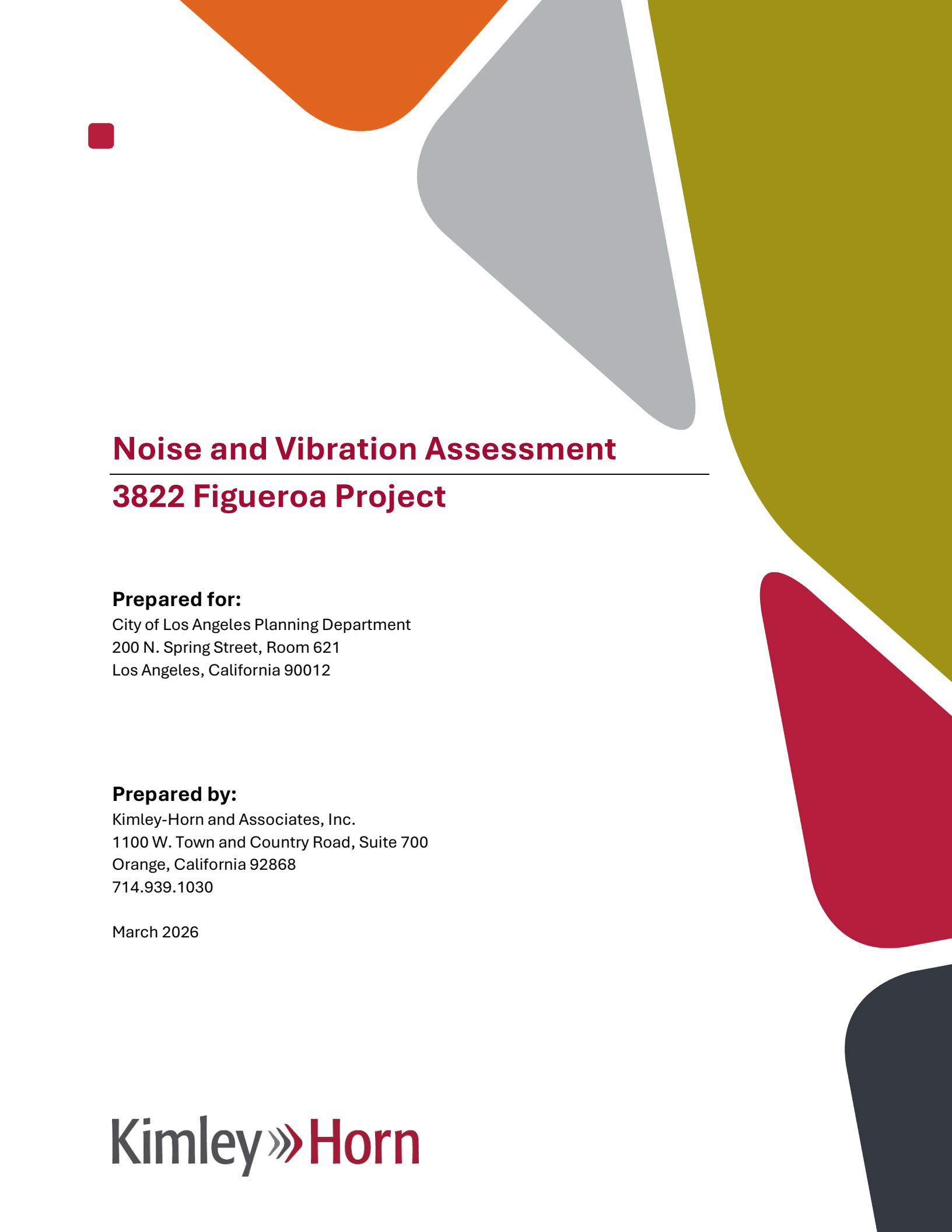


Appendix G

Noise and Vibration Assessment



Noise and Vibration Assessment

3822 Figueroa Project

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TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 Project Location	1
1.2 Project Description	1
1.3 Open Space and Landscaping	2
2.0 ACOUSTIC FUNDAMENTALS	6
2.1 Sound and Environmental Noise	6
2.2 Groundborne Vibration	11
2.3 Groundborne Noise	12
3.0 REGULATORY SETTING	13
3.1 Federal	13
3.2 State of California	13
3.3 Local	14
4.0 EXISTING CONDITIONS	18
4.1 Existing Noise Sources	18
4.2 Ambient Noise Levels	18
4.3 Existing Groundborne Vibration Levels	20
4.4 Sensitive Receptors	20
5.0 SIGNIFICANCE CRITERIA AND METHODOLOGY	22
5.1 State CEQA Guidelines Appendix G	22
5.2 Methodology	24
6.0 POTENTIAL IMPACTS AND MITIGATION	25
6.1 Project-Level Impacts	25
6.2 Cumulative Impacts	41
7.0 REFERENCES	46

Figures

Figure 1: Regional Map	3
Figure 2: Aerial of the Project Site	4
Figure 3: Conceptual Site Plan	5
Figure 4: Noise Measurement Locations and Sensitive Receptors	19

Tables

Table 1: Typical Noise Levels	6
Table 2: Definitions of Acoustical Terms	7
Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations	11
Table 4: Existing Noise Measurement Locations and Measurements	18

Table 5: Sensitive Receptors 21

Table 6: Project Construction Equipment Noise Levels 25

Table 7: Project Maximum Construction Noise Levels.....26

Table 8: Off-Site Utility Installation Construction Noise Levels 28

Table 9: Mechanical Equipment Noise Levels 29

Table 10: Outdoor Amplified Music Noise Levels 31

Table 11: On-Site Composite Noise Levels 32

Table 12: Opening Year and Opening Year Plus Project Traffic Noise Levels 33

Table 13: Construction Vibration Impacts – Structural Damage 35

Table 14: Construction Vibration Impacts – Structural Damage (Mitigated).....36

Table 15: Construction Vibration Impacts – Groundborne Noise (Unmitigated).....38

Table 16: Construction Vibration Impacts – Groundborne Noise (Mitigated) 39

Table 17: Cumulative Roadway Traffic Noise Impacts.....43

Appendices

Appendix A: Noise Data

LIST OF ABBREVIATED TERMS

APN	Assessor's Parcel Number
ADT	Average daily traffic
dBA	A-weighted sound level
CEQA	California Environmental Quality Act
CNEL	Community equivalent noise level
L _{dn}	Day-night noise level
dB	Decibel
L _{eq}	Equivalent noise level
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	Heating ventilation and air conditioning
Hz	Hertz
in/sec	Inches per second
L _{max}	Maximum noise level
μPa	Micropascals
L _{min}	Minimum noise level
PPV	Peak particle velocity
RMS	Root mean square
VdB	Vibration velocity level

1.0 INTRODUCTION

This Noise and Vibration Assessment assesses the potential noise impacts associated with construction and operations of the proposed 3822 South Figueroa Project (Project), located in the City of Los Angeles, California.

1.1 Project Location

The Project Site is located in a highly urbanized area located approximately two miles southeast of Downtown Los Angeles within the City's South Los Angeles Community Plan area (see [Figure 1: Regional Map](#) and [Figure 2: Aerial of the Project Site](#)). The Project Site is generally bounded by South Figueroa Street to the west, West 38th Street to the north, South Flower Drive and the Interstate 110 (I-110) freeway to the east, and existing residential uses and an auto servicing center to the south.

Local access to the Project Site is provided by South Figueroa Street located west of the Project Site, and primary regional access is provided by the I-110 freeway located directly east of South Flower Drive, and Interstate 10 (I-10) located 1.6 miles north of the Project Site. The Project is served by two transit agencies. The Los Angeles County Metropolitan Transportation Authority (Metro) E (Expo) line is located 0.3 miles north of the Project Site on Exposition Boulevard, and provides service to Santa Monica and Downtown Los Angeles. Metro also operates multiple local and express bus lines that serve the Project Site, including Line 2, 81, and 550 which travel north along South Figueroa Street. The Los Angeles Department of Transportation (LADOT) also serves the Project Site with the DASH Southeast – Clockwise and Counterclockwise service routes.

1.2 Project Description

The Project would demolish eight existing multi-family residential buildings, and remove surface parking areas along Figueroa Street to develop a new seven-story, mixed-use building comprised of 209 residential units (including 16 units for Low-Income households (15 percent), 22 units for Very Low-Income households (14 percent), and four units for Extremely Low-Income households (two percent)) and 2,705 square feet of ground level retail and restaurant uses (see [Figure 3: Conceptual Site Plan](#)).

The ground floor of the Project would include a main entry lobby for the residential uses and approximately 2,705 square feet of retail and restaurant uses along South Figueroa Street. A secondary residential lobby would be located along West 38th street adjacent to a small dog washroom available for residents. A large internal courtyard as well as an at-grade, wrapped parking garage with long-term bicycle parking inclusive of a small 100 square feet (sf) workspace for bicycle repairs and maintenance, and various mechanical rooms would also be located on the ground floor. Residential units would also be located on the ground floor. The second through seventh floors of the building primarily contain residential units and amenities.

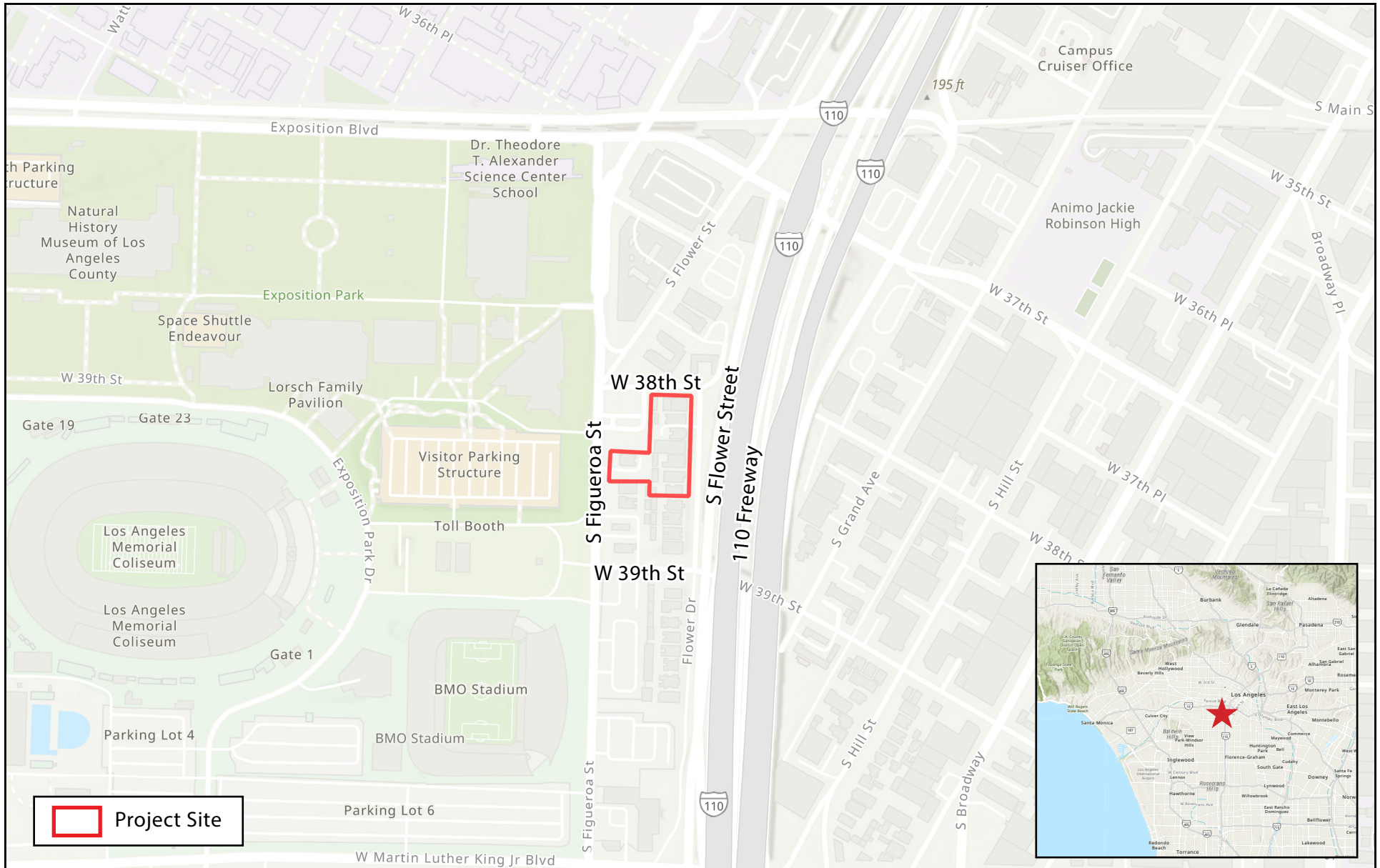
In addition to residential units, the second floor would also contain three internal open space courtyards with lounging and seating areas and a pool, as well as a fitness room, a club and game room, and a co-working space. The third floor through sixth floor would include a lobby area and a study room in addition to residential units. The seventh floor includes residential units as well as residential amenities including a roof deck area which would include a lounge an additional to with

BBQ areas, game lawn, lounge chairs, and umbrellas.

The Project would include 40 vehicle parking spaces including 34 for residents and six for visitors in a wrapped ground floor parking area. The Project would also provide 128 long-term bicycle spaces and 14 short-term bicycle spaces for residents, and two long-term bicycle spaces and two short-term bicycle spaces for visitors.

1.3 Open Space and Landscaping

Open space and landscaping would be provided in accordance with the City of Los Angeles (City) Municipal Code (LAMC) Section 12.21 G, inclusive of a Density Bonus open space reduction. The Project would incorporate accessible at-grade open space as well as indoor, outdoor, and private open space for Project residents and guests. The Project would provide 23,127 square feet of open space that would include courtyards, pool, roof decks, recreation rooms, and private patios.

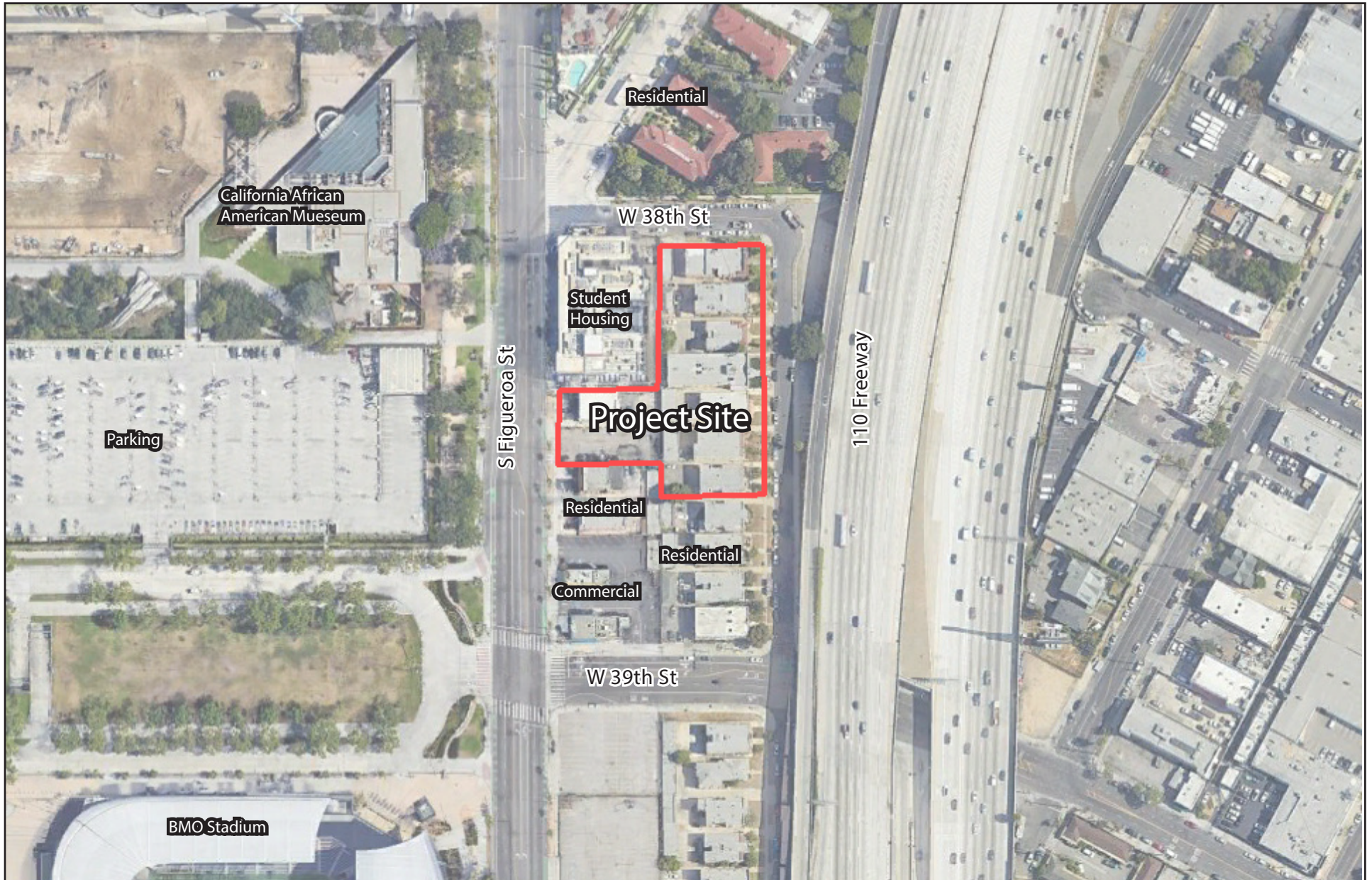


SOURCE: ESRI, 2025



FIGURE 1: Regional Map

3822 SOUTH FIGUEROA PROJECT



SOURCE: Nearmap, 2024



FIGURE 2: Aerial of Project Site

3822 SOUTH FIGUEROA PROJECT



FIGURE 3: Conceptual Site Plan

3822 SOUTH FIGUEROA PROJECT

2.0 ACOUSTIC FUNDAMENTALS

2.1 Sound and Environmental Noise

Acoustics is the science of sound. Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a medium (e.g., air) to human (or animal) ear. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).¹

Noise is defined as loud, unexpected, or annoying sound.² The fundamental model consists of a noise source, a receptor, and the propagation path between the two.³ The loudness of the noise source, obstructions, or atmospheric factors affecting the propagation path, determine the perceived sound level and noise characteristics at the receptor. Acoustics deal primarily with the propagation and control of sound.⁴ A typical noise environment consists of ambient noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this ambient noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to continuous noise from traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large range of numbers. To avoid this, the decibel (dB) scale was devised. The dB scale uses the hearing threshold of 20 micro-pascals (μPa) as a point of reference, defined as 0 dB.⁵ Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The dB scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels correspond closely to human perception of relative loudness. Table 1: Typical Noise Levels provides typical noise levels.

Table 1: Typical Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet fly-over at 1,000 feet	– 110 –	Rock Band
Gas lawnmower at 3 feet	– 100 –	
Diesel truck at 50 feet at 50 miles per hour	– 90 –	Food blender at 3 feet
Noisy urban area, daytime	– 80 –	Garbage disposal at 3 feet
Gas lawnmower, 100 feet	– 70 –	Vacuum cleaner at 10 feet
Commercial area		Normal Speech at 3 feet
Heavy traffic at 300 feet	– 60 –	
Quiet urban daytime	– 50 –	Large business office
		Dishwasher in next room

¹ California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013. <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf>, accessed September 2024

² Harris, Cyril M., *Noise Control in Buildings: A Practical Guide for Architects and Engineers*, 1994

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

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

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

Table 1: Typical Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Quiet urban nighttime	- 40 -	Theater, large conference room (background)
Quiet suburban nighttime	- 30 -	Library
Quiet rural nighttime	- 20 -	Bedroom at night, concert hall (background)
	- 10 -	Broadcast/recording studio
Lowest threshold of human hearing	- 0 -	Lowest threshold of human hearing
Source: California Department of Transportation, <i>Technical Noise Supplement to the Traffic Noise Analysis Protocol</i> , September 2013.		

Noise Descriptions

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs.⁶ The equivalent noise level (L_{eq}) represents the equivalent continuous sound pressure level over the measurement period, while the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of sound energy during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. Most commonly, environmental sounds are described in terms of L_{eq} that has the same acoustical energy as the summation of all the time-varying events. Each is applicable to this analysis and defined in [Table 2: Definitions of Acoustical Terms](#).

Table 2: Definitions of Acoustical Terms	
Term	Definitions
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in μPa (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in dB as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g. 20 μPa). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level (dBA)	The sound pressure level in dB as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level (L_{eq})	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

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

Table 2: Definitions of Acoustical Terms	
Term	Definitions
Maximum Noise Level (L_{max}) Minimum Noise Level (L_{min})	The maximum and minimum dBA during the measurement period.
Exceeded Noise Levels (L_{01} , L_{10} , L_{50} , L_{90})	The dBA values that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day-Night Noise Level (L_{dn})	A 24-hour average L_{eq} with a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity at nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn} .
Community Noise Equivalent Level (CNEL)	A 24-hour average L_{eq} with a 5-dBA weighting during the hours of 7:00 a.m. to 10:00 a.m. and a 10-dBA weighting added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

The A-weighted decibel (dBA) sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA.⁷ Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source.

A-Weighted Decibels

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content.⁸ However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by dBA values. There is a strong correlation between dBA and the way the human ear perceives sound. For this reason, the dBA has become the standard tool of environmental noise assessment. All noise levels reported in this document are in terms of dBA, but are expressed as dB, unless otherwise noted.

⁷ California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013

⁸ Harris, Cyril M., *Noise Control in Buildings: A Practical Guide for Architects and Engineers*, 1994

Addition of Decibels

The dB scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10.⁹ When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound.¹⁰ When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions.¹¹ Under the dB scale, three sources of equal loudness together would produce an increase of approximately 5 dBA.¹²

Sound Propagation and Attenuation

Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern. Sound levels attenuate at a rate of approximately 3 dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics.¹³ No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed when soft ground conditions exist between the source and receptor locations.¹⁴ For line sources, an overall attenuation rate of 3 dB per doubling of distance is assumed in this report.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm can reduce noise levels by 5 to 15 dBA.¹⁵ The way older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows.

Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median

⁹ California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013

¹⁰ FHWA, *Noise Fundamentals*, 2017.
https://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/polguide/polguide02.cfm, accessed September 2024

¹¹ FHWA, *Noise Fundamentals*, 2017.
https://www.fhwa.dot.gov/Environment/noise/regulations_and_guidance/polguide/polguide02.cfm, accessed September 2024

¹² California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013

¹³ California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013

¹⁴ Federal Highway Administration, *FHWA Traffic Noise Model User's Guide*, January 1998.

¹⁵ Federal Highway Administration, *Highway Traffic and Construction Noise - Problem and Response*, April 2006.

noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA.¹⁶ Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA.¹⁷ Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in dBA, the following relationships should be noted:¹⁸

- Except in carefully controlled laboratory experiments, a 1-dBA change cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A minimum 5-dBA change is required before any noticeable change in community response would be expected. A 5-dBA increase is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss. While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise. The Occupational Safety and Health Administration has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.¹⁹

Annoyance. Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. A noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.²⁰

¹⁶ Compiled from James P. Cowan, *Handbook of Environmental Acoustics*, 1994, and Cyril M. Harris, *Handbook of Noise Control*, 1979

¹⁷ Compiled from James P. Cowan, *Handbook of Environmental Acoustics*, 1994, and Cyril M. Harris, *Handbook of Noise Control*, 1979

¹⁸ Compiled from California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, and FHWA, *Noise Fundamentals*, 2017.

¹⁹ U.S. Department of Labor, Occupational Safety and Health Standards, 29 *CFR* 1910 (Occupational Noise Exposure).

²⁰ Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.

2.2 Groundborne Vibration

Sources of groundborne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions or heavy equipment used during construction). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero.²¹ Several different methods are typically used to quantify vibration amplitude. One is vibration decibels (VdB) (the vibration velocity level in decibel scale). Other methods are the peak particle velocity (PPV) and the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave and expressed in terms of inches-per-second (in/sec). The RMS velocity is defined as the average of the squared amplitude of the signal and is expressed in terms of VdB.²² The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations displays the reactions of people and the effects on buildings produced by continuous vibration levels. The human annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible.²³ Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving, which requires the use of heavy-duty earth moving equipment.²⁴ For the purposes of this analysis, a PPV descriptor with units of in/sec was used to evaluate construction-generated vibration for building damage and human complaints.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations			
Maximum PPV (in/sec)	Caltrans Vibration Annoyance Potential Criteria	Caltrans Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.008	--	Extremely fragile historic buildings, ruins, ancient monuments	--
0.08	Readily Perceptible	--	--
0.1	Begins to Annoy	Fragile buildings	--
0.12	--	--	Buildings extremely susceptible to vibration damage

²¹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018

²² Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

²³ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

²⁴ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations

Maximum PPV (in/sec)	Caltrans Vibration Annoyance Potential Criteria	Caltrans Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.2	Annoying	--	Non-engineered timber and masonry buildings
0.25	--	Historic and some old buildings	--
0.3	--	Older residential structures	Engineered concrete and masonry
0.4	Unpleasant	--	--
0.5	--	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel or timber (no plaster)
Source: California Department of Transportation, Transportation and Construction Vibration Guidance Manual, 2020 and Federal Transit Administration, Transit Noise and Vibration Assessment Manual, 2018.			

2.3 Groundborne Noise

Groundborne noise specifically refers to the rumbling noise emanating from the motion of building room surfaces due to the vibration of floors and walls; it is perceptible only inside buildings.²⁵ The relationship between groundborne vibration and groundborne noise depends on the frequency content of the vibration and the acoustical absorption characteristics of the receiving room. For typical buildings, groundborne vibration that causes low frequency noise (i.e., the vibration spectrum peak is less than 30 Hz) results in a groundborne noise level that is approximately 50 decibels lower than the velocity level. For groundborne vibration that causes mid-frequency noise (i.e., the vibration spectrum peak is between 30 and 60 Hz), the groundborne noise level will be approximately 35 dB lower than the velocity level. For groundborne vibration that cause high-frequency noise (i.e., the vibration spectrum peak is greater than 60 Hz), the groundborne noise level will be approximately 20 dB lower than the velocity level.²⁶ The Federal Transit Administration (FTA) provides a groundborne noise threshold of 43 dBA for infrequent vibration events in Category 2 buildings such as residences and buildings where people normally sleep. For frequent and occasional vibratory events, the FTA established groundborne noise thresholds of 35 dBA and 38 dBA, respectively.²⁷

According to the FTA, airborne noise levels would be greater than groundborne noise levels; therefore, if a project's airborne noise levels would not result in significant effects, then it is assumed that groundborne noise would similarly not result in significant effects.²⁸ Unless indoor receptors have substantial sound insulation (e.g., recording studio) and would be exposed to vibration velocities great enough to cause substantial levels of groundborne noise, groundborne noise does not need to be assessed.²⁹ Groundborne noise is typically assessed for locations where subway or tunnel operations, where there is no airborne noise path, are present.³⁰

²⁵ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

²⁶ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

²⁷ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

²⁸ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

²⁹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

³⁰ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

3.0 REGULATORY SETTING

To limit population exposure to physically or psychologically damaging, as well as intrusive, noise levels, the Federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise.

3.1 Federal

Federal Transit Administration Noise and Vibration Guidance

The FTA has published the Transit Noise and Vibration Impact Assessment Manual (FTA Manual) to provide guidance on procedures for assessing impacts at different stages of transit project development.³¹ The FTA Manual covers both construction and operational noise impacts and describes a range of measures for controlling excessive noise and vibration. In general, the primary concern regarding vibration relates to potential physical damage from construction, but it also includes criteria for assessing human annoyance. The FTA Manual establishes criteria for evaluating the potential for damage to various structural categories from vibration.

3.2 State of California

California Government Code

California Government Code Section 65302(f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services.³² The guidelines rank noise land use compatibility in terms of “normally acceptable”, “conditionally acceptable”, “normally unacceptable”, and “clearly unacceptable” noise levels for various land use types. Under these guidelines, single-family homes are located in “normally acceptable” exterior noise environments up to 60 CNEL and in “conditionally acceptable” exterior noise environments up to 70 CNEL. Multiple-family residential uses are located in “normally acceptable” exterior noise environments up to 65 CNEL and in “conditionally acceptable” exterior noise environments up to 70 CNEL. Schools, libraries, and churches are located in “normally acceptable” exterior noise environments up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Assembly Bill 1307

On September 7, 2023, Governor Newsom signed AB 1307, which added section 21085 to the Public Resources Code to read, in pertinent part, “for residential projects, the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment”.³³

³¹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

³² State of California Governor’s Office of Planning and Research, General Plan Guidelines, Appendix D: Noise Element Guidelines, page 374, 2017, https://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf, accessed September 2024

³³ AB 1307, Public Resources Code Section 21085

3.3 Local

City of Los Angeles Municipal Code

The City has adopted regulations to control unnecessary, excessive, and annoying noise, as set forth in the City's Noise Ordinance (Chapter XI, Noise Regulation, of the Los Angeles Municipal Code [LAMC]). The City's Noise Ordinance establishes acceptable ambient sound levels to regulate intrusive noises (e.g., stationary mechanical equipment and vehicles other than those traveling on public streets) within specific land use zones and provides procedures and criteria for the measurement of the sound level of noise sources. These procedures recognize and account for differences in the perceived level of different types of noise and/or noise sources.

With regard to vibration, LAMC Section 91.3307.1 states, "Adjoining public and private property shall be protected from damage during construction, remodeling, and demolition work. Protection must be provided for footings, foundations, party walls, chimneys, skylights, and roofs. Provisions shall be made to control water runoff and erosion during construction or demolition activities."

With regard to construction noise, LAMC Section 112.05 sets forth a maximum noise level for construction equipment of 75 dBA at a distance of 50 feet when operated within 500 feet of a residential zone. Compliance with this standard shall not apply where compliance therewith is technically infeasible. In addition, LAMC Section 41.40 prohibits construction between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. and after 6:00 p.m. on Saturday or any national holiday, and at any time on Sunday (i.e., construction is allowed Monday through Friday between 7:00 a.m. and 9:00 p.m. and Saturdays and national holidays between 8:00 a.m. and 6:00 p.m.). Construction may be permitted outside of these hours if a temporary noise variance is approved by the Los Angeles Board of Police Commissioners.

Section 111.02 (Sound Level Measurement Procedure and Criteria) of the LAMC provides procedures and criteria for the measurement of the sound level of "offending" noise sources. According to the LAMC, a noise level increase of 5 dBA over the existing average ambient noise level at an adjacent property line is considered a noise violation. Section 112.01 (Radios, Television Sets, and Similar Devices) of the LAMC prohibits the production of noise from any radio, musical instrument, phonograph, television receiver, or other machine or device for the producing, reproducing or amplification of the human voice, music, or any other sound, in such a manner, as to disturb the peace, quiet, and comfort of neighbor occupants or any reasonable person residing or working in the area, or that exceeds the ambient noise level on the premises of any other occupied property, or if a condominium, apartment house, duplex, or attached business, within any adjoining unit, by more than 5 dBA.

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

City of Los Angeles General Plan

The Noise Element of the Los Angeles City General Plan (Noise Element) provides guidance for the control of noise to protect residents, workers, and visitors from potentially adverse noise impacts. Its primary goal is to regulate long-term noise impacts to preserve acceptable noise environments for all types of land uses. The Noise Element defers regulation of temporary, point-source noises such as construction activities to the City's Municipal Code Noise Ordinance. With regard to long-term noise impacts, the Noise Element contains stated goals, objectives, policies, and implementation programs for noise control.

Goal: A city where noise does not reduce the quality of urban life.

Objective 2: Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses.

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

Objective 3: Reduce or eliminate nonairport related intrusive noise, especially relative to noise sensitive uses.

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

Implementation P5: Continue to enforce, as applicable, city, state and federal regulations intended to abate or eliminate disturbances of the peace and other intrusive noise.

Implementation P11: For a proposed development project that is deemed to have a potentially significant noise impact on noise sensitive uses, as defined by this chapter, require mitigation measures, as appropriate, in accordance with California Environmental Quality Act and city procedures.

Implementation P16: Use, as appropriate, the "Guidelines for Noise Compatible Land Use" (Exhibit I),¹ or other measures that are acceptable to the city, to guide land use and zoning reclassification, subdivision, conditional use and use variance determinations and environmental assessment considerations, especially relative to sensitive uses, as defined by this chapter, within a CNEL of 65 dB airport noise exposure areas and within a line-of-sight of freeways, major highways, railroads or truck haul routes.

L.A. CEQA Thresholds Guide

In 2006, the City set forth the L.A. CEQA Thresholds Guide, which was intended to provide guidance, as a voluntary tool, for CEQA impact analyses. Today, these thresholds are only used as guidance in

instances where City staff finds they are beneficial to use and supported with substantial evidence.³⁴ In addition, the L.A. CEQA Thresholds Guide recognizes that its applicability and use may be re-evaluated after a period of use.

Updates to Thresholds and Methodology for Construction Noise and Vibration

The City of Los Angeles adopted updates to Thresholds and Methodology for Construction Noise and Vibration (Thresholds Update) in August 2024.³⁵

The construction thresholds included in the Thresholds Update are intended to be suited to the generally urban nature of the City, while still recognizing the importance of human health, including sleep disruption. The updated thresholds are intended to account for reasonable expectations regarding construction noise and vibration during daytime and nighttime hours in the context of the City's physical environments, and also include absolute maximum noise levels that are intended to protect human health. As part of the Thresholds Update, the City requires environmental protection measures (EPMs) to be implemented as part of proposed development projects, where warranted, and adopted as enforceable conditions.

Daytime Construction Noise Thresholds Under The Thresholds Update

Increase Over Ambient. For construction activities that occur between 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 8:00 a.m. and 6:00 p.m. on Saturdays, no numerical threshold above ambient noise levels.

Absolute Thresholds. On- and off-site construction noise during daytime hours (7:00 a.m. and 7:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays) are limited to a maximum 80 dBA L_{eq} (8-hour) absolute threshold at sensitive uses (at the property line with outdoor uses or at the exterior of the building), including outdoor public recreational areas.

This threshold applies to residential uses (at the property line with outdoor uses or at the exterior of the building); including expansive upper-level deck/open spaces areas that provide for the recreational use of residents. Examples include large patios or decks that are the primary outdoor use area in an apartment complex. However, this standard does not apply to private residential balconies which may or may not extend past the exterior of a building.

Nighttime Construction Noise Thresholds Under The Thresholds Update

Nighttime construction activities shall not be permitted unless a variance is approved by the City of Los Angeles Police Commission. In the event that such variance is granted, the following thresholds shall apply.

Increase Over Ambient. For construction activities that occur between 7:00 P.M. and 7:00 A.M. Monday through Friday, and between 6:00 P.M. and 8:00 A.M. on Saturdays, and anytime on Sundays or national holidays, noise levels at sensitive uses would not exceed 5 dBA above the ambient noise level at the receptor.

³⁴ City of Los Angeles, Updates to Thresholds and Methodology for Construction Noise and Vibration, 2024.

³⁵ City of Los Angeles, Updates to Thresholds and Methodology for Construction Noise and Vibration, 2024.

The Project is not applying for nighttime construction. Therefore, nighttime thresholds would not apply.

Vibration Thresholds for Human Annoyance Under The Thresholds Update

For construction activities that occur between 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 8:00 a.m. and 6:00 p.m. on Saturdays, no numerical threshold is included related to human annoyance.

During nighttime hours (between 7:00 p.m. and 7:00 a.m. Monday through Friday, and between 6:00 p.m. and 8:00 a.m. on Saturdays), and anytime on Sundays or national holidays, construction activities shall not generate groundborne vibration levels that exceed 80 VdB at the exterior of a sensitive use building.

Vibration Thresholds for Building Damage Under The Thresholds Update

Architectural Building Damage—Construction activities shall not exceed the following building damage thresholds for the identified structures:

- Fragile Buildings: 0.1 PPV
- Historic Buildings: 0.25 PPV
- Older³⁶ Residential Structures: 0.3 PPV
- New Residential Structures: 0.5 PPV
- Modern Industrial/Commercial Buildings: 0.5 PPV

³⁶ A building over 50 years can be considered an “older” residential structure. Source: City of Los Angeles, Updates to Thresholds and Methodology for Construction Noise and Vibration, 2024

4.0 EXISTING CONDITIONS

4.1 Existing Noise Sources

The Project Site is in an urbanized area that is developed with a diverse mix of land uses. The Project Site is impacted by various noise sources. Mobile sources of noise, including traffic along South Figueroa Street, West 38th Street, South Flower Drive, West 39th Street, and Interstate 110 (Harbor Freeway) are the most common and prominent existing sources of noise at the Project Site and in the surrounding area. Other ambient existing sources of noise on and near the Project Site include parking lot noise and mechanical equipment noise (e.g., heating, ventilation, and air conditioning [HVAC] units) operating at the Project Site, noise from existing nearby commercial and residential uses, Exposition Park and its soccer and football stadiums, and other miscellaneous noise sources associated with typical urban activities (e.g., idling cars/trucks, pedestrians, car radios and music playing, dogs barking, etc.).

4.2 Ambient Noise Levels

To establish baseline noise conditions at the Project Site in the immediately surrounding area, Kimley-Horn conducted four short-term (15-minute) measurements on Tuesday, October 22, 2024; see [Appendix A: Noise Data](#) for additional details regarding how the ambient noise measurements were taken.³⁷ The noise measurement sites were selected to be representative of the existing ambient noise levels at the noise-sensitive uses adjacent to the Project Site. The 15-minute daytime measurements were taken between 12:16 p.m. and 2:01 p.m. Measurements of L_{eq} are considered representative of the noise levels throughout the day. The average noise levels measured at each location are listed in [Table 4: Existing Noise Measurement Locations and Measurements](#) and shown on [Table 5: Sensitive Receptors](#).

Site	Location	Adjacent Land Use	Measurement Period	Duration	Daytime Average L_{eq} (dBA) ¹
ST-1	Northwest corner of Project Site along West 38 th Street	Residential	12:16 p.m. – 12:31 p.m.	15 minutes	60.8
ST-2	South Figueroa Street between West 38 th Street and West 39 th Street	Residential	12:35 p.m. – 12:50 p.m.	15 minutes	63.5
ST-3	Northwest corner of West 39 th Street and South Flower Drive	Recreation	1:26 p.m. – 1:41 p.m.	15 minutes	63.7
ST-4	Southeast corner of Project Site along South Flower Drive	Residential	1:46 p.m. – 2:01 p.m.	15 minutes	58.9

Source: Noise measurements taken by Kimley-Horn and Associates, October 22, 2024.
See [Appendix A](#) for noise measurement results.

Based on field observations, the current ambient noise at the measurement locations is dominated by local traffic and, to a lesser extent, other typical urban noises. As indicated in [Table 4](#), the existing ambient noise levels at the off-site noise receptor locations ranged from 58.9 dBA L_{eq} at measurement location ST-4 to 63.7 dBA L_{eq} at measurement location ST-3.

³⁷ The ambient noise measurements were taken in accordance with the City's standards, which require ambient noise to be measured over a period of at least 15 minutes; See Section 111.01 of the LAMC.



SOURCE: Nearmap, 2024



FIGURE 4: Noise Measurement Locations and Sensitive Receptors

3822 SOUTH FIGUEROA PROJECT

4.3 Existing Groundborne Vibration Levels

Based on field observations during the noise measurements, the primary source of existing groundborne vibration in the vicinity of the Project Site is vehicular travel (e.g., standard cars, refuse trucks, delivery trucks, construction trucks, school buses, and buses) on nearby roadways. According to the FTA technical study “Federal Transit Administration: Transit Noise and Vibration Impact Assessments,” typical road traffic-induced vibration levels are unlikely to be perceptible by people. Specifically, the FTA study reports that “[i]t is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads.”³⁸ Trucks and buses typically generate groundborne vibration velocity levels of around 63 VdB (at a distance of 50 feet), and these levels could reach 72 VdB when trucks and buses pass over traffic speed bumps in the road. Per the FTA, 74 VdB is the dividing line between barely perceptible (with regard to ground vibration) and distinctly perceptible.³⁹ Therefore, existing groundborne vibration in the vicinity of the Project Site is generally below the perceptible level. However, groundborne vibration associated with heavy trucks traveling on road surfaces with irregularities, such as speed bumps and potholes, could reach the perceptible threshold.

4.4 Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. The L.A. CEQA Thresholds Guide states that noise-sensitive uses include residences, transient lodgings (hotels), schools, libraries, churches, hospitals, nursing homes, auditoriums, concert halls, amphitheaters, playgrounds, and parks.⁴⁰ Similarly, the City of Los Angeles General Plan Noise Element defines sensitive noise receptors as single-family and multi-unit dwellings, long-term care facilities (including convalescent and retirement facilities), dormitories, motels, hotels, transient lodging, and other residential uses; houses of worship; hospitals; libraries; schools; auditoriums; concert halls; outdoor theaters; nature and wildlife preserves; and parks.⁴¹ Based on review of the land uses in the vicinity of the Project Site, six noise receptor locations were selected to represent noise-sensitive uses within 500 feet of the property line of the Project Site. Sensitive receptors near the Project Site are shown in [Table 5: Sensitive Receptors](#) (see [Figure 4](#)), along with the Noise Measurement Location that represents each sensitive receptor. These locations represent areas with land uses that could qualify as noise-sensitive uses according to the definition of such uses in the City’s L.A. CEQA Thresholds Guide and the General Plan.

³⁸ FTA, Transit Noise and Vibration Impact Assessment, September 2018, p. 122.

³⁹ FTA, Transit Noise and Vibration Impact Assessment, September 2018, Table 5-5.

⁴⁰ City of Los Angeles, L.A. CEQA Thresholds Guide, p. I.1-3

⁴¹ City of Los Angeles, General Plan Noise Element, 1999

Table 5: Sensitive Receptors	
Receptor Description	Distance¹ and Direction from the Project
Sensitive Receptor 1 – Residential (represented by ambient noise measurement ST-1 and ST-2)	Adjacent to the Project Site on the north/west
Sensitive Receptor 2 – Residential (represented by ambient noise measurement ST-2 and ST-4)	Adjacent to the Project Site on the south
Sensitive Receptor 3 – Residential (represented by ambient noise measurement ST-1)	50 feet to the north of the Project Site
Sensitive Receptor 4 – Exposition Park (represented by ambient noise measurement ST-2)	200 feet to the west of the Project Site
Sensitive Receptor 5 – Residential (represented by ambient noise measurement ST-4)	300 feet to the south of the Project Site
Sensitive Receptor 6 – Dr. Theodore T. Alexander Jr. Science Center School (represented by ambient noise measurement ST-2)	550 feet to the northwest of the Project Site
Source: Google Earth, 2024.	
¹ Distance measured from the property line of the Project Site to the nearest receptor property line.	

5.0 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 State CEQA Guidelines Appendix G

California Environmental Quality Act (CEQA) Guidelines Appendix G contains analysis guidelines related to noise impacts. The City has determined to use these guidelines as thresholds of significance for this analysis. In accordance with Appendix G a project would create a significant environmental impact if it would result in the following:

- Generate 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;
- Generate excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project area to excessive noise levels.

Construction Noise

On-Site and Off-Site Construction. The City of Los Angeles adopted updates to the City's current construction noise thresholds and methodologies via the Thresholds Update in August 2024.⁴² Pursuant to the Thresholds Update, on- and off-site construction noise occurring between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday and between the hours of 8:00 a.m. and 6:00 p.m. on Saturdays up to a maximum 80 dBA L_{eq} (8-hour) absolute threshold at sensitive uses would be less than significant; no numerical threshold above ambient noise levels have been included.

Operational Noise

On-Site Operations. With respect to on-site operational noise, the significance criteria used in the noise analysis is an increase in the ambient noise level of 5 dBA (hourly L_{eq}) at the noise-sensitive uses, in accordance with the City of Los Angeles CEQA Thresholds Guide (Noise Regulations).⁴³

Off-Site Operations. The Noise Regulations do not apply to off-site traffic (i.e., vehicles traveling on public roadways). Therefore, the City has determined to assess the significance of the Project's off-site traffic noise based on whether the Project creates, or contributes to, an increase in the ambient noise level of 3 dBA in CNEL if the plus project noise levels fall within the "normally unacceptable" or "clearly unacceptable" category, as specified in the City's Noise Element, or an increase of 5 dBA in CNEL if the plus project noise levels fall within the "conditionally acceptable" or "normally acceptable" category at noise-sensitive uses.

Composite Operational Noise. In addition, the City has determined to assess the significance of the Project's composite noise levels (on-site and off-site sources) based on whether the Project's composite noise levels create an increase in the ambient noise level of 3 dBA or 5 dBA in CNEL (depending on where in the acceptable/unacceptable categories the noise levels fall as discussed

⁴² City of Los Angeles, Updates to Thresholds and Methodology for Construction Noise and Vibration, 2024.

⁴³ City of Los Angeles, L.A. CEQA Thresholds Guide, 2006.

above) at sensitive receptors.

Vibration

Increases in groundborne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Project construction could result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used, the location of that equipment relative to the receptor, and the operations involved.

Structural Damage. Heavy construction equipment (e.g., a large bulldozer), which would generate the highest vibration level of the equipment expected to be used for Project construction, would generate a vibration level of up to 0.089 in/sec PPV at a distance of 50 feet from the equipment.⁴⁴ With respect to potential building damage, pursuant to the Thresholds Update, construction vibration shall not exceed the following thresholds for the identified class of structures:⁴⁵

- Fragile Buildings: 0.1 PPV
- Historic Buildings: 0.25 PPV
- Older⁴⁶ Residential Structures: 0.3 PPV
- New Residential Structures: 0.5 PPV
- Modern Industrial/Commercial Buildings: 0.5 PPV

There are three historical resources present within a 250-foot radius of the Project Site.⁴⁷ Residential buildings located immediately south of the Project Site are within the Flower Drive District, which is eligible for listing in the California Register by the State Historical Resources Commission. The Zobelein Courtyard Apartments, located approximately 75 feet to the north of the Project Site, is designated as a Los Angeles Historic Cultural Monument. The California African American Museum, located approximately 200 feet to the west of the Project Site, is an eligible historic resource.

This evaluation uses the City's Thresholds Update structural damage criteria of 0.25 in/sec for these historic land uses (discussed above), 0.3 in/sec PPV at older residential structures (structures located to the west of the southern portion of the Project), and 0.5 in/sec PPV at near newer residential buildings (structure to the west [Hub Los Angeles] of the northern portion of the Project).

Human Annoyance. In accordance with the Thresholds Update, there is no numerical threshold related to human annoyance for construction activities occurring between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 8:00 a.m. and 6:00 p.m. on Saturdays. According to the City, intermittent human annoyance from construction activity is commonplace during daytime hours.

⁴⁴ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

⁴⁵ City of Los Angeles, Updates to Thresholds and Methodology for Construction Noise and Vibration, 2024.

⁴⁶ A building over 50 years can be considered an "older" residential structure. Source: City of Los Angeles, Updates to Thresholds and Methodology for Construction Noise and Vibration, 2024.

⁴⁷ GPA Consulting, 3822 S. Figueroa Street Historical Resources Technical Report, August 2024

5.2 Methodology

Construction

Construction noise levels were based on typical noise levels generated by construction equipment published by the FTA and FHWA. The FTA's Roadway Construction Noise Model (RCNM) was used to estimate construction noise levels at 50 feet from all pieces of equipment to determine the loudest construction phase. Utilizing the reference noise level data from RCNM, the construction phase with the highest calculated noise level (grading) was modeled using the SoundPLAN Model to determine how the sound from construction equipment would propagate and determine noise levels at the Project property line. In accordance with the noise thresholds, ambient noise levels are no longer a relevant measurement when analyzing daytime construction activities. Following the adoption of the City's Thresholds Update, noise from grading equipment was modeled as an area source across the entire Project Site. This analysis is appropriate because L_{eq} can be used to describe the noise level from the operation of each piece of equipment separately, and the levels can be combined to represent the noise level from all equipment operating at the Project Site concurrently during a given period.

Operations

The analysis of the Existing and Existing Plus Project noise environments is based on noise prediction modeling and empirical observations. Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels were collected from published sources from similar types of activities and used to estimate noise levels expected with the Project's stationary sources. The reference noise levels are used to represent a worst-case noise environment as noise level from stationary sources can vary throughout the day. Operational noise is evaluated based on the City's noise standards.

Vibration

Groundborne vibration levels associated with construction activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment. Potential groundborne vibration impacts related to building/structure damage and interference with sensitive existing operations were evaluated, considering the distance from construction activities to nearby land uses and typically applied criteria for structural damage.

Groundborne noise levels associated with construction activities for the Project were evaluated utilizing conversion factors obtained from FTA published data. According to the FTA, groundborne A-weighted noise levels can be estimated utilizing the average vibration velocity level.⁴⁸ For low frequency ground vibration such as that generated by construction equipment, the groundborne noise level is estimated by subtracting 50 dB from the vibration velocities (VdB).⁴⁹

⁴⁸ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

⁴⁹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.

6.0 POTENTIAL IMPACTS AND MITIGATION

6.1 Project-Level Impacts

Threshold 6.1 *Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Construction

On-Site Construction Noise

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., demolition, land clearing, grading, excavation). Noise generated by construction equipment, including earth movers and material handlers, can reach high levels that can affect noise-sensitive receptors near the construction site. Construction activities for the Project would include demolition, grading, excavation, paving, building construction, and architectural coating. Noise levels associated with individual construction equipment to be used during Project construction are listed in [Table 6: Project Construction Equipment Noise Levels](#).⁵⁰ It should be noted that the noise level values shown in [Table 6](#) are for the equipment when operating at full power 50 feet from a sensitive receptor, without taking into account any intervening structures or topography that may reduce noise levels. Construction noise was calculated accounting for each piece of equipment's usage factor, or the fraction of time that the equipment would be in use at full power over a specific period of time, based on Table 1 of RCNM.⁵¹ As shown on the table, individual pieces of construction equipment anticipated to be used during construction of the Project would produce maximum noise levels (L_{max}) of 74 to 90 dBA at a reference distance of 50 feet from the noise source. Other primary sources of acoustical disturbance may include random incidents, which would last less than one minute (such as dropping of materials or the hydraulic movement of machinery lifts). Following the City's Thresholds Update, construction noise was predicted at the nearest noise-sensitive receptors utilizing the FHWA's RCNM and SoundPLAN.⁵²

Construction Phase	Equipment ¹	Typical Noise Level (dBA L_{max}) at 50 feet from Source	Usage Factor (%) ²
Demolition	Concrete Saw	90	20
	Tractor	84	40
	Dozer	82	40
Site Preparation	Grader	85	40
	Tractor	84	40
	Dozer	82	40
Grading	Grader	85	40
	Tractor	84	40
	Dozer	82	40
Infrastructure Improvements	Forklift	85	50
	Tractor	84	40

⁵⁰ Federal Highway Association, Roadway Construction Noise Model, User Guide 2005.

⁵¹ Federal Highway Association, Roadway Construction Noise Model, User Guide 2005.

⁵² City of Los Angeles, Updates to Thresholds and Methodology for Construction Noise and Vibration, 2024

Table 6: Project Construction Equipment Noise Levels			
Construction Phase	Equipment ¹	Typical Noise Level (dBA L _{max}) at 50 feet from Source	Usage Factor (%) ²
Building Construction	Crane	81	16
	Generator	81	50
	Welder	74	40
	Forklift	85	50
	Tractor	84	40
	Crane	81	16
Architectural Coating	Generator	81	50
	Welder	74	40
	Compressor	78	40
Source: Federal Highway Association, Roadway Construction Noise Model, User Guide 2005			
1. Equipment compiled based on air quality modeling defaults and contractor input.			
2. Usage factor represents the percentage of time the equipment would be operating at full power.			

Table 7: Project Maximum Construction Noise Levels shows the estimated maximum exterior construction noise levels at the nearest sensitive receptors to the Project Site.⁵³ The receptors surrounding the Project Site consist of multiple stories. To determine the potential noise impacts at upper floors of sensitive receptors, the SoundPLAN model was utilized to calculate construction noise levels at all levels of the neighboring receptors.

Table 7: Project Maximum Construction Noise Levels					
Receptor	Noise Threshold (dBA L _{eq}) ¹	Unmitigated Maximum Noise Level at Receptor (L _{eq}) ²	Unmitigated Noise Level Exceeds Threshold?	Mitigated Maximum Noise Level at Receptor (L _{eq}) ^{2,3}	Mitigated Noise Level Exceeds Threshold?
1 – Residential (west and north)	80	80.4	Yes	68.4	No
Floor 1		79.8		70.0	
Floor 2		80.4		70.1	
Floor 3		80.4		69.9	
Floor 4		80.2		63.9	
Floor 5		79.9			
2 – Residential (south)	80	83.6	Yes	74.8	No
Floor 1		82.5		72.3	
Floor 2					
3 – Residential (north)	80	74.6	No	60.9	No
Floor 1				62.1	
Floor 2					
4 – Exposition Park (southwest)	80	57.2	No	45.7	No
5 – Residential (south)	80	52.1	No	38.3	No
Floor 1				41.0	
Floor 2					
6 – Alexander Science Center School (northwest)	80	51.0	No	39.8	No
1. Per the City's Thresholds Update.					
2. Per the methodology described in the City's Thresholds Update, construction equipment noise has been modeled as an area source covering the entire Project Site.					
3. Assumes noise level reductions provided by Mitigation Measure NOI-MM-1 (mufflers) and Mitigation Measure NOI-MM-4 (temporary walls).					
Source: Federal Highway Administration, <i>Roadway Construction Noise Model</i> , 2006. Refer to Appendix A for noise modeling results for each construction phase.					

⁵³ For predicted construction noise levels for all construction phases, see [Appendix A](#).

Construction-related noise would be temporary and would not result in a permanent increase in ambient noise levels in the area. Construction activities would also be prohibited between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday and 6:00 p.m. to 8:00 a.m. on Saturdays, and at any time on Sunday (typical construction days will end before 9:00 p.m., as is customary).⁵⁴ The City's permitted hours of construction are required in recognition that construction activities undertaken during daytime hours are a typical part of living in an urban environment and do not cause a significant impact. As shown in [Table 7](#), Project construction noise would exceed the City's Thresholds Update significance criterion of 80 dBA L_{eq} at receptor 1 (residential use to the west and north of the Project Site) and receptor 2 (residential use to the south of the Project Site).

Implementation of Mitigation Measures NOI-MM-1 through NOI-MM-4, provided below, would reduce the Project's construction noise levels. Specifically, Mitigation Measure NOI-MM-1 requires the proper maintenance of construction equipment and the installation of noise shielding/muffling devices. The FHWA states that muffler systems can reduce noise levels by 10 dBA or more.⁵⁵ Mitigation Measure NOI-MM-2 requires the enclosure or screening of outdoor mechanical equipment. Mitigation Measure NOI-MM-3 requires the use of temporary noise barriers such as plywood walls with a minimum ½-inch thickness or sound blankets meeting a sound transmission class (STC) rating of 25 to achieve a minimum noise level reduction of five dBA at the receptors located adjacent to the Project Site to the west and south. Sound blankets meeting a STC 25 rating can achieve a minimum seven to 10 dBA reduction for construction equipment with 200 Hz or lower frequency.⁵⁶ A reduction of 10 dBA has been applied to account for the use of noise muffling devices required by Mitigation Measure NOI-MM-1, and an eight-foot tall solid barrier surrounding the Project Site has been input into the SoundPLAN model. As the receptors surrounding the Project Site consist of multiple stories, the effectiveness of a temporary barrier to reduce construction noise impacts at upper floors would be minimal. To determine the potential noise impacts at upper floors of sensitive receptors, the SoundPLAN model was utilized to calculate construction noise levels at all levels of the neighboring receptors. As shown in [Table 7](#), on-site construction noise with implementation of mitigation would not exceed the City's Thresholds Update significance criterion of 80 dBA L_{eq} . Therefore, construction noise impacts associated with on-site sources would be less than significant with mitigation incorporated.

Off-Site Construction Noise

The Project includes the undergrounding of utility lines along West 38th Street, South Flower Drive, and West 39th Street. Construction noise from work within the public right of way was calculated accounting for reach piece of equipment's usage factor in accordance with RCNM methodology. [Table 8: Off-Site Utility Installation Construction Noise Levels](#) summarizes the maximum noise levels associated with off-site utility installation. As shown, off-site utility installation would not exceed the City's Thresholds Update significance criterion of 80 dBA L_{eq} and impacts related to off-

⁵⁴ Note that the City's Thresholds Update designates daytime hours as between the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday. Project construction is not anticipated to occur after 7:00 p.m. Monday through Friday.

⁵⁵ Federal Highway Administration, *Special Report - Measurement, Prediction, and Mitigation*, Chapter 4 Mitigation, 2017.

⁵⁶ Environmental Noise Control. *Portable Acoustic Panels*, 2024. <https://environmental-noise-control.com/products/temporary-sound-walls/>, accessed September 2024

site construction would be less than significant.

Table 8: Off-Site Utility Installation Construction Noise Levels			
Receptor	Maximum Noise Level at Receptor (L_{eq} (dBA))¹	Noise Threshold (L_{eq} (dBA))²	Exceeded?
1 – Residential (west and north)	78.9	80	No
2 – Residential (south)	78.9	80	No
3 – Residential (north)	78.9	80	No
4 – Exposition Park (southwest)	59.7	80	No
5 – Residential (south)	78.9	80	No
6 – Dr. Theodore T. Alexander Jr. Science Center School (northwest)	58.7	80	No
1. Per the methodology described in the City's Thresholds Update, construction equipment noise has been modeled assuming the loudest piece of equipment is located nearest to the receptor. 2. Per the City's Thresholds Update.			
Source: Federal Highway Administration, <i>Roadway Construction Noise Model</i> , 2006. Refer to Appendix X of this Draft EIR for noise modeling results for each construction phase.			

In addition to off-site utility undergrounding, the Project would generate mobile-source noise from delivery/haul trucks and construction workers traveling to and from the Project Site during the Project's construction. Trucks would travel to and from the Project Site using South Figueroa Street. Haul and delivery trucks and construction workers are expected to arrive at the Project Site before construction starts and leave when construction ends, and thus, would not overlap with the noise generated by the Project's construction equipment. Although construction workers would arrive from various directions, worker trips would likely all utilize South Figueroa Street to arrive at the Project Site. It is reasonable to assume that workers would already have arrived at the Project Site to begin construction activities prior to the arrival of haul and delivery trucks.

The greatest contributor to on-road traffic noise during construction would be haul and delivery trucks arriving from Harbor Freeway to the Project Site via South Figueroa Street. However, this analysis considers noise generated by both haul and delivery trucks and worker vehicles (passenger vehicles). According to default modeling assumptions based on the air quality assessment prepared by Kimley-Horn, the construction phase with the highest assumed number of trucks would be building construction, when it is anticipated that there would be up to 28 daily one-way haul and delivery truck trips and 163 daily one-way worker trips accessing the Project Site. Assuming conservatively that all daily 28 haul and delivery truck trips and 163 worker trips would pass through the same roadway segment within a one hour period, the estimated noise level from the building construction trips would be 65.8 dBA L_{eq} at 20 feet from receptors. This worst-case noise level would not exceed the City's Thresholds Update significance criterion of 80 dBA L_{eq} for on- and off-site construction activities. Therefore, temporary noise impacts from off-site utility installation and off-site mobile sources would be less than significant.

Operations

The proposed Project consists of a seven-story residential and commercial mixed-use development. Project operations would result in the generation of noise from mechanical equipment (e.g., HVAC, etc.), potential amplified music on the roof deck, parking and access noise, and trash/recycling truck pickup noise. Although these noise sources would be consistent with existing noise sources in the Project Site vicinity and with the noise generated by the existing uses on the Project Site, existing on-

site operational noise has not been accounted for in the analysis below to provide a conservative analysis.

On-Site Mechanical Equipment Noise

Potential stationary noise sources related to long-term Project operations would include mechanical equipment (e.g., HVAC equipment) located on the rooftop. Mechanical equipment (e.g., HVAC equipment) typically generates noise levels of approximately 52 dBA at 50 feet.⁵⁷ Pursuant to LAMC Section 112.02 (Air Conditioning, Refrigeration, Heating, Pumping, Filtering Equipment), the operation of any air conditioning, refrigeration, or heating equipment shall not create any noise which would cause the noise level at another occupied property to exceed the ambient noise level by more than 5 dBA. According to the Project's site plan, mechanical equipment would be located within the central and southeastern portion of the rooftop.

Noise levels that would be generated by the mechanical equipment have been calculated without accounting for shielding that would be provided by potential screening or architectural features and are shown in [Table 9: Mechanical Equipment Noise Levels](#). As shown, mechanical equipment noise levels would not increase the ambient noise levels beyond the acceptable levels (5 dBA over ambient). Project mechanical equipment would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance. Therefore, noise impacts from mechanical equipment would be less than significant.

Table 9: Mechanical Equipment Noise Levels

Receptor	Distance to Receptor (feet) ¹	Level at Receptor (dBA) ²	Ambient Level (dBA) ³	Ambient + Project Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant?
1 – Residential (west and north)	35	55.1	60.8	61.8	1.0	5.0	No
2 – Residential (south)	25	58.0	58.9	61.5	2.6	5.0	No
3 – Residential (north)	80	47.9	60.8	61.0	0.2	5.0	No
4 – Exposition Park (southwest)	230	38.7	63.5	63.5	0.0	5.0	No
5 – Residential (south)	315	36.0	58.9	58.9	0.0	5.0	No
6 – Dr. Theodore T. Alexander Jr. Science Center School (northwest)	600	30.4	63.5	63.5	0.0	5.0	No

1. Distance estimated assuming equipment location based on site plan.
2. Distance attenuation calculated assuming reference noise level of 52 dBA Leq at 50 feet for rooftop mechanical equipment: Source for reference level: Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010.
3. Refer to [Table 4](#) and [Table 5](#) for representative ambient noise levels.

Open Space

The Project would include two outdoor courtyard areas on the first and second floors, a pool courtyard on the second floor, and two roof decks on the seventh floor. Per AB 1307, Section 21085 of the Public Resources Code, for residential uses, the effects of noise generated by Project

⁵⁷ Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010

occupants and their guests on human beings is not a significant effect on the environment. Therefore, no further analysis is required.

Amplified Music

Noise levels from the potential installation of an amplified sound system at the rooftop pool deck and ground floor parklets have been estimated. This analysis does not apply to personal speakers (i.e., personal stereos or speakers) that may be operated by residents of the Project. It is assumed that the use of amplified sound systems would be allowable only during daytime hours (7:00 a.m. to 10:00 p.m.) as detailed in Project Design Feature (PDF) NOISE-1, below.

PDF NOISE-1 Operation of permanently wired amplified sound systems at the rooftop pool deck and ground floor parklets shall be limited to between the hours of 7:00 a.m. and 10:00 p.m. and shall not exceed a volume of 80 dBA measured at 3 feet from any speaker. In addition, all speakers shall be designed and installed to direct sound toward the center of the Project terraces.

Notably, as is customary, the amplified music that would be utilized by the Project is ambient background music that would allow for conversations to take place. However, to provide a conservative analysis, it is assumed that sound levels would equate to amplified voice and music devices (e.g., radio, musical instrument, phonograph, television receiver, or other machine) or other sounds in such a manner as to disturb the peace, quiet, and comfort of neighbors. Music playing on a stereo generates maximum noise levels of approximately 80 dBA at 3 feet from the speaker.⁵⁸ The outdoor living spaces would be elevated and shielding would be provided by building walls and architectural features such as paneling and accents. However, noise level reductions (for shielding or additional attenuation due to building height) have conservatively not been assumed in the modeling.

The courtyard located on the first floor would be enclosed by the Project building and has not been included in this analysis. The second floor contains three courtyards. The internal courtyard in the southern portion of the building is internal and enclosed on all four sides. The pool courtyard would be shielded by the Project building on the north and east and by glass railing on the south and west. The open space courtyard would be enclosed by the project building on the west, north, and east sides. The roof decks on the seventh floor would be shielded by the Project building on the south, glass railings on the north, and either the Project building or a glass railing on the east and west. Where the Project building would provide shielding from a specific receptor, a highly conservative 10 dBA reduction has been applied to the noise level estimation.

As shown in [Table 10: Outdoor Amplified Music Noise Levels](#), noise levels from the outdoor open spaces generated by a permanent amplified sound system would not increase ambient noise levels beyond the applicable threshold (5 dBA over ambient pursuant to the City's Noise Regulations). Open space areas within the Project Site would not result in the generation of a substantial permanent increase in ambient noise levels due to amplified music in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards

⁵⁸ Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010

of other agencies. Therefore, noise impacts from outdoor open space generated by amplified music would be less than significant.

Table 10: Outdoor Amplified Music Noise Levels

Receptor ¹	Combined Amplified Noise Level at Receptor (dBA)	Ambient Level (dBA) ²	Ambient + Amplified Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant ?
1 – Residential (west and north)	60.6	60.8	63.7	2.9	5.0	No
2 – Residential (south)	58.8	58.9	61.9	3.0	5.0	No
3 – Residential (north)	52.3	60.8	61.4	0.6	5.0	No
4 – Exposition Park (southwest)	43.5	63.5	63.5	0.0	5.0	No
5 – Residential (south)	40.0	58.9	59.0	0.1	5.0	No
6 – Dr. Theodore T. Alexander Jr. Science Center School (northwest)	37.9	63.5	63.5	0.0	5.0	No

1. Distance measured from the center of area to receptor property line.

2. See Table 4 and Table 5 for representative ambient noise levels.

On-Site Parking

Passenger vehicles would access the Project Site's ground floor enclosed parking via a driveway on South Flower Drive. Noises associated with parking activities include noise associated with vehicles starting and stopping, vehicle doors closing, car horns and car alarms, loading and unloading and conversations. Noise levels within the parking facilities would fluctuate with the amount of automobile and human activity. The noise levels from these activities typically range from 53 to 61 dBA and are short-term.⁵⁹ Ground floor parking would be wrapped and shielded in by the Project building. When a noise barrier such as the Project building is located between a noise source and receiver, the line-of-sight is interrupted, which reduces the level of the noise that reaches the receiver. The amount of the reduction depends on the mass and rigidity of the barrier.⁶⁰ The noise level reaching the receiver can be reduced by approximately 15 dBA when a building stands between the noise source and receiver.⁶¹ The parking spaces, which would be entirely enclosed, would not result in any measurable increases in ambient noise levels within the Project Site area. Therefore, noise levels generated by Project parking activities, vehicle access, and loading and unloading would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project Site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, noise impacts from the parking facilities would be less than significant.

Trash/Recycling Truck Pickups

The residential and retail trash and recycling rooms would be located within enclosed areas of the

⁵⁹ Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.

⁶⁰ California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013

⁶¹ Federal Highway Administration, *Roadway Construction Noise Model User Guide, Appendix A*. June 2017 Available at: https://www.fhwa.dot.gov/ENVIRONMENT/noise/construction_noise/rcnm/rcnm10.cfm#appa

ground floor level of the proposed building. Trash/recycling trucks and pickup activities customarily generate noise levels of approximately 85 dBA.⁶² Trash/recycling truck pickup activity that services the Project Site area currently occurs under existing conditions, and therefore, would not constitute a new noise source. The hours of trash/recycling pickup activity would depend on the service provider and would not be regulated by the Project. Therefore, noise impacts from trash/recycling truck pickups would be less than significant.

On-Site Composite Noise

An evaluation of the Project's composite noise levels, including all on-site Project-related noise sources plus the existing ambient level, was conducted to identify the potential maximum Project-related noise level increase that may occur at noise-sensitive receptor locations. The overall sound environment of the areas surrounding the Project Site would include contributions from each on-site noise source associated with the operation of the Project. On-site noise sources associated with operation of the Project would include the use of mechanical equipment and amplified music at outdoor spaces.⁶³ **Table 11: On-Site Composite Noise Levels**, presents the estimated composite noise from on-site Project-related noise sources at noise sensitive receptors. As reported in **Table 11**, the Project would result in a maximum increase of 4.5 dBA at the residential uses to the south of the Project Site. Composite Project noise levels would be below the 5 dBA significance threshold. Composite operational noise levels would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project Site in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Therefore, noise impacts relating to the on-site composite noise level during Project operations would be less than significant.

Table 11: On-Site Composite Noise Levels

Receptor ¹	Mechanical Equipment (dBA)	Amplified Noise (dBA)	Ambient Level (dBA) ¹	Ambient + Project Noise at Receptor (dBA)	Incremental Increase (dBA)	Incremental Increase Threshold (dBA)	Significant ?
1 – Residential (west and north)	55.1	60.6	60.8	64.3	3.5	5.0	No
2 – Residential (south)	58.0	58.8	58.9	63.4	4.5	5.0	No
3 – Residential (north)	47.9	52.3	60.8	61.6	0.8	5.0	No
4 – Exposition Park (southwest)	38.7	43.5	63.5	63.6	0.1	5.0	No
5 – Residential (south)	36.0	40.0	58.9	59.0	0.1	5.0	No
6 – Dr. Theodore T. Alexander Jr. Science Center School (northwest)	30.4	37.9	63.5	63.5	0.0	5.0	No

1. See Table 4 and Table 5 for representative ambient noise levels.

Off-Site Traffic Noise

Implementation of the Project would generate increased traffic volumes along nearby roadway segments. According to the Average Daily Traffic (ADT) Volumes provided in the traffic analysis

⁶² Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010

⁶³ On-site parking and trash/recycling rooms would be fully enclosed, and would not contribute to ambient noise levels. Therefore, they have not been included in the composite noise analysis.

prepared by Kimley Horn (March 2025),⁶⁴ the Project would increase the ADT volume, which would result in noise increases on Project Site study area roadways. Traffic noise levels on roadways primarily affected by Project-generated trips were calculated using the FHWA’s Highway Noise Prediction Model (FHWA-RD-77-108). Traffic noise modeling was conducted for conditions with and without the Project, based on traffic volumes from the Transportation Assessment, accounting for existing trips to be removed. As shown in [Table 12: Opening Year and Opening Year Plus Project Traffic Noise Levels](#), Project traffic-generated noise levels on the Project Site study area roadways would range between 53.5 dBA CNEL along South Flower Drive between West 38th Street and West 39th Street and 70.0 dBA CNEL along South Figueroa Street between Flower Street and West 39th Street at 50 feet from the roadway centerline. The Project would result in a maximum increase of 2.4 dBA CNEL along South Flower Drive between West 38th Street and West 39th Street. An increase of 1.9 dBA CNEL along West 38th Street between South Figueroa Street and South Flower Drive, and an increase of 0.3 dBA CNEL along West 39th Street between South Figueroa Street and South Flower Drive, and an increase of 0.1 dBA CNEL along Figueroa Street between South Flower Street and West 39th Street. Increases in traffic noise would not result in an increase of 3 dBA in CNEL, causing ambient noise levels to rise to or within the “normally unacceptable” or “clearly unacceptable” category, as specified in the City’s Noise Element, or causing an increase of 5 dBA in CNEL. Therefore, noise impacts from off-site traffic noise would be less than significant.

Table 12: Opening Year and Opening Year Plus Project Traffic Noise Levels							
Roadway Segment	Existing Noise Compatibility	Opening Year		Opening Year + Project		Incremental Increase	Significant Impact? ²
		ADT	dBA CNEL ¹	ADT	dBA CNEL ¹		
West 38 th Street between South Figueroa Street and South Flower Drive	Normally Acceptable	1,135	51.9	1,757	53.8	1.9	No
South Flower Drive between West 38 th Street and West 39 th Street	Normally Acceptable	931	51.1	1,648	53.5	2.4	No
West 39 th Street between South Figueroa Street and South Flower Drive	Normally Acceptable	11,774	64.9	12,447	65.2	0.3	No
South Figueroa Street between Flower Street and West 39 th Street	Conditionally Acceptable	37,237	69.9	37,592	70.0	0.1	No
ADT = average daily trips; dBA = A-weighted decibels; CNEL = Community Noise Equivalent Noise Level 1. Traffic noise levels are at 50 feet from the roadway centerline. 2. A significant impact would occur if the opening year plus project noise levels 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” or “clearly unacceptable” category, or an increase of 5 dBA in CNEL if the opening year plus project noise levels fall within the “conditionally acceptable” or “normally acceptable” category at noise-sensitive uses. Source: Based on traffic data provided by Kimley-Horn and Associates, Inc., March 2025. Refer to Appendix A for traffic noise modeling results.							

Based on the above, Project operations would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the City’s general plan or noise ordinance, or applicable standards of other agencies. Therefore, the Project’s operational noise impacts from on- and off-site sources would be less than significant.

Mitigation Measures: As analyzed above, construction of the Project would have the potential to result in significant noise impacts at sensitive receptor 1 and sensitive receptor 2 from on-site

⁶⁴ Kimley-Horn and Associates, Inc., 3822 Figueroa Transportation Assessment, March 2025.

construction activities. Therefore, the following mitigation measures are provided to reduce construction-related noise impacts:

Mitigation Measure NOI-MM-1 Noise Shielding and Muffling. Power construction equipment (including combustion engines), fixed or mobile, shall be equipped with noise shielding and muffling devices consistent with manufacturers' standards or the Best Available Control Technology. All equipment shall be properly maintained, and the Applicant or Owner shall require any construction contractor to keep documentation on-site during any earthwork or construction activities demonstrating that the equipment has been maintained in accordance with manufacturer's specifications.

Mitigation Measure NOI-MM-2 Enclosure or Screening of Outdoor Mechanical Equipment. All outdoor mechanical equipment (e.g., generators, compressors) shall be enclosed or visually screened. The equipment enclosure or screen shall be impermeable (i.e., solid material with minimum weight of 2 pounds per square feet) and break the line-of-sight between the equipment and any off-site Noise Sensitive Uses.

Mitigation Measure NOI-MM-3 Location of Construction Staging Areas. Construction staging areas shall be located as far from Noise-Sensitive Uses as reasonably possible and technically feasible in consideration of site boundaries, topography, intervening roads and uses, and operational constraints. The burden of proving what constitutes "as far as possible" shall be upon the Applicant or Owner, in consideration of the above factors.

Mitigation Measure NOI-MM-4 Temporary Walls. Noise barriers, such as temporary walls (minimum ½-inch thick plywood) or sound blankets (minimum STC 25 rating), that are a minimum of eight feet tall, shall be erected between construction activities and Noise-Sensitive Uses to achieve a minimum reduction of 5 dBA at sensitive residential receptors located adjacent to the west and south of the Project Site.

Level of Significance: Less than significant impact with mitigation incorporated.

Threshold 6.2 *Would the Project result in generation of excessive groundborne vibration or groundborne noise levels?*

Construction

On-Site Construction Vibration – Structural Damage

Increases in groundborne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Project construction would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved.

The FTA and Caltrans have published standard vibration velocities for construction equipment operations. Building damage can be cosmetic or structural. Ordinary buildings that are not

particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet. This distance can vary substantially depending on the soil composition and the underground geological layer between vibration source and the receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. Receptors susceptible to building damage include all structures located adjacent to the Project Site. According to the Historical Resources Technical Report prepared by GPA Consulting (2024)⁶⁵, there are historic structures in the Project Vicinity. This evaluation uses the structural damage criteria proposed by the City's Noise and Vibration Thresholds Update of 0.25 in/sec PPV for historic structures, 0.3 in/sec PPV at older residential structures, and 0.5 in/sec for modern residential, industrial, and commercial structures.⁶⁶

Table 13: Construction Vibration Impacts – Structural Damage lists the reference vibration levels for typical construction equipment (measured at 25 feet). The groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As shown in **Table 13**, based on FTA data, vibration velocities from typical heavy construction equipment that would be used during Project construction range from 0.003 to 0.210 in/sec PPV at 25 feet from the source of activity. Equipment expected to be used at the Project Site for which FTA guidance includes reference vibration levels for include bulldozers, haul trucks, and vibratory compactors/rollers.⁶⁷ Haul trucks would be staged at locations that would provide ease of access/egress from the Project Site and onto the roadway network. A vibratory compactor/roller would be used during the construction of parking areas. As shown in **Table 13**, impacts at the Zobelein Courtyard Apartments and California African American Museum would be less than significant. However, at a distance of five feet, the operation of a vibratory compactor/roller, large bulldozer, and loaded trucks would exceed the City's thresholds for historic structures (sensitive receptor 2), older residential structures (sensitive receptor 5), and new residential structures (sensitive receptor 1). Impacts at the nearest adjacent receptor and the other identified receptors would be potentially significant and mitigation would be required.

Table 13: Construction Vibration Impacts – Structural Damage						
Receptor	Estimated Vibration Velocity Levels at the Outside of the Nearest Off-Site Structures from the Project Construction Equipment				Significance Criteria (PPV)	Significant Impact?
	Vibratory Compactor/ Roller	Large Bulldozer/ Caisson Drilling	Loaded Trucks	Small Bulldozer		
FTA Reference Vibration Levels at 25 Feet	0.210	0.089	0.076	0.003	--	--
1 - Residential use to the west of the Project Site (Hub Los Angeles Coliseum) ¹	1.233	0.523	0.446	0.018	0.50	Yes
2 - Residential Uses to the south of the Project Site	1.233	0.523	0.446	0.018	0.25	Yes

⁶⁵ GPA Consulting, Historical Resources Technical Report, August 2024

⁶⁶ City of Los Angeles, Updates to Thresholds and Methodology for Construction Noise and Vibration, 2024

⁶⁷ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018. For equipment where FTA guidance does not include reference vibration levels for are assumed to not require analysis.

Table 13: Construction Vibration Impacts – Structural Damage

Receptor	Estimated Vibration Velocity Levels at the Outside of the Nearest Off-Site Structures from the Project Construction Equipment				Significance Criteria (PPV)	Significant Impact?
	Vibratory Compactor/ Roller	Large Bulldozer/ Caisson Drilling	Loaded Trucks	Small Bulldozer		
(Flower Drive Historic District) ²						
3 - Residential use to the north of the Project Site (Zobelein Courtyard Apartments) ²	0.063	0.027	0.023	0.001	0.25	No
5 - Residential use to the south of the Project Site along South Figueroa Street ³	1.233	0.523	0.446	0.018	0.30	Yes
6 - California African American Museum to the west of the Project Site ⁴	0.021	0.009	0.008	<0.001	0.50	No

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.
 1. City criteria for new residential structure.
 2. City criteria for historic structure.
 3. City criteria for older residential structure
 4. City criteria for modern industrial/commercial structure.

With implementation of Mitigation Measure NOI-MM-5, NOI-MM-6, and NOI-MM-7, potential building damage would be reduced to less-than-significant levels. With implementation of NOI-MM-5, a Vibration Control Plan would be prepared to document methods to reduce vibration velocities and NOI-MM-6 would require specific setbacks for vibratory equipment. As shown in [Table 14: Construction Vibration Impacts – Structural Damage \(Mitigated\)](#), operation of on-site construction equipment would not exceed applicable thresholds related to structural damage with implementation of mitigation. Therefore, the Project’s vibration impacts from on-site construction activities with respect to building damage would be less than significant with implementation of mitigation.

Table 14: Construction Vibration Impacts – Structural Damage (Mitigated)

Equipment	Estimated Vibration Velocity Levels at the Outside of the Nearest Off-Site Structures from the Project Construction Equipment			Significance Criteria (PPV)	Significant Impact?
	Vibratory Compactor/ Roller	Large Bulldozer/ Caisson Drilling	Loaded Trucks		
Required Setback (feet) (NOI-MM-6)	30	17	16	--	--
1 - Residential use to the west of the Project Site (Hub Los Angeles Coliseum) ¹	0.172	0.136	0.124	0.50	No
2 - Residential uses to the south of the Project Site (Flower Drive Historic District) ²	0.172	0.136	0.124	0.25	No

Table 14: Construction Vibration Impacts – Structural Damage (Mitigated)					
Equipment	Estimated Vibration Velocity Levels at the Outside of the Nearest Off-Site Structures from the Project Construction Equipment			Significance Criteria (PPV)	Significant Impact?
	Vibratory Compactor/ Roller	Large Bulldozer/ Caisson Drilling	Loaded Trucks		
5 - Residential use to the south of the Project Site along South Figueroa Street ³	0.172	0.136	0.124	0.30	No
Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Manual</i> , September 2018.					
1. City criteria for new residential structure.					
2. City criteria for historic structure.					
3. City criteria for older residential structure.					

On-Site Construction Vibration – Human Annoyance

The City has not established a quantitative human annoyance threshold during the permitted hours of construction, as construction activities that are undertaken during daytime hours are a typical part of living in an urban environment and construction vibration would not be anticipated to result in health impacts or to substantially affect the activities of the general public during daytime hours.⁶⁸ Because Project construction will comply with the City’s permitted hours of construction, vibration impacts for human annoyance would be less than significant, and no mitigation is required.

Off-Site Construction Vibration

Construction activities associated with off-site utility installation would occur at approximately 50 feet from sensitive receptors 1, 2, 3, and 5. At this distance, the use of a vibratory roller would result in vibration velocities of 0.098 in/sec PPV. Therefore, vibration from off-site utility installation would not exceed structural damage thresholds of 0.25 in/sec PPV for historic structures, 0.30 in/sec PPV for older residential structures, or 0.50 in/sec PPV for new residential structures. As there would be no nighttime construction activity, nighttime impacts would be less than significant.

With regard to construction trucks, Project construction would involve truck travel along nearby roadways, generating vibration events with each passing truck. During excavation, soil would be stockpiled within designated areas of the Project Site prior to export. According to the FTA Manual, a truck rarely creates vibration levels that exceed 70 VdB (equivalent to 0.012 in/sec PPV) at the source when on a roadway.⁶⁹ Therefore, vibration velocities would dissipate to below 0.012 in/sec PPV at all structures located along the haul route and impacts would be less than significant with respect to structural damage. As there would be no nighttime deliveries, impacts related to human annoyance would be less than significant. The factors influencing levels of groundborne vibration include vehicle speed, vehicle suspension, and wheel condition and type. The frequency of vibration events is not listed as an influencing factor for vibration velocity by the FTA.⁷⁰ As such, multiple trucks traveling along the roadway would increase the frequency of vibration events but would not affect the vibration velocity experienced by receptors. Therefore, vibration impacts pursuant to the

⁶⁸ City of Los Angeles, Construction Noise and Vibration Updates to Thresholds and Methodology, page 19, 2024.

⁶⁹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

⁷⁰ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

significance criteria for building damage and human annoyance from off-site construction activities would be less than significant.

On-Site Groundborne Noise

The Project would not include a subway or tunnel, and all construction equipment would be located at grade. In addition, there are no substantially insulated indoor noise receptors located within the Project vicinity. Therefore, the effects of airborne noise would be greater than groundborne noise levels.

According to the FTA, groundborne A-weighted noise levels can be estimated utilizing the average vibration velocity level.⁷¹ For low frequency ground vibration such as that generated by construction equipment, the groundborne noise level is estimated by subtracting 50 dB from the vibration velocities (VdB).⁷² Table 15: Construction Vibration Impacts – Groundborne Noise shows the estimated groundborne noise levels at the nearest receptors located approximately five feet from the Project Site (receptors adjacent to the north and south of the Project Site). According to Table 15, the use of vibratory construction equipment would exceed the FTA’s standard of 43 dBA at Category 2 Buildings (residences and buildings where people normally sleep) for infrequent vibration events.⁷³

74

Table 15: Construction Vibration Impacts – Groundborne Noise (Unmitigated)						
Equipment	Reference Level at 25 Feet (VdB)	Distance to Nearest Receptor (feet) ¹	Estimated Vibration Velocity Levels at Distance (VdB)	Groundborne Noise Level (dB) ²	Significance Threshold ³	Exceed Significance Thresholds?
Vibratory compactor/roller	94	5	115	65	43	Yes
Large Bulldozer/Caisson Drilling	87	5	108	58		Yes
Loaded Trucks	86	5	87	57		Yes
Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Manual</i> , September 2018.						
1. Nearest receptor is located approximately five feet from the Project construction area.						
2. For low frequency ground vibration such as that generated by construction equipment, the groundborne noise level is estimated by subtracting 50 dB from the vibration velocities (VdB).						
3. FTA Criteria for Category 2 Buildings (buildings where people normally sleep) for infrequent events.						

As shown in Table 14, implementation of MM-NOI-6 would require setback distances for vibratory equipment. Table 16: Construction Vibration Impacts – Groundborne Noise (Mitigated) shows the estimated groundborne noise levels at the nearest receptors with incorporation of setbacks as required by MM-NOI-6. At the required distances, vibration velocities would be reduced to 92 VdB for groundborne noise levels of 42 dB.⁷⁵ Therefore, the Project’s vibration impacts from on-site

⁷¹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

⁷² Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

⁷³ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

⁷⁴ The use of a drill is required to place piles for temporary shoring and support and would not be operated on a frequent basis.

⁷⁵ For low frequency ground vibration such as that generated by construction equipment, the groundborne noise level is estimated by subtracting 50 dB from the vibration velocities (VdB).

construction activities with respect to groundborne noise would be less than significant.

Table 16: Construction Vibration Impacts – Groundborne Noise (Mitigated)

Equipment	Reference Level at 25 Feet (VdB)	Distance to Nearest Receptor (feet) ¹	Estimated Vibration Velocity Levels at Distance (VdB)	Groundborne Noise Level (dB) ²	Significance Threshold ³	Exceed Significance Thresholds?
Vibratory compactor/roller	94	30	92	42	43	No
Large Bulldozer/Caisson Drilling	87	17	92	42		No
Loaded Trucks	86	16	92	42		No

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

1. Nearest receptor is located approximately five feet from the Project construction area.
2. For low frequency ground vibration such as that generated by construction equipment, the groundborne noise level is estimated by subtracting 50 dB from the vibration velocities (VdB).
3. FTA Criteria for Category 2 Buildings (buildings where people normally sleep) for infrequent events.

Operation

Operation of the Project would primarily involve personal automobiles used by employees, customers, and occasional loading and unloading. Due to the rapid drop-off rate of groundborne vibration and the short duration of the associated events, vehicular traffic-induced groundborne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.⁷⁶ According to the FTA's Transit Noise and Vibration Impact Assessment, trucks such as delivery trucks, refuse collection trucks, and occasional moving trucks rarely create vibration levels that exceed 70 VdB (equivalent to 0.012 inches per second PPV) when they are on roadways.⁷⁷ Groundborne noise levels resulting from a vibration velocity of 70 VdB would be approximately 20 VdB. As such, operation of the Project would not result in the generation of excessive ground-borne vibration or groundborne noise levels that would be perceptible in the vicinity of the Project Site. Therefore, vibration impacts associated with operation of the Project would be less than significant.

Mitigation Measures: As analyzed above, vibration impacts associated with off-site sources during construction would be less than significant. Therefore, no mitigation measures are required. However, on-site sources of vibration during construction would have the potential to result in significant temporary vibration impacts, and on-site sources of groundborne noise during construction would have the potential to result in significant temporary impacts. Therefore, the following mitigation measures are provided to reduce construction-related vibration impacts.

Mitigation Measure NOI-MM-5: Baseline Survey and Vibration Control Plan. Prior to demolition, grading/excavation, or construction, the Applicant shall retain the services of a Qualified Structural Engineer who shall prepare a survey establishing baseline structural conditions of potentially affected structures and a

⁷⁶ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018

⁷⁷ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018

Vibration Control Plan, which shall include the following:

- Documentation of a visual inspection of the potentially affected structures (by video and/or photography) to note the apparent physical condition of the buildings (e.g., cracks, broken panes, etc.);
- Details on types of equipment to be used, estimated vibration velocities, and distance to receptors;
- A shoring design to protect the identified structures from potential damage;
- Details on the equipment and/or alternative construction techniques to be used within the required setbacks to ensure that vibration velocities do not exceed potential structural damage thresholds of 0.25 in/sec PPV at the historic structures to the south of the Project Site (along South Flower Drive), 0.30 in/sec PPV at the older residential uses to the south of the Project Site (along South Figueroa Street), or 0.50 in/sec PPV at residential uses to the north of West 38th Street or the groundborne noise threshold of 93 VdB at adjacent residential uses.

Mitigation Measure NOI-MM-6: Construction Vibration (Except Shoring). Prior to construction, the Applicant shall retain a contractor to manage Project construction. The contractor shall ensure that when in operation, construction equipment such as vibratory compactors/rollers, large bulldozers/caisson drills, and loaded trucks are prohibited within 30 feet, 17 feet, and 16 feet, respectively, of any adjacent residential structures to ensure that vibration velocities would not exceed 93 VdB, to address potential impacts related to groundborne noise. This measure does not apply to temporary shoring activities or shoring infrastructure that must be installed to provide adequate physical support for excavation.

Mitigation Measure NOI-MM-7: Repair of Damage. In the event of damage to any non-historic building due to construction vibration, as verified by the Qualified Structural Engineer, a letter describing the damage to the impacted building(s) and recommendations for repair shall be prepared by the Qualified Structural Engineer within 60 days of the time when damage occurred. Repairs shall be undertaken and completed, at the Owner's or Applicant's expense, in conformance with all applicable codes.

In the event of vibration damage to any building that is designated or determined to be a historic resource pursuant to local or state law or that is determined to be potentially eligible for historic designation in a Historic Resources Survey, a letter describing the damage to the impacted building(s) and recommendations for repair shall be prepared by the Qualified Historian within 60 days of the time when damage occurred. Repairs shall be

undertaken and completed, at the Owner's or Applicant's expense, in conformance with the California Historical Building Code (Title 24, Part 8) as well as the Secretary of the Interior's Standards for the Treatment of Historic Properties and associated guidelines, as applicable and as determined by the Qualified Historian.

Level of Significance: Less than significant with mitigation.

Threshold 6.3 *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 of public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?*

The Project Site is located approximately 7.5 miles northeast of Los Angeles International Airport (LAX), 9.5 miles east of Santa Monica Airport, and 13 miles south of the Hollywood-Burbank Airport. The Project Site is not located within the Planning Boundary/Influence Area or within an existing or projected noise contour associated with any private or public airport. Therefore, approval of the Project would not result in any significant effects relating to excessive airport/airstrip noise.

Mitigation Measures: No mitigation is required.

Level of Significance: No impact.

6.2 Cumulative Impacts

Cumulative Construction Noise

The potential for cumulative construction noise impacts from on-site construction activities is based on the distance between the Project and each of the cumulative related projects (Related Projects). Noise from construction activities would normally affect the areas immediately adjacent to each of the construction sites, as well as areas that are less than 500 feet from a construction site.⁷⁸ Cumulative noise impacts could occur at receptors that are within 500 feet from two different construction sites. Therefore, based on the 500-foot distance, the cumulative construction noise impacts analysis is limited to Related Projects within 1,000 feet of the Project Site. The 1,000-foot distance is based on an assumption that a noise-sensitive receptor would be located halfway between the Project Site and the Related Project.

There are seven Related Projects within a 0.5-mile radius of the Project Site. The four Related Projects located within 1,000 feet of the proposed Project include Related Project 1 (California African American Museum located approximately 230 feet northwest of the Project Site), Related Project 6 (3900 Figueroa Street approximately 350 feet to the south of the Project Site), Related Project 7 (3851 Grand Avenue approximately 440 southeast of the Project Site), and Related Project 5 (3801 South Grand Avenue approximately 488 feet to the east of the Project Site). If construction of any of these Related Projects were to overlap with construction of the Project, cumulative construction noise level increase could occur at sensitive uses surrounding the Project Site. Based on the distance of receptors to Related Projects and the Project Site, Related Projects listed above

⁷⁸ City of Los Angeles, L.A. CEQA Thresholds Guide, 2006.

are in close enough proximity that their individual or combined short-term construction noise levels could have a cumulative impact on sensitive receptors analyzed herein. Related Project 1 is located nearest to Project sensitive receptor 1, the residential use located adjacent to the north and west of the Project Site. As shown in [Table 7](#), construction noise levels could reach up to 70.1 L_{eq} dBA at sensitive receptor 1. Assuming that construction activities from Related Project 1 and the proposed Project would overlap and the noise level at sensitive receptor 1 from proposed Project and Related Project 1 construction would be the same (70.1 dBA L_{eq}), combined noise levels reaching sensitive receptor 1 could reach 73.1 dBA L_{eq} .⁷⁹ This combined noise level would not exceed the City's construction noise threshold of 80 dBA. All other Related Projects are located at greater distances from the Project Site. Based on the relative location of the proposed Project to the Related Projects and noise attenuation provided by distance and intervening structures, construction noise from related projects are not anticipated to contribute substantial levels of construction noise at the receptors most impacted by the proposed Project. In light of the proposed Project's less than significant impacts with incorporation of EPMs, the Project's contribution to a potential cumulative construction noise impact would not be considerable.

Project construction noise would not exceed applicable significance criteria and would result in less than significant impacts. Therefore, the Project's contribution to cumulative construction noise would not be cumulatively considerable.

Cumulative Operational Noise

Cumulative Off-Site Traffic Noise. The cumulative mobile noise analysis is conducted in a two-step process. First, the combined effects from both the Project and other projects are assessed. Second, for combined effects that are determined to be cumulatively significant, the Project's incremental effects are then analyzed. A project's contribution to a cumulative traffic noise increase would be considered significant when the combined effect exceeds perception level (i.e., auditory level increase) threshold. The combined effect compares the "Cumulative With Project" condition to "Existing" conditions. This comparison accounts for the traffic noise increase generated by the Project combined with the traffic noise increase generated by Related Projects.

The following criteria are used to evaluate whether the cumulative with Project noise level would create a significant cumulative noise increase and whether the Project has a significant incremental contribution to the cumulative noise increase.

- Combined Effect. The cumulative with Project noise level ("Cumulative With Project") would cause a significant cumulative impact if a 3.0 dB increase over "Existing" conditions occurs and the resulting noise level exceeds the applicable exterior standard at a sensitive use.
- Incremental Effects. The "Cumulative With Project" causes a 1.0 dBA increase in noise over the "Cumulative Without Project" noise level.

Thus, although there may be a significant noise increase due to the Project in combination with identified cumulative projects (combined effects), it must also be demonstrated that the Project has an incremental effect. In other words, a significant portion of the noise increase must be due to the

⁷⁹ When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than one source under the same conditions. (FHWA, *Noise Fundamentals*, 2017)

Project.

A significant impact would result only if both the combined and incremental effects criteria have been exceeded and if noise levels exceed acceptable noise levels. Noise by definition is a localized phenomenon and reduces as distance from the source increases. Consequently, only the proposed Project and growth due to occur in the general area would contribute to cumulative noise impacts. Increases in local volumes from Related Projects within a half-mile radius of the Project Site have been estimated and included in cumulative traffic conditions. [Table 17: Cumulative Roadway Traffic Noise Impacts](#) identifies the traffic noise effects along roadway segments in the vicinity of the Project site for “Existing,” “Cumulative Future Without Project,” and “Cumulative Future Plus Project,” conditions, and net cumulative impacts.

Table 17: Cumulative Roadway Traffic Noise Impacts						
Roadway Segment	CNEL @ 50 feet from Centerline¹			Combined Effects	Incremental Effects	Cumulatively Significant Impact?
	Existing	Cumulative Future Without Project	Cumulative Future Plus Project	dBA Difference Between Existing and Cumulative With Project	dBA Difference Between Cumulative With Project and Without Project	
West 38 th Street between South Figueroa Street and South Flower Drive	51.8	51.9	53.8	2.0	1.9	No
South Flower Drive between West 38 th Street and West 39 th Street	50.9	51.1	53.5	2.6	2.4	No
West 39 th Street between South Figueroa Street and South Flower Drive	64.8	64.9	65.2	0.4	0.3	No
South Figueroa Street between Flower Street and West 39 th Street	69.8	69.9	70.0	0.2	0.1	No
dBA = A-weighted decibels; CNEL = day-night noise level						
1. Traffic noise levels are at 50 feet from the roadway centerline.						
Refer to Appendix A for traffic noise modeling assumptions and results.						

First, it must be determined whether the “Cumulative With Project” 3.0 dB increase above existing conditions (*Combined Effects*) is exceeded. Next, under the *Incremental Effects* criteria, cumulative noise impacts are defined by determining if the forecast ambient (“Cumulative Without Project”) noise level is increased by 1.0 dB or more. As shown in [Table 17](#), none of the roadway segments exceed both the Combined Effects (3.0 dB) and Incremental Effects (1.0 dB) criteria. Thus, the Project, in combination with cumulative background traffic noise levels, would result in a less than significant cumulative impact. The Project’s contribution to cumulative traffic noise would not be cumulatively considerable.

Cumulative Stationary Noise. Stationary noise sources of the Project would result in an incremental increase in non-transportation noise sources in the Project Site vicinity. However, as discussed above, operational noise caused by the Project would be less than significant. Similar to the Project, other planned and approved projects would be required to mitigate for stationary noise impacts at

nearby sensitive receptors, if necessary. As stationary noise sources are generally localized, there is a limited potential for other projects to contribute to cumulative noise impacts.

No known past, present, or reasonably foreseeable projects would combine with the operational noise levels generated by the Project to increase noise levels above acceptable standards because each project must comply with applicable City regulations that limit operational noise. Therefore, the Project, together with other projects, would not create a significant cumulative impact, and even if there were such a significant cumulative impact, the Project would not make a cumulatively considerable contribution to significant cumulative operational noises.

Given that noise dissipates as it travels away from its source, operational noise impacts from on-site activities and other stationary sources would be limited to the Project Site and vicinity. Thus, cumulative operational noise impacts from Related Projects, in conjunction with Project specific noise impacts, would not be cumulatively significant.

Therefore, the cumulative impact on noise from successive projects of the same type in the same place over time would not be significant.

Cumulative Groundborne Vibration – Construction

Due to rapid attenuation characteristics of groundborne vibration, only Related Projects located adjacent to the same sensitive receptors would result in cumulatively considerable vibration impacts related to both structural damage and human annoyance. However, there are no structures adjacent to both the Project or off-site utility installation area and any Related Projects that could be impacted by potential cumulative vibration from overlapping construction. Therefore, construction of related projects would not contribute to the Project's construction vibration impacts and no cumulative impacts would occur.

As previously discussed, based on the FTA Manual, a truck rarely creates vibration levels that exceed 70 VdB (equivalent to 0.012 in/sec PPV) when on a roadway.⁸⁰ The vibration generated by a typical heavy truck would be approximately 63 VdB (0.00566 PPV) at a distance of 50 feet from the truck.⁸¹ As Related Projects would be anticipated to use similar trucks as the Project, it is anticipated that construction trucks would generate similar vibration levels along the anticipated truck route(s). As discussed above, due to rapid attenuation characteristics of groundborne vibration, potential cumulative impacts associated with off-site truck travel would be less than significant with regards to structural damage and human annoyance. Therefore, construction of Related Projects would not contribute to the Project's construction vibration impacts and cumulative impacts would be less than significant.

Cumulative Groundborne Vibration – Operations

Due to the rapid attenuation characteristics of groundborne vibration and distance from each of the related projects to the Project Site, there is no potential for cumulative operational impacts with respect to groundborne vibration. Therefore, cumulative operational noise impacts would be less

⁸⁰ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

⁸¹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, Figure 5-4.

than significant.

7.0 REFERENCES

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22. Kimley-Horn and Associates, Inc., 3822 Figueroa Transportation Assessment, March 2025
23. State of California Governor's Office of Planning and Research, General Plan Guidelines, Appendix D: Noise Element Guidelines, page 374, 2017, https://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf, accessed September 2024
24. U.S. Department of Labor, Occupational Safety and Health Standards, 29 CFR 1910 (Occupational Noise Exposure)

Appendix A

NOISE DATA

Noise Measurement Field Data

Project:	3800 Fig	Job Number:	
Site No.:	1	Date:	10/22/2024
Analyst:	Kennedy Caudle	Time:	12:16 PM
Location:	Facing North on flower		

Noise Sources:	traffic, birds, construction at the science center, keys from a resident, air traffic, car music, Police sirens loud motorcycle group
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Comments:	
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Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
60.8	58.3	65.7	91.3

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	81
Wind (mph):	<5
Sky:	Clear
Bar. Pressure:	30.02
Humidity:	31%

Photo:



Summary	
File Name on Meter	LxT_Data.025.s
File Name on PC	LxTse_0005586-20241017 051640-LxT_Data.025.ldbin
Serial Number	0005586
Model	SoundExpert® LxT
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement	
Description	
Start	2024-10-22 12:16:40
Stop	2024-10-22 12:31:40
Duration	00:15:00.0
Run Time	00:01:18.7
Pause	00:13:41.3
Pre-Calibration	2024-10-17 04:50:17
Post-Calibration	None
Calibration Deviation	---

Overall Settings			
RMS Weight	A Weighting		
Peak Weight	Z Weighting		
Detector	Slow		
Preamplifier	PRMLxT1L		
Microphone Correction	Off		
Integration Method	Linear		
OBA Range	Low		
OBA Bandwidth	1/1 and 1/3		
OBA Frequency Weighting	Z Weighting		
OBA Max Spectrum	Bin Max		
Overload	122.8 dB		
	A	C	Z
Under Range Peak	79.3	76.3	81.3 dB
Under Range Limit	25.3	26.1	31.8 dB
Noise Floor	16.2	16.9	22.7 dB

Instrument Identification	First	Second	Third
	Kimley-Horn & Associates, Inc. V.Town & Country Rd, 7001939.1030		

Results				
LAeq			60.8	dB
LAE			79.8	dB
EA			10.513	µPa²h
LZpk (max)	2024-10-17	12:19:26		91.3 dB
LASmax	2024-10-17	12:17:00		65.7 dB
LASmin	2024-10-17	12:17:19		58.3 dB
SEA			-99.9	dB

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

Community Noise	LDN	LDay 07:00-22:00	1:00-07:00	LDEN 1:00-19:00	Evening 19:00-22:00	1:00-07:00	
	70.8	-99.3	60.8	70.8	-99.3	-99.3	60.8 dB

LCeq	71.3 dB
LAeq	60.8 dB
LCeq - LAeq	10.5 dB
LAlaq	62.8 dB
LAeq	60.8 dB
LAlaq - LAeq	2.0 dB

	A		C		Z	
	dB	Time Stamp	dB	Time Sta	dB	Time Stamp
Leq	60.8		71.3			
Ls(max)	65.7	2024/10/22 12:17:00				
Ls(min)	58.3	2024/10/22 12:17:19				
Lpk(max)					91.3	2024/10/22 12:19:26

Overload Count	0
Overload Duration	0.0 s
OBA Overload Count	0
OBA Overload Duration	0.0 s

La Percentiles	
LA 5.00	64.1 dB
LA 10.00	63.4 dB
LA 33.30	60.4 dB
LA 50.00	60.0 dB
LA 66.60	59.6 dB
LA 90.00	59.0 dB

Calibration History						
Preamp	Date	dB re 1V/Pa	mV/Pa	6.3	8.0	10.0
Direct	2019-10-29 12:18:45	-28.39	38.05	2.58	5.73	0.93
PRMLxT1L	2024-10-17 04:50:16	-28.97	35.59	63.39	59.78	63.91
PRMLxT1L	2024-10-17 04:49:58	-28.98	35.56	63.90	62.84	62.12
PRMLxT1L	2024-10-17 04:49:39	-28.98	35.58	71.65	60.15	65.18
PRMLxT1L	2024-10-17 04:49:22	-28.96	35.66	72.15	60.77	64.09
PRMLxT1L	2024-09-18 12:59:23	-28.87	36.02	73.40	71.87	66.58
PRMLxT1L	2024-09-18 12:13:35	-28.93	35.76	94.09	81.39	71.35
PRMLxT1L	2024-09-11 01:04:04	-28.97	35.62	62.58	78.87	60.39
PRMLxT1L	2024-09-11 01:03:48	-28.97	35.60	90.55	81.32	67.46
PRMLxT1L	2024-08-05 16:18:45	-28.91	35.86	68.08	57.49	67.50
PRMLxT1L	2024-08-05 16:18:28	-28.91	35.87	68.90	72.78	68.95
PRMLxT1L	2024-08-05 16:18:11	-28.92	35.80	70.22	64.50	54.87

Calibration History																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Preamp	Date	dB re 1V/Pa	mV/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
Direct	2019-10-29 12:48:45	-28.39	38.05	2.58	5.73	0.93	0.50	3.86	9.51	0.44	-3.11	1.43	6.00	2.05	-3.57	7.95	14.24	0.02	5.29	13.46	6.91	5.51	6.87	6.62	5.46	4.67	7.03	8.87	9.88	11.23	13.40	11.42	40.36	23.45	16.13	16.83	19.76	18.96	19.66																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
PRML1xTIL	2019-10-17 08:50:19	-28.37	35.59	63.39	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12	61.01	63.93	59.78	62.12

Noise Measurement Field Data			
Project:	3800 Fig	Job Number:	
Site No.:	2	Date:	10/22/2024
Analyst:	Kennedy Caudle	Time:	12:35 PM
Location:	Facing southeast on Figueroa		
Noise Sources:	traffic, birds, and construction located at science center, load mufflers, flock of birds		
Comments:			
Results (dBA):			
	Leq:	Lmin:	Lmax:
	63.3	53.2	75.3
			Peak:
			103.3
Equipment		Weather	
Sound Level Meter:	LD SoundExpert LxT	Temp. (degrees F):	83
Calibrator:	CAL200	Wind (mph):	<5
Response Time:	Slow	Sky:	Clear
Weighting:	A	Bar. Pressure:	30.01
Microphone Height:	5 feet	Humidity:	29%
Photo:			
Kimley»Horn			

General	
File Name on Meter	LxT_Data.026.s
File Name on PC	LxTse_0005586-20241017 053552-LxT_Data.026.kbin
Serial Number	0005586
Model	SoundExpert [®] LxT
Firmware Version	2.404
User	
Location	
Job Description	
Note	

Measurement	
Description	
Start	2024-10-22 12:35:52
Stop	2024-10-22 12:50:52
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-10-17 04:50:16
Post-Calibration	None
Calibration Deviation	---

General Settings	
RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamplifier	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/3 and 1/3
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB
	A C Z
Under Range Peak	79.3 76.3 81.3 dB
Under Range Limit	25.3 26.1 31.8 dB
Noise Floor	16.2 16.9 22.7 dB

Instrument Identification	Kimley-Horn & Associates, Inc. Iry Rd, 7001 939.1030
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Results	
LxT	63.5 dB
LxT	93.0 dB
EA	223.877 µPa/h
LzA (max)	2024-10-17 09:41:40 105.3 dB
LzAmax	2024-10-17 05:50:37 75.3 dB
LzAmin	2024-10-17 05:48:31 53.2 dB
SEA	---

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

Community Noise	LDN 7:00-22:00 1:00-07:00	LDN 7:00-19:00 1:00-22:00 1:00-07:00
	73.5 -99.9 63.5	73.5 -99.9 -99.9 63.5
		dB

LCeq	72.4 dB
LxT	63.5 dB
LCeq - LxT	8.9 dB
LxT	65.1 dB
LxT	63.5 dB
LxT - LxT	1.6 dB

A	C	Z
dB	Time Sta	dB
63.5	72.4	
LzA	75.3/10/22 12:50:37	
LzAmin	53.2/10/22 12:48:31	
LzAmax		105.3/10/22 12:41:40

Overload Count	0
Overload Duration	0.0 s
OBA Overload Count	13
OBA Overload Duration	51.0 s

Percentiles	
LA 5.00	68.3 dB
LA 10.00	67.1 dB
LA 33.30	63.5 dB
LA 50.00	61.3 dB
LA 66.60	59.0 dB
LA 90.00	55.7 dB

Calibration History	
Preamp	Date B re 1V/Pa mV/Pa 6.3 8.0 10.0 12.5 16.0 20.0 25.0 31.5 40.0 50.0 63.0 80.0 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000
Direct	2019-10-29 12:18:45 -28.39 38.05 2.58 5.73 0.93 0.50 3.86 9.51 0.44 -3.11 1.43 6.00 2.05 -3.57 7.95 14.24 0.02 5.29 13.46 6.91 5.51 6.87 6.62 5.46 4.67 7.03 8.87 9.88 11.23 13.40 11.42 40.36 23.45 16.13 16.83 19.76 18.96 19.66
PRMLxT1L	2024-10-17 04:50:16 -28.97 35.59 63.39 59.78 63.91 68.38 63.23 56.38 51.36 59.61 54.60 54.43 53.23 49.99 44.40 47.87 42.66 63.10 53.59 38.51 40.19 34.12 31.01 32.50 113.99 48.98 30.95 66.04 19.86 58.95 19.90 28.09 21.41 23.41 24.12 23.55 27.77 30.62
PRMLxT1L	2024-10-17 04:49:58 -28.98 35.56 63.90 62.84 62.12 64.38 58.62 51.02 53.16 61.30 55.07 56.62 53.92 48.11 43.70 50.85 41.06 47.79 46.19 37.46 43.68 41.05 29.99 29.02 113.98 49.07 19.82 66.03 19.56 58.94 19.39 28.06 21.45 22.38 23.81 25.73 27.93 30.71
PRMLxT1L	2024-10-17 04:49:39 -28.98 35.58 71.65 60.15 65.18 62.80 59.10 54.89 56.44 57.51 53.39 46.75 55.34 55.08 45.24 47.09 38.87 43.34 38.58 32.80 33.57 31.65 24.25 32.32 113.97 49.20 21.80 66.05 20.27 58.92 19.97 27.64 21.43 22.37 23.71 25.65 27.78 30.45
PRMLxT1L	2024-10-17 04:49:22 -28.96 35.66 72.15 60.77 64.09 65.85 57.58 50.80 54.62 61.41 55.05 50.60 49.61 49.90 44.46 49.08 39.23 45.42 36.96 31.68 32.91 27.44 20.57 28.77 113.90 48.96 18.99 66.04 19.76 58.84 20.30 27.52 21.34 22.54 23.88 25.54 27.53 30.39
PRMLxT1L	2024-09-18 12:59:23 -28.87 36.02 73.40 71.87 66.58 66.99 67.13 66.48 56.62 52.77 51.48 50.04 52.02 42.17 42.64 46.48 44.96 38.87 36.77 28.98 26.09 22.70 17.94 29.72 114.05 49.09 19.19 66.19 19.84 58.88 20.06 27.50 21.11 22.49 24.11 25.54 27.94 30.78
PRMLxT1L	2024-09-18 12:13:35 -28.93 35.76 94.09 81.39 71.35 59.23 60.22 65.08 55.03 57.81 51.40 48.19 52.31 48.11 50.37 50.18 48.52 51.54 46.99 48.03 49.96 38.78 32.94 38.45 114.02 49.13 30.57 66.19 21.35 58.85 22.61 28.09 23.93 24.15 24.43 25.46 27.80 30.86
PRMLxT1L	2024-09-11 01:04:04 -28.97 35.62 62.58 78.87 60.39 62.55 60.54 64.31 58.30 68.35 73.39 67.56 74.53 71.58 69.11 63.85 59.01 63.16 63.37 57.30 53.22 53.54 47.27 36.99 113.99 49.08 22.21 66.17 20.10 58.86 20.32 27.86 21.24 22.31 23.44 25.69 27.90 30.69
PRMLxT1L	2024-09-11 01:03:48 -28.97 35.60 90.55 81.32 67.46 62.99 61.59 53.44 57.49 65.44 66.29 67.94 74.64 66.00 66.15 66.28 57.63 61.26 61.67 59.82 55.19 52.16 39.87 34.95 113.92 49.24 21.60 66.15 19.31 58.79 19.91 27.32 21.42 22.49 23.77 25.68 27.79 30.53
PRMLxT1L	2024-08-05 16:18:45 -28.91 35.86 68.08 57.49 67.50 63.39 60.60 61.20 56.53 57.52 58.54 48.09 48.64 49.80 44.71 49.50 46.51 53.81 46.73 42.61 37.95 34.52 21.71 29.14 113.98 49.15 18.39 66.10 19.12 58.88 19.79 27.94 21.33 22.72 24.17 25.60 27.52 30.28
PRMLxT1L	2024-08-05 16:18:28 -28.91 35.87 68.90 72.78 68.95 68.59 61.77 56.12 54.54 56.54 56.34 47.56 46.08 43.36 39.59 50.70 43.70 41.11 37.68 35.05 33.33 26.68 18.36 30.01 114.00 49.09 19.04 66.12 20.08 58.90 19.98 27.99 21.11 22.41 24.10 25.50 27.86 30.55
PRMLxT1L	2024-08-05 16:18:11 -28.92 35.80 70.22 64.50 54.87 64.72 58.49 57.89 53.67 54.67 51.37 48.75 46.25 50.45 40.33 47.58 38.94 42.92 37.39 33.20 30.07 27.80 18.33 29.39 113.99 49.10 19.07 66.12 19.10 58.90 19.93 27.98 21.21 22.48 23.83 25.48 27.82 30.59

Noise Measurement Field Data			
Project:	3800 Fig	Job Number:	
Site No.:	3	Date:	10/22/2024
Analyst:	Kennedy Caudle	Time:	1:26 PM
Location:	Facing Northeat on flower toward project site		
Noise Sources:	traffic, birds, construction, Beeping from buses, Squeaking breaks, loud car music		
Comments:	Noted that traffic increased heavily at 1:38 because school was released		
Results (dBA):			
	Leq:	Lmin:	Lmax:
	63.7	58.6	79.8
	Peak:		
	95.2		
Equipment		Weather	
Sound Level Meter:	LD SoundExpert LxT	Temp. (degrees F):	84
Calibrator:	CAL200	Wind (mph):	8
Response Time:	Slow	Sky:	Clear
Weighting:	A	Bar. Pressure:	29.99
Microphone Height:	5 feet	Humidity:	59%
Photo: 			

General		
File Name on Meter	LxT_Data.028.s	
File Name on PC	LxTst_0005586-20241017 062613 LxT_Data.028.tdbin	
Serial Number	0005586	
Model	SoundExpert LxT	
Firmware Version	2.404	
User		
Location		
Job Description		
Note		

Measurement		
Description		
Start	2024-10-22 13:26:13	
Stop	2024-10-22 13:41:13	
Duration	00:15:00.0	
Run Time	00:00:35.3	
Pause	00:14:24.8	
Pre-Calibration	2019-10-29 12:18:45	
Post-Calibration	None	
Calibration Deviation	---	

Overall Settings		
RMS Weight	A Weighting	
Peak Weight	Z Weighting	
Detector	Slow	
Preamplifier	Direct	
Microphone Correction	Off	
Integration Method	Linear	
OBA Range	Low	
OBA Bandwidth	1/1 and 1/3	
OBA Frequency Weighting	Z Weighting	
OBA Max Spectrum	Bit Max	
Overload	122.2 dB	
	A	C Z
Under Range Peak	78.4	75.4 80.4 dB
Under Range Limit	14.3	12.8 17.1 dB
Noise Floor	5.2	3.7 8.0 dB

	First	Second	Third
Instrument Identification	Kimley-Horn & Associates, Inc. & Country Rd, 700: 939.1030		

Results		
L _{Aeq}	63.7 dB	
L _{A1}	79.2 dB	
E _A	9.169 µPa/h	
L _{Zpk} (max)	2024-10-22 13:26:21	95.2 dB
L _{A5min}	2024-10-17 13:36:45	79.8 dB
L _{A5min}	2024-10-22 13:26:38	58.6 dB
SEA	-99.9 dB	

	Exceedance Counts	Duration
L _{A5} > 85.0 dB	0	0.0 s
L _{A5} > 115.0 dB	0	0.0 s
L _{Zpk} > 135.0 dB	0	0.0 s
L _{Zpk} > 137.0 dB	0	0.0 s
L _{Zpk} > 140.0 dB	0	0.0 s

Community Noise	LDN Lday 07:00-22:001:00-07:00	LDEN F:00-18:001:00-22:001:00-07:00
	73.7 -99.9 63.7 73.7 -99.9 -99.9 63.7 dB	

L _{Ceq}	74.8 dB
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L _{Aeq}	63.7 dB
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L _{Ceq} - L _{Aeq}	11.1 dB
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L _{Aeq}	64.4 dB
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L _{Aeq}	63.7 dB
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L _{Aeq} - L _{Aeq}	0.7 dB
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L _{eq}	63.7
L _{5min}	79.8 10/24/10/22 1:26:48
L _{5min}	58.6 10/24/10/22 1:26:38
L _{pk} (max)	95.2 10/22 1:26:21

Overload Count	0
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Overload Duration	0.0 s
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OBA Overload Count	2
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OBA Overload Duration	5.0 s
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LA Percentiles		
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LA 5.00	67.5 dB
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LA 10.00	66.8 dB
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LA 33.33	64.1 dB
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LA 50.00	61.3 dB
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LA 66.60	60.0 dB
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LA 90.00	59.2 dB
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Calculation History		
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Prntype	Date	dB re 1V/Pa	mV/Pa	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000	12500	16000	20000
Direct	2019-10-29 12:18:45	-28.39	38.05	2.58	5.73	9.93	0.50	3.86	9.51	0.44	-3.11	1.43	6.00	2.05	-3.57	7.95	14.24	0.02	5.29	13.46	6.91	5.51	6.87	6.62	5.46	4.67	7.03	8.87	9.88	11.23	13.40	11.42	40.36	23.45	16.13	16.83	19.76	18.96	19.66
PRMLxTTL	2024-10-17 04:50:16	-28.97	35.59	63.39	59.78	63.91	68.38	63.23	56.38	51.36	59.01	54.60	54.43	53.23	49.99	44.40	47.87	43.66	63.30	53.59	38.31	40.19	34.12	31.01	32.50	113.99	48.98	30.95	66.04	19.86	58.95	19.90	28.09	21.41	22.41	24.12	25.55	27.77	30.42
PRMLxTTL	2024-10-17 04:49:58	-28.98	35.56	63.90	62.84	62.12	64.38	58.62	51.02	53.16	61.30	55.07	56.62	53.92	48.11	43.70	50.85	41.06	47.79	46.19	37.46	43.68	41.05	29.99	29.02	113.98	49.07	19.82	66.03	19.56	58.94	19.39	28.06	21.45	22.38	23.81	25.73	27.93	30.71
PRMLxTTL	2024-10-17 04:49:39	-28.98	35.58	71.65	60.15	65.18	62.80	59.10	54.89	56.44	57.51	53.39	46.75	55.34	55.08	45.24	47.09	38.87	43.34	38.58	32.80	33.57	31.65	24.25	32.32	113.97	49.20	21.80	66.05	20.27	58.92	19.97	27.64	21.43	22.37	23.71	25.65	27.78	30.45
PRMLxTTL	2024-10-17 04:49:22	-28.96	35.66	72.15	60.77	64.09	65.85	57.58	50.80	54.82	61.41	55.05	50.60	49.61	49.00	44.46	40.08	39.23	45.42	36.96	31.68	32.91	27.44	20.57	28.77	113.90	48.96	18.99	66.04	19.76	58.84	20.30	27.52	21.34	22.54	23.88	25.54	27.53	30.39
PRMLxTTL	2024-09-18 12:59:23	-28.87	36.02	73.40	71.87	66.58	66.99	67.13	66.48	56.62	52.77	51.48	50.04	52.02	42.17	42.64	46.48	44.96	38.87	36.77	28.98	26.09	22.70	17.94	29.72	114.05	49.09	19.19	66.19	19.84	58.88	20.06	27.50	21.11	22.49	24.11	25.54	27.94	30.78
PRMLxTTL	2024-09-18 12:13:35	-28.93	35.76	94.09	81.39	71.35	59.23	60.22	65.08	55.03	57.81	51.40	48.19	52.31	48.11	50.37	50.18	48.52	51.54	46.99	48.03	49.86	38.78	32.94	38.45	114.02	49.13	30.57	66.19	21.35	58.85	22.61	28.09	23.93	24.15	24.43	25.46	27.80	30.86
PRMLxTTL	2024-09-11 01:04:04	-28.97	35.62	62.58	78.87	60.39	62.55	60.54	64.31	58.30	68.35	73.39	67.56	74.53	71.58	69.11	63.85	59.01	63.16	63.37	57.30	53.22	53.54	47.27	36.99	113.99	49.08	22.21	66.17	20.10	58.86	20.32	27.86	21.24	22.31	23.44	25.69	27.90	30.69
PRMLxTTL	2024-09-11 01:03:48	-28.97	35.60	90.55	81.32	67.46	62.99	63.59	53.44	57.49	65.44	66.29	67.94	74.64	66.00	66.15	66.28	57.63	61.26	61.67	59.82	55.19	52.16	39.87	34.95	113.92	49.24	21.60	66.15	19.31	58.79	19.91	27.32	21.42	22.49	23.77	25.68	27.79	30.53
PRMLxTTL	2024-08-05 16:18:45	-28.91	35.86	68.08	57.49	67.50	63.19	60.60	61.20	56.53	57.52	58.54	48.09	48.64	49.80	44.71	49.50	46.51	53.81	46.71	43.61	37.95	34.52	21.71	29.14	113.98	49.15	18.39	66.10	19.12	58.88	19.79	27.84	21.33	22.72	24.17	25.60	27.52	30.28
PRMLxTTL	2024-08-05 16:18:28	-28.91	35.87	68.90	72.78	68.95	68.59	61.77	56.12	54.54	56.54	56.34	47.56	46.08	43.36	39.59	50.70	43.70	41.11	37.68	35.05	33.33	26.68	18.36	30.01	114.00	49.09	19.04	66.12	20.08	58.90	19.98	27.99	21.11	22.43	24.10	25.50	27.86	30.55
PRMLxTTL	2024-08-05 16:18:11	-28.92	35.80	70.22	64.50	54.87	64.72	58.49	57.89	53.67	54.67	51.37	48.75	46.25	50.45	40.33	47.58	38.94	42.92	37.39	33.20	30.07	27.80	18.53	29.39	113.99	49.10	19.07	66.12	19.10	58.90	19.93	27.98	21.21	22.48	23.63	25.48	27.82	30.59

Noise Measurement Field Data

Project:	3800 Fig		Job Number:	
Site No.:	4		Date:	10/22/2024
Analyst:	Kennedy Caudle		Time:	1:46 PM
Location:	Project site			
Noise Sources:	traffic 110, birds, construction			
Comments:	N/A			
Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	58.9	52.7	73.5	100.6

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	84
Wind (mph):	8
Sky:	Clear
Bar. Pressure:	29.99
Humidity:	29%

Photo:



File Name on Meter	LXT_Data029.s
File Name on PC	LXTst_0005586-20241017 064050 LXT_Data029.lbrn
Serial Number	0005586
Model	SoundExpert [®] LXT
Firmware Version	2.404
User	
Job Description	
Note	

Measurement	
Description	
Start	2024-10-22 13:46:50
Stop	2024-10-22 14:01:50
Duration	00:15:00.0
Run Time	00:15:00.0
Pause	00:00:00.0
Pre-Calibration	2024-10-17 04:50:16
Post Calibration	None
Calibration Deviation	---

Input Settings	
Max Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamplifier	PIMxTTL
Microphone Correction	Off
Integration Method	Linear
OBA Range	Low
OBA Bandwidth	1/1 and 1/3
OBA Frequency Weighting	Z Weighting
OBA Max Spectrum	Bin Max
Overload	122.8 dB
	A C Z
Under Range Peak	79.3 76.5 81.3 dB
Under Range Limit	25.3 26.1 31.8 dB
Noise Floor	16.2 16.9 22.7 dB

Instrument Identification	
	First Second Third
	Kimley-Horn & Associates, Inc. Iry No. 7001-939-1030

Results	
L _{Aeq}	58.9 dB
L _{A1}	58.4 dB
L _A	77.625 µPa ² /h
L _A (low)	2024-10-22 14:00:40 100.6 dB
L _A (max)	2024-10-22 13:48:37 73.5 dB
L _A (min)	2024-10-22 13:56:32 52.7 dB
SEA	-99.9 dB

Exceedance Counts	
L _A > 85.0 dB	0 0.0 s
L _A > 115.0 dB	0 0.0 s
L _A > 135.0 dB	0 0.0 s
L _A > 137.0 dB	0 0.0 s
L _A > 140.0 dB	0 0.0 s

Community Noise	
	L _{DN} 7:00-22:00 1:00-07:00 L _{DN} 7:00-19:00 3:00-22:00 1:00-07:00
	65.3 59.0 58.8 65.7 59.0 59.9 58.8 dB

L _{Ceq}	71.9 dB
L _{Aeq}	58.9 dB
L _{Ceq} - L _{Aeq}	13.0 dB
L _{Aeq}	60.4 dB
L _{Aeq}	58.9 dB
L _{Aeq} - L _{Aeq}	1.5 dB

A		C		Z	
	dB Time Sta		dB Time Sta		dB Time Stamp
L _{eq}	58.9		71.9		
L _{eq} (low)	73.5 / 10/22 1:48:37				
L _{eq} (min)	52.7 / 10/22 1:56:32				
L _{eq} (max)			100.6 / 10/22 2:00:40		
Overload Count	0				
Overload Duration	0.0 s				
OBA Overload Count	23				
OBA Overload Duration	68.8 s				

LA Percentiles	
L _A 5.00	61.7 dB
L _A 10.00	60.8 dB
L _A 33.30	58.8 dB
L _A 50.00	57.9 dB
L _A 66.60	57.0 dB
L _A 90.00	55.3 dB

Calibration History	
	Date & re 1V/Pa mV/Pa 6.3 8.0 10.0 11.5 16.0 20.0 25.0 31.5 40.0 50.0 63.0 80.0 100 125 160 200 250 315 400 500 630 800 1000 1250 1600 2000 2500 3150 4000 5000 6300 8000 10000 12500 16000 20000
Pyamp	2019-10-29 12:38:45 -28.99 58.05 2.58 5.73 0.93 0.50 3.86 9.31 0.45 -3.31 1.43 6.00 2.05 -3.37 7.95 16.24 0.02 5.29 13.46 6.91 5.51 6.87 6.62 5.46 4.67 7.01 8.87 9.88 11.23 13.40 11.42 40.36 23.45 16.13 16.83 19.76 18.96 19.66
PRMxLxTTL	2024-10-17 04:50:16 -28.97 35.59 63.39 59.78 63.91 68.38 63.23 56.38 51.36 59.61 54.60 54.43 53.23 49.99 44.40 47.87 43.66 63.10 53.59 38.31 40.19 34.12 31.01 32.50 113.99 48.58 30.95 66.04 19.86 58.95 19.90 28.09 21.41 22.41 24.12 25.55 27.77 30.62
PRMxLxTTL	2024-10-17 04:49:58 -28.98 35.56 63.90 62.84 62.12 64.38 58.02 51.02 53.36 61.90 55.07 56.82 51.82 48.11 43.70 50.85 41.06 47.79 46.19 37.46 43.68 41.05 29.99 20.02 113.98 49.07 19.82 66.03 19.56 58.04 19.98 28.06 21.45 23.38 23.81 25.73 27.93 30.71
PRMxLxTTL	2024-10-17 04:49:39 -28.98 35.58 71.65 60.15 65.18 62.80 59.10 54.89 56.44 57.51 53.39 46.75 55.34 55.08 45.24 47.09 38.87 43.34 38.58 32.80 33.57 31.65 24.25 31.32 113.97 49.20 21.80 66.05 20.27 58.92 19.97 27.64 21.43 23.37 23.71 25.65 27.78 30.45
PRMxLxTTL	2024-10-17 04:49:22 -28.96 35.66 72.15 60.77 64.09 65.85 57.58 50.80 54.62 61.41 55.05 50.60 49.61 49.90 44.46 49.08 39.28 45.42 36.96 31.58 32.91 27.44 20.57 28.77 113.90 48.86 18.99 66.04 19.76 58.84 20.30 27.52 21.34 22.54 23.88 25.54 27.53 30.39
PRMxLxTTL	2024-09-18 12:59:23 -28.87 36.02 73.40 71.87 66.58 66.99 67.13 66.48 56.62 52.77 51.48 50.04 52.02 42.17 42.64 46.48 44.96 38.87 36.77 28.98 26.09 22.70 17.94 29.72 114.05 49.09 19.19 66.19 19.84 58.88 20.06 27.50 21.11 22.49 24.11 25.34 27.84 30.78
PRMxLxTTL	2024-09-18 12:13:35 -28.93 35.76 94.09 81.39 71.35 59.23 60.22 65.08 55.03 57.81 51.40 48.19 52.31 48.11 50.37 50.18 48.52 51.54 46.99 48.03 49.96 38.78 32.94 38.45 114.02 49.11 30.57 66.19 21.35 58.85 22.61 28.09 23.93 24.15 24.43 25.46 27.80 30.86
PRMxLxTTL	2024-09-11 01:04:04 -28.97 35.62 62.28 78.87 60.39 62.55 60.54 64.31 58.80 60.35 78.39 67.56 74.53 71.58 69.11 63.85 59.01 63.16 63.37 57.30 53.22 53.54 47.27 36.99 113.99 49.08 22.21 66.17 20.10 58.86 20.32 27.86 21.24 22.31 23.44 25.69 27.90 30.69
PRMxLxTTL	2024-09-11 01:03:48 -28.97 35.60 90.55 81.32 67.46 62.99 63.59 53.44 57.49 65.44 66.29 67.94 74.64 66.00 66.15 66.28 57.63 61.26 61.67 59.82 55.19 52.16 39.87 34.95 113.92 49.24 21.60 66.15 19.31 58.79 19.91 27.32 21.42 22.49 23.77 25.68 27.79 30.53
PRMxLxTTL	2024-08-05 16:18:45 -28.91 35.86 68.08 57.49 67.50 63.39 60.60 61.20 56.59 57.52 58.54 48.09 48.64 49.80 44.71 49.50 46.51 53.81 46.71 43.61 37.95 34.52 21.71 29.14 113.98 49.15 18.39 66.10 19.12 58.88 19.79 27.94 21.33 22.72 24.17 25.40 27.52 30.38
PRMxLxTTL	2024-08-05 16:18:28 -28.91 35.87 68.90 72.78 68.95 68.59 61.77 56.12 54.54 56.54 56.34 47.56 46.08 43.36 39.59 50.70 43.70 41.11 37.68 35.05 33.33 26.68 18.36 30.01 114.00 49.09 19.04 66.12 20.08 58.90 19.98 27.99 21.11 22.43 24.10 25.50 27.86 30.55
PRMxLxTTL	2024-08-05 16:18:11 -28.92 35.80 70.22 64.50 54.87 64.72 58.49 57.89 53.67 54.67 51.37 48.75 46.25 50.45 40.33 47.58 38.94 42.92 37.39 33.20 30.07 27.80 18.33 29.39 113.99 49.10 19.07 66.12 19.10 58.90 19.93 27.98 21.21 22.48 23.83 25.48 27.82 30.59

Project: 3800 Figueroa Without EPMS
 Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	Daytime hours (7 am to 7 pm)	8
	Evening hours (7 pm to 10 pm)	0
	Nighttime hours (10 pm to 7 am)	0
Leq to L10 factor		3

		Receptor (Land Use)	Distance (feet)	Shielding	Direction		
1		Reference at 50'	50	10	N	RECEPTOR 1	
Construction Phase	Equipment Type	No. of Equip.	Acoustical Usage Factor	Reference Noise Level at 50ft per Unit, Lmax	Noise Level at Receptor 1, Lmax	Noise Level at Receptor 1, Leq	
Demolition	Tractor	1	40%	84	74.0	70.0	
	Backhoe	1	40%	78	67.6	63.6	
	Dozer	1	40%	82	71.7	67.7	
	Combined LEQ					72.6	
Grading	Grader	1	40%	85	75.0	71.0	
	Tractor	1	40%	84	74.0	70.0	
	Dozer	1	40%	82	71.7	67.7	
	Grader	1	40%	85	75.0	71.0	
	Combined LEQ					76.2	

Source for Ref. Noise Levels: RCNM, 2005

Project: 3800 Figueroa with EPMs
 Construction Noise Impact on Sensitive Receptors

Parameters

Construction Hours:	Daytime hours (7 am to 7 pm)	8
	Evening hours (7 pm to 10 pm)	0
	Nighttime hours (10 pm to 7 am)	0
Leq to L10 factor		3

		Receptor (Land Use)	Distance (feet)	Shielding	Direction		
1		Reference at 50'	50	10	N	RECEPTOR 1	
Construction Phase	Equipment Type	No. of Equip.	Acoustical Usage Factor	Reference Noise Level at 50ft per Unit, Lmax	Noise Level at Receptor 1, Lmax	Noise Level at Receptor 1, Leq	
Demolition	Tractor	1	40%	84	74.0	70.0	
	Backhoe	1	40%	78	67.6	63.6	
	Dozer	1	40%	82	71.7	67.7	
	Combined LEQ					72.6	
Grading	Grader	1	40%	85	75.0	71.0	
	Tractor	1	40%	84	74.0	70.0	
	Dozer	1	40%	82	71.7	67.7	
	Grader	1	40%	85	75.0	71.0	
	Combined LEQ					76.2	

Source for Ref. Noise Levels: RCNM, 2005

3800 Figueroa_Construction

Assessed receiver levels

Grading_Unmitigated

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
1	SCR	G F2 F3 F4 F5			78.4 78.8 78.7 78.4 78.0		
2	SCR	G F2 F3 F4 F5			79.1 79.5 79.4 79.1 78.7		
3	SCR	G F2 F3 F4 F5			79.7 80.2 80.1 79.8 79.4		
4	SCR	G F2 F3 F4 F5			79.8 80.4 80.4 80.2 79.9		
5	SCR	G F2 F3 F4 F5			79.5 80.1 80.2 80.0 79.7		
6	SCR	G F2 F3 F4 F5			79.3 80.0 80.1 79.9 79.6		
7	SCR	G F2 F3 F4 F5			79.2 79.9 80.0 79.8 79.5		
8	SCR	G F2 F3 F4 F5			79.1 79.8 79.9 79.7 79.4		
9	SCR	G F2			75.9 76.7		

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1

3800 Figueroa_Construction

Assessed receiver levels

Grading_Unmitigated

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
		F3 F4 F5			76.9 76.8 76.6		
10	SCR	G F2 F3 F4 F5			74.4 75.5 76.0 76.1 76.1		
11	SCR	G F2 F3 F4 F5			73.6 74.9 75.6 75.9 75.9		
12	SCR	G F2 F3 F4 F5			73.3 74.7 75.4 75.8 75.8		
13	SCR	G F2 F3 F4 F5			73.2 74.6 75.4 75.7 75.8		
14	SCR	G F2 F3 F4 F5			73.5 75.0 75.7 76.0 76.1		
15	SCR	G F2 F3 F4 F5			73.7 75.1 75.8 76.1 76.2		
16	SCR	G F2 F3 F4 F5			73.6 75.0 75.8 76.1 76.2		
17	SCR	G F2 F3 F4			73.4 74.8 75.5 75.9		

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2

3800 Figueroa_Construction

Assessed receiver levels

Grading_Unmitigated

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
		F5			76.0		
18	SCR	G F2 F3 F4 F5			73.4 74.8 75.6 75.9 76.0		
19	SCR	G F2 F3 F4 F5			73.8 75.1 75.8 76.1 76.2		
20	SCR	G F2 F3 F4 F5			74.5 75.7 76.3 76.6 76.6		
21	SCR	G F2 F3 F4 F5			75.3 76.3 76.8 77.0 77.0		
22	SCR	G F2 F3 F4 F5			76.2 77.1 77.4 77.5 77.5		
23	SCR	G F2 F3 F4 F5			78.4 78.9 79.0 78.8 78.5		
24	SCR	G F2 F3 F4 F5			78.2 78.7 78.8 78.6 78.3		
25	SCR	G F2 F3 F4 F5			77.8 78.4 78.4 78.3 78.0		
26	SCR	G			71.0		

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3

3800 Figueroa_Construction

Assessed receiver levels

Grading_Unmitigated

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
		F2 F3 F4 F5			71.4 71.3 71.0 70.6		
27	SCR	G F2 F3 F4 F5			75.2 76.0 76.2 76.1 75.9		
28	SCR	G F2 F3 F4 F5			71.6 72.5 72.7 72.6 72.4		
29	SCR	G F2 F3 F4 F5			75.0 75.9 76.2 76.2 76.0		
30	SCR	G F2 F3 F4 F5			74.6 75.5 75.9 75.9 75.8		
31	SCR	G F2 F3 F4 F5			60.6 61.7 62.1 62.3 62.4		
32	SCR	G F2 F3 F4 F5			58.3 59.2 59.8 60.2 60.1		
35	SCR	G F2			49.4 49.9		
36	SCR	G F2			68.1 68.9		
37	SCR	G F2			68.8 69.6		
38	SCR	G F2			69.5 70.5		

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4

3800 Figueroa_Construction

Assessed receiver levels

Grading_Unmitigated

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
39	SCR	G F2			70.4 71.5		
40	SCR	G F2			71.4 72.7		
41	SCR	G F2			73.4 74.6		
42	SCR	G F2			73.1 74.4		
43	SCR	G F2			72.9 74.1		
44	SCR	G F2			71.1 72.3		
45	SCR	G F2			70.6 71.7		
46	SCR	G F2			70.2 71.2		
47	SCR	G F2			70.0 70.9		
48	SCR	G F2			70.1 70.9		
49	SCR	G F2			70.6 71.4		
50	SCR	G F2			70.6 71.6		
51	SCR	G F2			71.2 72.3		
52	SCR	G F2			72.0 73.1		
53	SCR	G F2			71.9 73.0		
54	SCR	G F2			71.8 72.8		
55	SCR	G F2			66.8 67.6		
56	SCR	G F2			66.1 66.8		
57	SCR	G F2			66.0 66.6		
58	SCR	G F2			69.6 70.3		
59	SCR	G F2			70.6 71.3		

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5

3800 Figueroa_Construction

Assessed receiver levels

Grading_Unmitigated

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
60	SCR	G F2			70.8 71.5		
61	SCR	G F2			70.8 71.6		
62	SCR	G F2			71.3 72.1		
63	SCR	G F2			71.2 72.0		
64	SCR	G F2			71.2 71.9		
65	SCR	G F2			67.1 67.7		
66	SCR	G F2			70.8 71.1		
67	SCR	G F2			73.1 73.1		
68	SCR	G F2			76.3 75.7		
69	SCR	G F2			83.1 81.8		
70	SCR	G F2			83.2 82.0		
71	SCR	G F2			83.4 82.2		
72	SCR	G F2			82.2 81.6		
73	SCR	G F2			82.5 82.0		
74	SCR	G F2			82.4 82.0		
75	SCR	G F2			78.7 78.9		
76	SCR	G F2			76.8 77.5		
77	SCR	G F2			75.5 76.4		
78	SCR	G F2			75.0 75.9		
79	SCR	G F2			76.1 76.8		
80	SCR	G F2			77.5 77.9		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

6

3800 Figueroa_Construction

Assessed receiver levels

Grading_Unmitigated

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
81	SCR	G F2			81.4 81.6		
82	SCR	G F2			81.7 81.8		
83	SCR	G F2			82.2 82.0		
84	SCR	G F2			83.2 82.4		
85	SCR	G F2			83.1 82.2		
86	SCR	G F2			83.0 82.1		
87	SCR	G F2			82.8 81.9		
88	SCR	G F2			80.8 80.2		
89	SCR	G F2			70.1 71.2		
90	SCR	G F2			77.1 77.0		
91	SCR	G F2			83.1 82.2		
92	SCR	G F2			83.5 82.4		
93	SCR	G F2			83.6 82.5		
94	SCR	G F2			80.8 80.2		
95	SCR	G F2			79.5 79.4		
96	SCR	G F2			78.3 78.6		
97	SCR	G F2			77.3 77.8		
98	SCR	G F2			76.4 77.1		
99	SCR	G F2			76.9 77.6		
100	SCR	G F2			77.8 78.3		
101	SCR	G F2			79.1 79.2		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

7

3800 Figueroa_Construction

Assessed receiver levels

Grading_Unmitigated

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
102	SCR	G F2			82.5 82.1		
103	SCR	G F2			82.5 82.1		
104	SCR	G F2			80.6 80.3		
105	SCR	G F2			80.5 80.3		
106	SCR	G F2			80.8 80.7		
107	SCR	G F2			80.8 80.7		
108	SCR	G F2			81.2 81.1		
109	SCR	G F2			82.5 82.0		
110	SCR	G F2			82.4 81.9		
111	SCR	G F2			82.3 81.7		
112	SCR	G F2			78.3 77.8		
113	SCR	G F2			77.4 77.3		
114	SCR	G F2			77.6 77.7		
115	SCR	G F2			73.5 73.8		
116	SCR	G F2			50.0 52.1		
117	SCR	G			57.2		
118	SCR	G			51.0		
119	SCR	G F2			46.7 47.5		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

8

3800 Figueroa_Construction

Assessed receiver levels

Grading_EPM

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
1	SCR	G F2 F3 F4 F5			62.2 67.0 68.2 68.2 68.0		
2	SCR	G F2 F3 F4 F5			62.7 67.6 68.9 68.9 68.6		
3	SCR	G F2 F3 F4 F5			63.3 68.2 69.7 69.6 69.4		
4	SCR	G F2 F3 F4 F5			63.9 68.4 70.0 70.1 69.9		
5	SCR	G F2 F3 F4 F5			63.8 68.0 69.8 69.9 69.7		
6	SCR	G F2 F3 F4 F5			63.7 67.8 69.6 69.8 69.6		
7	SCR	G F2 F3 F4 F5			63.6 67.6 69.5 69.6 69.5		
8	SCR	G F2 F3 F4 F5			63.5 67.5 69.4 69.5 69.4		
9	SCR	G F2			60.6 64.2		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

1

3800 Figueroa_Construction

Assessed receiver levels

Grading_EPM

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
		F3 F4 F5			66.1 66.5 66.5		
10	SCR	G F2 F3 F4 F5			60.4 62.5 64.9 65.6 65.8		
11	SCR	G F2 F3 F4 F5			60.3 61.9 64.2 65.2 65.5		
12	SCR	G F2 F3 F4 F5			60.3 61.7 63.9 65.0 65.5		
13	SCR	G F2 F3 F4 F5			60.3 61.6 63.8 65.0 65.4		
14	SCR	G F2 F3 F4 F5			60.6 61.9 64.1 65.3 65.7		
15	SCR	G F2 F3 F4 F5			60.7 62.1 64.2 65.4 65.9		
16	SCR	G F2 F3 F4 F5			60.7 62.1 64.2 65.4 65.9		
17	SCR	G F2 F3 F4			60.4 61.8 64.0 65.2		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

2

3800 Figueroa_Construction

Assessed receiver levels

Grading_EPM

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
		F5			65.6		
18	SCR	G F2 F3 F4 F5			60.4 61.9 64.0 65.2 65.7		
19	SCR	G F2 F3 F4 F5			60.6 62.2 64.4 65.5 65.8		
20	SCR	G F2 F3 F4 F5			61.0 62.9 65.1 66.0 66.3		
21	SCR	G F2 F3 F4 F5			61.3 63.6 65.8 66.5 66.7		
22	SCR	G F2 F3 F4 F5			61.8 64.7 66.7 67.1 67.3		
23	SCR	G F2 F3 F4 F5			62.8 66.8 68.5 68.7 68.5		
24	SCR	G F2 F3 F4 F5			62.6 66.5 68.3 68.5 68.3		
25	SCR	G F2 F3 F4 F5			62.4 66.2 67.9 68.1 67.9		
26	SCR	G			54.0		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

3

3800 Figueroa_Construction

Assessed receiver levels

Grading_EPM

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
		F2 F3 F4 F5			58.7 60.6 60.6 60.3		
27	SCR	G F2 F3 F4 F5			60.0 63.2 65.6 65.9 65.8		
28	SCR	G F2 F3 F4 F5			56.3 59.6 62.0 62.4 62.4		
29	SCR	G F2 F3 F4 F5			60.3 63.3 65.5 65.9 65.9		
30	SCR	G F2 F3 F4 F5			60.2 62.9 65.1 65.6 65.7		
31	SCR	G F2 F3 F4 F5			42.5 49.0 50.2 50.6 50.8		
32	SCR	G F2 F3 F4 F5			44.2 46.9 47.8 48.3 48.3		
35	SCR	G F2			34.8 37.0		
36	SCR	G F2			56.4 57.1		
37	SCR	G F2			56.9 57.7		
38	SCR	G F2			57.4 58.4		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

4

3800 Figueroa_Construction

Assessed receiver levels

Grading_EPM

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
39	SCR	G F2			58.0 59.2		
40	SCR	G F2			58.9 60.2		
41	SCR	G F2			60.9 62.1		
42	SCR	G F2			60.6 61.8		
43	SCR	G F2			60.4 61.6		
44	SCR	G F2			58.6 59.8		
45	SCR	G F2			58.3 59.4		
46	SCR	G F2			58.1 59.1		
47	SCR	G F2			58.1 59.0		
48	SCR	G F2			58.2 59.0		
49	SCR	G F2			58.6 59.5		
50	SCR	G F2			58.5 59.5		
51	SCR	G F2			58.9 60.1		
52	SCR	G F2			59.6 60.8		
53	SCR	G F2			59.5 60.7		
54	SCR	G F2			59.6 60.7		
55	SCR	G F2			54.3 55.5		
56	SCR	G F2			54.0 54.9		
57	SCR	G F2			54.0 54.8		
58	SCR	G F2			57.9 58.7		
59	SCR	G F2			58.9 59.7		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

5

3800 Figueroa_Construction

Assessed receiver levels

Grading_EPM

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
60	SCR	G F2			59.1 59.8		
61	SCR	G F2			59.1 59.9		
62	SCR	G F2			59.5 60.3		
63	SCR	G F2			59.6 60.3		
64	SCR	G F2			59.5 60.2		
65	SCR	G F2			55.4 55.9		
66	SCR	G F2			54.3 58.2		
67	SCR	G F2			55.8 61.4		
68	SCR	G F2			57.6 65.3		
69	SCR	G F2			63.7 71.8		
70	SCR	G F2			64.1 72.0		
71	SCR	G F2			64.0 72.2		
72	SCR	G F2			64.3 71.3		
73	SCR	G F2			64.8 71.7		
74	SCR	G F2			64.5 71.6		
75	SCR	G F2			61.8 67.9		
76	SCR	G F2			61.2 65.7		
77	SCR	G F2			60.6 64.1		
78	SCR	G F2			59.7 63.3		
79	SCR	G F2			60.1 64.7		
80	SCR	G F2			60.6 66.5		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

6

3800 Figueroa_Construction

Assessed receiver levels

Grading_EPM

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
81	SCR	G F2			65.1 70.7		
82	SCR	G F2			65.5 71.0		
83	SCR	G F2			65.6 71.4		
84	SCR	G F2			65.1 72.3		
85	SCR	G F2			64.8 72.1		
86	SCR	G F2			65.0 72.0		
87	SCR	G F2			64.6 71.8		
88	SCR	G F2			62.6 70.1		
89	SCR	G F2			55.7 59.9		
90	SCR	G F2			59.7 66.4		
91	SCR	G F2			63.9 72.1		
92	SCR	G F2			64.1 72.2		
93	SCR	G F2			63.9 72.3		
94	SCR	G F2			60.9 70.0		
95	SCR	G F2			61.6 68.8		
96	SCR	G F2			61.6 67.6		
97	SCR	G F2			61.3 66.4		
98	SCR	G F2			61.1 65.3		
99	SCR	G F2			61.5 65.5		
100	SCR	G F2			61.5 66.7		
101	SCR	G F2			61.7 68.2		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

7

3800 Figueroa_Construction

Assessed receiver levels

Grading_EPM

2

Receiver	Usage	Fl	Dir	Lr,lim dB(A)	Leq,d dB(A)	Leq,d,diff dB	
102	SCR	G F2			64.4 71.7		
103	SCR	G F2			64.8 71.7		
104	SCR	G F2			63.3 69.8		
105	SCR	G F2			63.8 69.8		
106	SCR	G F2			64.2 70.2		
107	SCR	G F2			64.1 70.1		
108	SCR	G F2			64.0 70.5		
109	SCR	G F2			64.8 71.7		
110	SCR	G F2			64.8 71.6		
111	SCR	G F2			64.7 71.5		
112	SCR	G F2			60.3 67.3		
113	SCR	G F2			60.6 66.4		
114	SCR	G F2			61.8 66.5		
115	SCR	G F2			58.5 62.3		
116	SCR	G F2			38.3 41.0		
117	SCR	G			45.7		
118	SCR	G			39.8		
119	SCR	G F2			35.7 36.7		

Kimley-Horn 445 24th St, Suite 200 Vero Beach, FL 32960 USA

8

SoundPLAN Output Summary

EIR Receptor Receiver	Floor	Unmitigated	with EPMs
1	1 G	78.4	62.2
1	1 F2	78.8	67
1	1 F3	78.7	68.2
1	1 F4	78.4	68.2
1	1 F5	78	68
1	2 G	79.1	62.7
1	2 F2	79.5	67.6
1	2 F3	79.4	68.9
1	2 F4	79.1	68.9
1	2 F5	78.7	68.6
1	3 G	79.7	63.3
1	3 F2	80.2	68.2
1	3 F3	80.1	69.7
1	3 F4	79.8	69.6
1	3 F5	79.4	69.4
1	4 G	79.8	63.9
1	4 F2	80.4	68.4
1	4 F3	80.4	70
1	4 F4	80.2	70.1
1	4 F5	79.9	69.9
1	5 G	79.5	63.8
1	5 F2	80.1	68
1	5 F3	80.2	69.8
1	5 F4	80	69.9
1	5 F5	79.7	69.7
1	6 G	79.3	63.7
1	6 F2	80	67.8
1	6 F3	80.1	69.6
1	6 F4	79.9	69.8
1	6 F5	79.6	69.6
1	7 G	79.2	63.6
1	7 F2	79.9	67.6
1	7 F3	80	69.5
1	7 F4	79.8	69.6
1	7 F5	79.5	69.5
1	8 G	79.1	63.5
1	8 F2	79.8	67.5
1	8 F3	79.9	69.4
1	8 F4	79.7	69.5
1	8 F5	79.4	69.4
1	9 G	75.9	60.6
1	9 F2	76.7	64.2

EIR Receptor	Receiver	Floor	Unmitigated	with EPMs
1		9 F3	76.9	66.1
1		9 F4	76.8	66.5
1		9 F5	76.6	66.5
1		10 G	74.4	60.4
1		10 F2	75.5	62.5
1		10 F3	76	64.9
1		10 F4	76.1	65.6
1		10 F5	76.1	65.8
1		11 G	73.6	60.3
1		11 F2	74.9	61.9
1		11 F3	75.6	64.2
1		11 F4	75.9	65.2
1		11 F5	75.9	65.5
1		12 G	73.3	60.3
1		12 F2	74.7	61.7
1		12 F3	75.4	63.9
1		12 F4	75.8	65
1		12 F5	75.8	65.5
1		13 G	73.2	60.3
1		13 F2	74.6	61.6
1		13 F3	75.4	63.8
1		13 F4	75.7	65
1		13 F5	75.8	65.4
1		14 G	73.5	60.6
1		14 F2	75	61.9
1		14 F3	75.7	64.1
1		14 F4	76	65.3
1		14 F5	76.1	65.7
1		15 G	73.7	60.7
1		15 F2	75.1	62.1
1		15 F3	75.8	64.2
1		15 F4	76.1	65.4
1		15 F5	76.2	65.9
1		16 G	73.6	60.7
1		16 F2	75	62.1
1		16 F3	75.8	64.2
1		16 F4	76.1	65.4
1		16 F5	76.2	65.9
1		17 G	73.4	60.4
1		17 F2	74.8	61.8
1		17 F3	75.5	64
1		17 F4	75.9	65.2
1		17 F5	76	65.6
1		18 G	73.5	60.4

EIR Receptor Receiver	Floor	Unmitigated	with EPMs
1	18 F2	74.8	61.9
1	18 F3	75.6	64
1	18 F4	75.9	65.2
1	18 F5	76	65.7
1	19 G	73.8	60.6
1	19 F2	75.1	62.2
1	19 F3	75.8	64.4
1	19 F4	76.1	65.5
1	19 F5	76.2	65.8
1	20 G	74.5	61
1	20 F2	75.7	62.9
1	20 F3	76.3	65.1
1	20 F4	76.6	66
1	20 F5	76.6	66.3
1	21 G	75.3	61.3
1	21 F2	76.3	63.6
1	21 F3	76.8	65.8
1	21 F4	77	66.5
1	21 F5	77	66.7
1	22 G	76.2	61.8
1	22 F2	77.1	64.7
1	22 F3	77.4	66.7
1	22 F4	77.5	67.1
1	22 F5	77.5	67.3
1	23 G	78.4	62.8
1	23 F2	78.9	66.8
1	23 F3	79	68.5
1	23 F4	78.8	68.7
1	23 F5	78.5	68.5
1	24 G	78.2	62.6
1	24 F2	78.7	66.5
1	24 F3	78.8	68.3
1	24 F4	78.6	68.5
1	24 F5	78.3	68.3
1	25 G	77.8	62.4
1	25 F2	78.4	66.2
1	25 F3	78.4	67.9
1	25 F4	78.3	68.1
1	25 F5	78	67.9
1	26 G	71	54
1	26 F2	71.4	58.7
1	26 F3	71.3	60.6
1	26 F4	71	60.6
1	26 F5	70.6	60.3

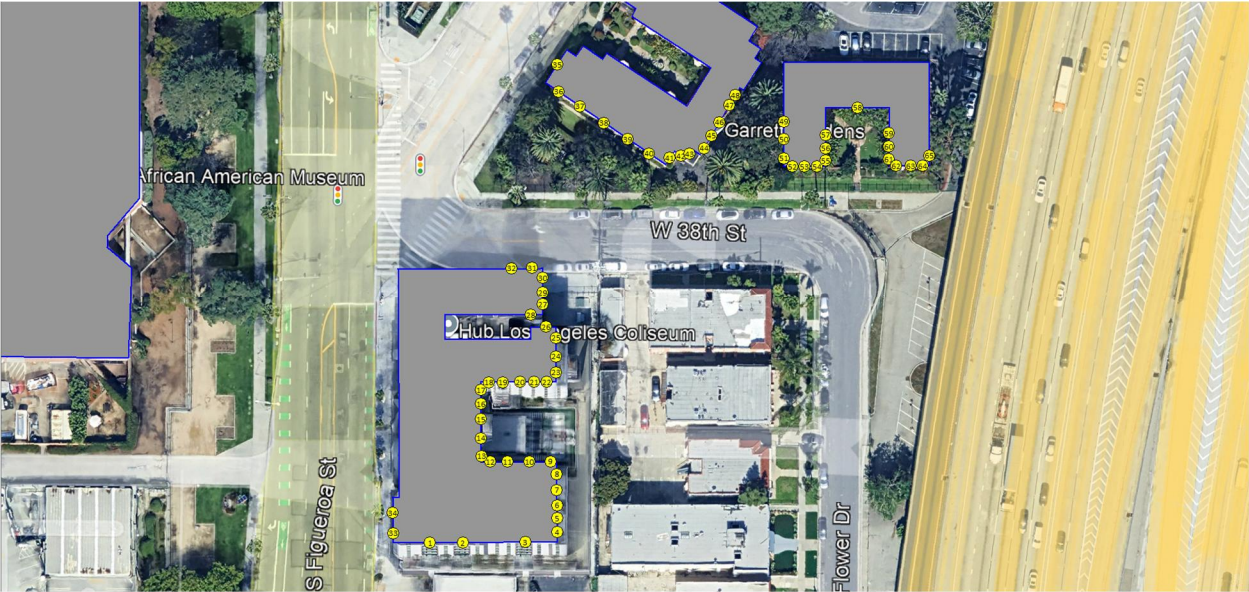
EIR Receptor Receiver	Floor	Unmitigated	with EPMs
1	27 G	75.2	60
1	27 F2	76	63.2
1	27 F3	76.2	65.6
1	27 F4	76.1	65.9
1	27 F5	75.9	65.8
1	28 G	71.6	56.3
1	28 F2	72.5	59.6
1	28 F3	72.7	62
1	28 F4	72.6	62.4
1	28 F5	72.4	62.4
1	29 G	75	60.3
1	29 F2	75.9	63.3
1	29 F3	76.2	65.5
1	29 F4	76.2	65.9
1	29 F5	76	65.9
1	30 G	74.6	60.2
1	30 F2	75.5	62.9
1	30 F3	75.9	65.1
1	30 F4	75.9	65.6
1	30 F5	75.8	65.7
1	31 G	60.6	42.5
1	31 F2	61.7	49
1	31 F3	62.1	50.2
1	31 F4	62.3	50.6
1	31 F5	62.4	50.8
1	32 G	58.3	44.2
1	32 F2	59.2	46.9
1	32 F3	59.8	47.8
1	32 F4	60.2	48.3
1	32 F5	60.1	48.3
3	35 G	49.4	34.8
3	35 F2	49.9	37
3	36 G	68.1	56.4
3	36 F2	68.9	57.1
3	37 G	68.8	56.9
3	37 F2	69.6	57.7
3	38 G	69.5	57.4
3	38 F2	70.5	58.4
3	39 G	70.4	58
3	39 F2	71.5	59.2
3	40 G	71.4	58.9
3	40 F2	72.7	60.2
3	41 G	73.4	60.9
3	41 F2	74.6	62.1

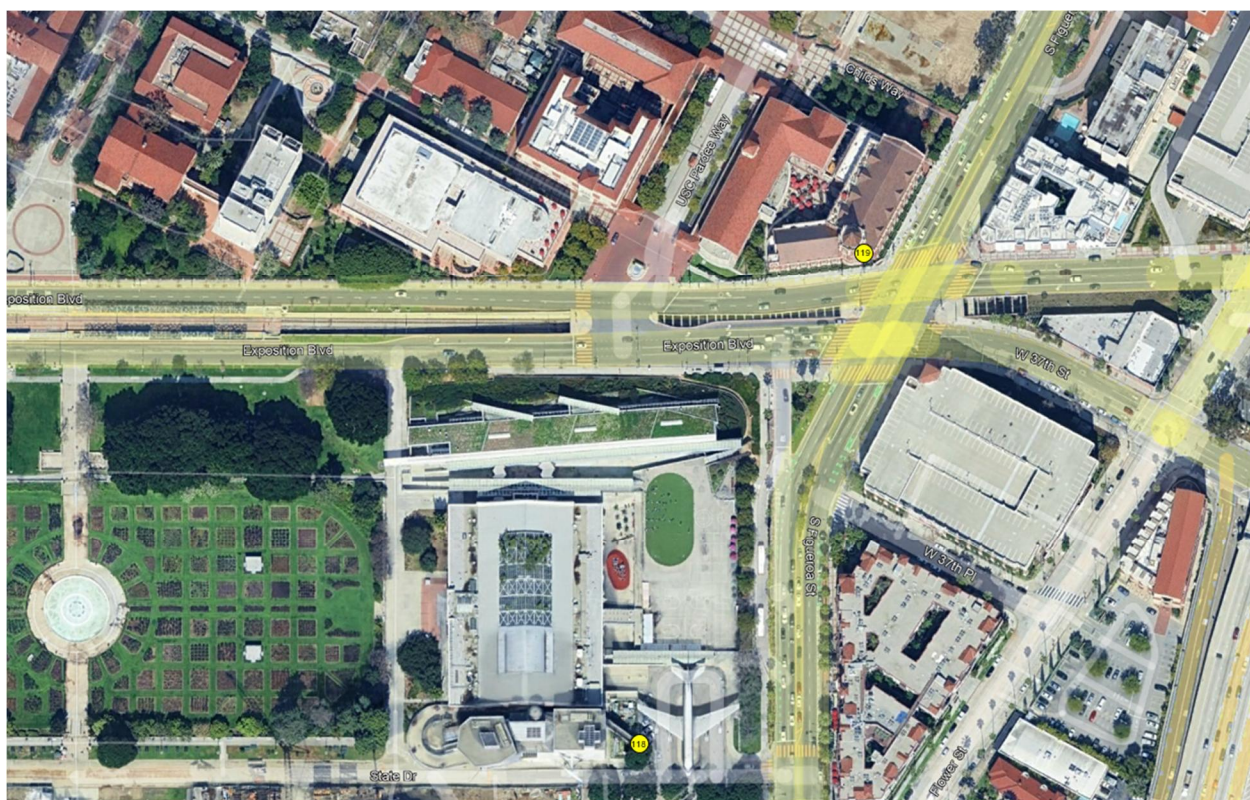
EIR Receptor Receiver	Floor	Unmitigated	with EPMs
3	42 G	73.1	60.6
3	42 F2	74.4	61.8
3	43 G	72.9	60.4
3	43 F2	74.1	61.6
3	44 G	71.1	58.6
3	44 F2	72.3	59.8
3	45 G	70.6	58.3
3	45 F2	71.7	59.4
3	46 G	70.2	58.1
3	46 F2	71.2	59.1
3	47 G	70	58.1
3	47 F2	70.9	59
3	48 G	70.1	58.2
3	48 F2	70.9	59
3	49 G	70.6	58.6
3	49 F2	71.4	59.5
3	50 G	70.6	58.5
3	50 F2	71.6	59.5
3	51 G	71.2	58.9
3	51 F2	72.3	60.1
3	52 G	72	59.6
3	52 F2	73.1	60.8
3	53 G	71.9	59.5
3	53 F2	73	60.7
3	54 G	71.8	59.6
3	54 F2	72.8	60.7
3	55 G	66.8	54.3
3	55 F2	67.6	55.5
3	56 G	66.1	54
3	56 F2	66.8	54.9
3	57 G	66	54
3	57 F2	66.6	54.8
3	58 G	69.6	57.9
3	58 F2	70.3	58.7
3	59 G	70.6	58.9
3	59 F2	71.3	59.7
3	60 G	70.8	59.1
3	60 F2	71.5	59.8
3	61 G	70.8	59.1
3	61 F2	71.6	59.9
3	62 G	71.3	59.5
3	62 F2	72.1	60.3
3	63 G	71.2	59.6
3	63 F2	72	60.3

EIR Receptor Receiver	Floor	Unmitigated	with EPMs
3	64 G	71.2	59.5
3	64 F2	71.9	60.2
3	65 G	67.1	55.4
3	65 F2	67.7	55.9
2	66 G	70.8	54.3
2	66 F2	71.1	58.2
2	67 G	73.1	55.8
2	67 F2	73.1	61.4
2	68 G	76.3	57.6
2	68 F2	75.7	65.3
2	69 G	83.1	63.7
2	69 F2	81.8	71.8
2	70 G	83.2	64.1
2	70 F2	82	72
2	71 G	83.4	64
2	71 F2	82.2	72.2
2	72 G	82.2	64.3
2	72 F2	81.6	71.3
2	73 G	82.5	74.8
2	73 F2	82	71.7
2	74 G	82.4	64.5
2	74 F2	82	71.6
2	75 G	78.7	61.8
2	75 F2	78.9	67.9
2	76 G	76.8	61.2
2	76 F2	77.5	65.7
2	77 G	75.5	60.6
2	77 F2	76.4	64.1
2	78 G	75	59.8
2	78 F2	75.9	63.3
2	79 G	76.1	60.1
2	79 F2	76.8	64.7
2	80 G	77.5	60.6
2	80 F2	77.9	66.5
2	81 G	81.4	65.1
2	81 F2	81.6	70.7
2	82 G	81.7	65.5
2	82 F2	81.8	71
2	83 G	82.2	65.6
2	83 F2	82	71.4
2	84 G	83.2	65.1
2	84 F2	82.4	72.3
2	85 G	83.1	64.8
2	85 F2	82.2	72.1

EIR Receptor	Receiver	Floor	Unmitigated	with EPMs
2	86	G	83	65
2	86	F2	82.1	72
2	87	G	82.8	64.6
2	87	F2	81.9	71.8
2	88	G	80.8	62.6
2	88	F2	80.2	70.1
2	89	G	70.1	55.7
2	89	F2	71.2	59.9
2	90	G	77.1	59.7
2	90	F2	77	66.4
2	91	G	83.1	63.9
2	91	F2	82.2	72.1
2	92	G	83.5	64.1
2	92	F2	82.4	72.2
2	93	G	83.6	63.9
2	93	F2	82.5	72.3
2	94	G	80.8	60.9
2	94	F2	80.2	70
2	95	G	79.5	61.6
2	95	F2	79.4	68.8
2	96	G	78.3	61.6
2	96	F2	78.6	67.6
2	97	G	77.3	61.3
2	97	F2	77.8	66.4
2	98	G	76.4	61.1
2	98	F2	77.1	65.3
2	99	G	76.9	61.5
2	99	F2	77.6	65.5
2	100	G	77.8	61.5
2	100	F2	78.3	66.7
2	101	G	79.1	61.7
2	101	F2	79.2	68.2
2	102	G	82.5	64.4
2	102	F2	82.1	71.7
2	103	G	82.5	64.8
2	103	F2	82.1	71.7
2	104	G	80.6	63.3
2	104	F2	80.3	69.8
2	105	G	80.5	63.8
2	105	F2	80.3	69.8
2	106	G	80.8	64.2
2	106	F2	80.7	70.2
2	107	G	80.8	64.1
2	107	F2	80.7	70.1

EIR Receptor	Receiver	Floor	Unmitigated	with EPMs
2	108	G	81.2	64
2	108	F2	81.1	70.5
2	109	G	82.5	64.8
2	109	F2	82	71.7
2	110	G	82.4	64.8
2	110	F2	81.9	71.6
2	111	G	82.3	64.7
2	111	F2	81.7	71.5
2	112	G	78.3	60.3
2	112	F2	77.8	67.3
2	113	G	77.4	60.6
2	113	F2	77.3	66.4
2	114	G	77.6	61.8
2	114	F2	77.7	66.5
2	115	G	73.5	58.5
2	115	F2	73.8	62.3
5	116	G	50	38.3
5	116	F2	52.1	41
4	117	G	57.2	45.7
6	118	G	51	39.8
6	119	G	46.7	35.7
7	119	F2	47.5	36.7





Attn: Mike O'Melveny
The Ventus Group
26789 Quail Hill Parkway St #225
Irvine, Ca. 92603

MAC Construction Services

estimating • construction management



Good Morning Mike,

I have reviewed the equipment list and have a few recommendations that could reduce the projected quantity of equipment on site.

Demolition:

- 8ea two story apartment buildings and 4ea one story parking garages will be demolished to clear the site. The demolition should be phased. The volume of demolished materials is too large to remove at once.
- I would start with the 2ea garages next to 38th street to clear a staging area. Then take down 3807 Flower, 3811 Flower, 3815 Flower.
- Then move South across the site. 3819 Flower, 3823 Flower, 3829 Flower, 3831 Flower, and the 2ea garages. 3822 Fig is the final building.
- Because the buildings are coming down one at a time. The equipment per day should be 1ea backhoe, 1ea loader (rubber tire), 1ea water truck.
- If truck traffic is allowed to exit the site onto Figueroa then a second team could start at 3822 Fig.
- So the maximum daily equipment would be 2ea backhoes, 2ea loaders (rubber tire), and 2 ea water trucks.
- The concrete saws are not likely to be used unless there is something to be salvaged. The backhoes will use a concrete breaker attachment to break up slabs and foundations.
- Are you interested in crushing the foundations on site? The geo tech allows pulverized concrete/asphalt to be mixed into the engineered fill.

Site Prep and Grading:

- Site prep and grading are typically the same phase. Meaning that site prep is the beginning of the grading phase.
- During site prep any remaining site features (walls, fences, curbs, shrubs) are removed. The equipment should be light, 1ea backhoe and 1ea loader (rubber tire).
- The site is about 1.45 acres more than one grader will likely be needed. The equipment will be at least 2ea graders, 1 bulldozer, 1ea loader, and 1 ea water truck.

Infrastructure Improvements:

- Is this phase for underground utility work? If so, a crane would only be used to off load and set large electrical equipment like transformers. This equipment is owned by DWP and should be delivered/set by DWP.
- A backhoe and or fork lift will be used to off load trucks and move materials.

Paving:

- A crane will not be used for any pavement activities.
- Similar to "Infrastructure" a backhoe and or fork lift will be used to off load trucks and move materials.

Summary:

- There are a few options for reducing equipment.
- Demo - Delete 2ea tractor/loader/backhoe.
- Site Prep - Delete 1ea grader.
- Grading - Delete 1ea tractor/loader/back. Add 1ea grader.
- Infrastructure - Delete 1ea crane.
- Paving - Delete 1ea crane.

Best Regards,
Michael Cruz

TRAFFIC NOISE ANALYSIS TOOL

Project Name: 3800 Figueroa

Analysis Scenario: Construction

Source of Traffic Volumes: Kimley-Horn, 3800 Air Quality Analysis

Roadway Segment	Ground Type	Distance from Roadway to Receiver (feet)	Speed (mph)			Peak Hour Volume			Peak Hour Noise Level (Leq(h) dBA)
			Auto	MT	HT	Auto	MT	HT	
Construction Noise - Building Construction	Hard	20	35	35	35	163	0	28	65.8

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.

HVAC									
Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA)	Ambient Level (dBA)	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Significant?	
1 - Residential (west and north)	52.0	50	35	55.1	60.8	61.8	1.0	No	
2 - Residential (south)	52.0	50	25	58.0	58.9	61.5	2.6	No	
3 - Residential (north)	52.0	50	80	47.9	60.8	61.0	0.2	No	
4 - Exposition Park (southwest)	52.0	50	230	38.7	63.5	63.5	0.0	No	
5 - Residential (south)	52.0	50	315	36.0	58.9	58.9	0.0	No	
6 - Alexander Science Center School	52.0	50	600	30.4	63.5	63.5	0.0	No	
7 - University of Southern California (southwest)	52.0	50	1050	25.6	63.5	63.5	0.0	No	

* Source for reference level: Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010

2nd Floor Courtyard

Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Shielding	Level at Receptor (dBA)
1 – Residential (west and north)	80.0	3	40	0	57.5
2 – Residential (south)	80.0	3	125	10	37.6
3 – Residential (north)	80.0	3	250	10	31.6
4 – Exposition Park (southwest)	80.0	3	400	10	27.5
5 – Residential (south)	80.0	3	460	10	26.3
6 – Alexander Science Center School (northwest)	80.0	3	715	0	32.5
7 – University of Southern California (northwest)	80.0	3	1200	10	18.0

2nd Floor Pool

Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)		Level at Receptor (dBA)
1 – Residential (west and north)	80.0	3	160	10	35.5
2 – Residential (south)	80.0	3	35	0	58.7
3 – Residential (north)	80.0	3	380	10	27.9
4 – Exposition Park (southwest)	80.0	3	345	0	38.8
5 – Residential (south)	80.0	3	320	0	39.4
6 – Alexander Science Center School (northwest)	80.0	3	830	10	21.2
7 – University of Southern California (northwest)	80.0	3	1340	10	17.0

Roof Deck North

Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)		Level at Receptor (dBA)
1 – Residential (west and north)	80.0	3	80	10	41.5
2 – Residential (south)	80.0	3	315	10	29.6
3 – Residential (north)	80.0	3	75	0	52.0
4 – Exposition Park (southwest)	80.0	3	570	10	24.4
5 – Residential (south)	80.0	3	640	10	23.4
6 – Alexander Science Center School (northwest)	80.0	3	630	0	33.6
7 – University of Southern California (northwest)	80.0	3	1050	0	29.1

Roof Deck South

Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)		Level at Receptor (dBA)
1 – Residential (west and north)	80.0	3	40	0	57.5
2 – Residential (south)	80.0	3	60	10	44.0
3 – Residential (north)	80.0	3	320	0	39.4
4 – Exposition Park (southwest)	80.0	3	255	0	41.4
5 – Residential (south)	80.0	3	425	10	27.0
6 – Alexander Science Center School (northwest)	80.0	3	660	0	33.2
7 – University of Southern California (northwest)	80.0	3	1250	0	27.6

Total Open Space

Receptor	Combined Open Space Noise at Receptor (dBA)	Ambient Level (dBA)	Combined Noise at Receptor (dBA)	Incremental Increase (dBA)	Significant?
1 – Residential (west and north)	60.6	60.8	63.7	2.9	No
2 – Residential (south)	58.8	58.9	61.9	3.0	No
3 – Residential (north)	52.3	60.8	61.4	0.6	No
4 – Exposition Park (southwest)	43.5	63.5	63.5	0.0	No
5 – Residential (south)	40.0	58.9	59.0	0.1	No
6 – Alexander Science Center School (northwest)	37.9	63.5	63.5	0.0	No
7 – University of Southern California (northwest)	31.8	63.5	63.5	0.0	No

* Reference level assumes music playing on stereo. Source: Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, Noise Navigator Sound Level Database with Over 1700 Measurement Values, July 6, 2010

3288 Figueroa
Composite Noise

Receptor	Mechanical Equipment (Leq)	Amplified Music (Leq)	Combined Noise at Receptor (Leq)	Ambient Level (dBA)	Combined Noise at Receptor (dBA Leq)	Incremental Increase (dBA)	Significant?
1 – Residential (west and north)	55.1	60.6	61.7	60.8	64.3	3.5	No
2 – Residential (south)	58.0	58.8	61.5	58.9	63.4	4.5	No
3 – Residential (north)	47.9	52.3	53.7	60.8	61.6	0.8	No
4 – Exposition Park (southwest)	38.7	43.5	44.7	63.5	63.6	0.1	No
5 – Residential (south)	36.0	40.0	41.4	58.9	59.0	0.1	No
6 – Alexander Science Center School (northwest)	30.4	37.9	38.6	63.5	63.5	0.0	No
7 – University of Southern California (northwest)	25.6	31.8	32.7	63.5	63.5	0.0	No

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: 3822 Figueroa
Project Number:
Scenario: Existing
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 50 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	38th Street	between Figueroa St and Flower St	2	0	1,102	25	0	2.0%	1.0%	51.8	-	-	-	-
2	Flower Drive	between 38th St and 39th St	2	0	904	25	0	2.0%	1.0%	50.9	-	-	-	-
3	39th St	between Figueroa St and Flower Dr	4	12	11,428	35	0	2.0%	1.0%	64.8	-	-	151	478
4	Figueroa St	between Flower and 39th St	4	12	36,141	35	0	2.0%	1.0%	69.8	-	151	478	1,511

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: 3822 Figueroa
Project Number:
Scenario: Existing Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 50 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	38th Street	between Figueroa St and Flower St	2	0	1,724	25	0	2.0%	1.0%	53.7	-	-	-	37
2	Flower Drive	between 38th St and 39th St	2	0	1,621	25	0	2.0%	1.0%	53.5	-	-	-	35
3	39th St	between Figueroa St and Flower Dr	4	12	12,101	35	0	2.0%	1.0%	65.1	-	51	160	506
4	Figueroa St	between Flower and 39th St	4	12	36,496	35	0	2.0%	1.0%	69.8	-	153	482	1,526

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: 3822 Figueroa
Project Number:
Scenario: Opening Year
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 50 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	38th Street	between Figueroa St and Flower St	2	0	1,135	25	0	2.0%	1.0%	51.9	-	-	-	-
2	Flower Drive	between 38th St and 39th St	2	0	931	25	0	2.0%	1.0%	51.1	-	-	-	-
3	39th St	between Figueroa St and Flower Dr	4	12	11,774	35	0	2.0%	1.0%	64.9	-	-	156	492
4	Figueroa St	between Flower and 39th St	4	12	37,237	35	0	2.0%	1.0%	69.9	-	156	492	1,557

¹ Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: 3822 Figueroa
Project Number:
Scenario: Opening Year Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

#	Roadway	Segment	Lanes	Median Width	ADT Volume	Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
								Medium Trucks	Heavy Trucks	CNEL at 50 Feet	Distance to Contour			
										70 CNEL	65 CNEL	60 CNEL	55 CNEL	
1	38th Street	between Figueroa St and Flower St	2	0	1,757	25	0	2.0%	1.0%	53.8	-	-	-	38
2	Flower Drive	between 38th St and 39th St	2	0	1,648	25	0	2.0%	1.0%	53.5	-	-	-	36
3	39th St	between Figueroa St and Flower Dr	4	12	12,447	35	0	2.0%	1.0%	65.2	-	52	165	520
4	Figueroa St	between Flower and 39th St	4	12	37,592	35	0	2.0%	1.0%	70.0	-	157	497	1,571

¹ Distance is from the centerline of the roadway segment to the receptor location.
 "-" = contour is located within the roadway right-of-way.