
Noise Technical Report

2240 Fleetwood Drive Warehouse Project

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
ACC	air-cooled condenser
ADT	Average Daily Traffic
AHU	air-handling unit
ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CALGreen	California Green Building Standards
CBC	California Building Code
CEQA	California Environmental Quality Act
City	City of Jurupa Valley
CNEL	community noise equivalent level
dB	decibel
dBA	A-weighted decibels
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HVAC	heating, ventilation and air conditioning
ips	inches per second
ISO	International Organization of Standardization
Hz	hertz
kHz	kilohertz
L_{eq}	equivalent sound level
$L_{eq(1hr)}$	1-hour equivalent sound level
$L_{eq(8hr)}$	8-hour equivalent sound level
L_{dn}	day-night level
L_{max}	maximum sound level during measurement interval
L_w	sound power level
L_{xx}	Percentile-exceeded sound level
mPA	micro-Pascals
OBCF	Octave Band Center Frequency
OPR	California Governor's Office of Planning and Research
PPV	peak particle velocity
Project	2240 Fleetwood Drive Warehouse Project
SPL	sound pressure level
ST	short-term noise measurement location
VMT	Vehicle Miles Traveled

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1 Executive Summary

The purpose of this technical report is to assess the potential noise and vibration impacts associated with implementation of the proposed 2240 Fleetwood Drive Warehouse Project (Project) in the City of Jurupa Valley (City). This assessment utilizes the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), the City and other applicable thresholds of significance.

1.1 Project Summary

The approximately 9.7-gross-acre Project site is located to the west of the Santa Ana River in the City of Jurupa Valley, California. The Project would include construction of an 84,200 square foot warehouse building and associated improvements including loading docks, tractor-trailers, passenger vehicle parking spaces, stormwater detention basins, an outdoor storage area, and landscape area.

1.2 Summary of Findings

The results of this report are summarized below based on the significance criteria in Section 6 consistent with Appendix G of the CEQA Guidelines.

Table 1. Summary of Impact Determinations

Analysis	Report Section	Significance Determinations	
		Unmitigated	Mitigated
Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards during construction	7.1.1	Less-than-Significant	Not Applicable
Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards during operation	7.1.2	Less-than-Significant	Not Applicable
Generation of excessive groundborne vibration or groundborne noise levels during construction	7.2.1	Less-than-Significant	Not Applicable
Generation of excessive groundborne vibration or groundborne noise levels during operation	7.2.2	No Impact	Not Applicable
Exposure of people residing or working in the project area to excessive noise levels from a private airstrip or an airport	7.3	No Impact	Not Applicable

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2 Project Background

2.1 Project Location

The approximately 9.7-gross-acre Project site is located at 2240 Fleetwood Drive, south of the intersection of Via Ricardo and Fleetwood Drive on Assessor Parcel Numbers (APN) 178-350-024, 178-350-029, and 178-350-030, to the west of the Santa Ana River in the City of Jurupa Valley, California (Figure 1).

2.2 Existing Conditions

The project site is currently vacant but has previously been graded and includes a concrete pad area and pea gravel throughout.

2.3 Project Characteristics

The Project would include construction and operation of a warehouse building totaling approximately 84,200 square feet of development on an approximately 9.7-acre site. The remainder of the site will include an outdoor storage area of approximately 68,800 square feet, loading docks, tractor-trailers, passenger vehicle parking spaces, stormwater detention basins, and landscape area.

2.3.1 Operational Characteristics

An existing rubber tire recycling facility will be relocated to the Project site and occupy at least half of the warehouse building. Tires will be brought in via trucks and dumped and then handled by hand to be loaded on a conveyor belt for processing. The facility will include a grinder inside the warehouse building that will be used to grind the tires in rubber pieces that are then bailed into sacks for distribution via trucks to end users. A tenant for the second half of the warehouse building has not yet been identified. It is anticipated that the building would support standard warehousing uses. Cold storage, as well as the use of the warehouse to store acutely hazardous and/or toxic materials, is not anticipated.

The Project would support a variety of activities associated with the warehouse building, including the ingress and egress of passenger vehicles and trucks, the loading and unloading of trucks with designated truck courts/loading areas, and the internal and external movement of materials around the outdoor storage area via forklifts, pallet jacks, yard hostlers, and similar equipment. In addition, the office space would support general internal office activities related to the warehouse uses.

Equipment and activities located inside the warehouse building are unlikely to be audible off-site. Exterior sound generating activities and equipment include rooftop mechanical equipment for the office uses, exhaust for the warehouse, rooftop inverters and transformers for the rooftop solar panels, loading dock activities, truck and vehicular circulation, and the moving of materials around the outdoor storage area. The facility plans to operate Monday through Friday from 8:00 a.m. to 5:00 p.m.

Figure 1 Project Location

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Figure 2 Site Plan

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3 Fundamentals of Noise and Vibration

3.1 Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is defined as loud, unexpected, or annoying sound. In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receptor determine the sound level and characteristics of the noise perceived by the receptor. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this huge range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB). The threshold of hearing for young people is about 0 dB, which corresponds to 20 mPa.

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a receptor equidistant to each sound source would be 3 dB higher than one source under the same conditions. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB—rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dB louder than one source.

A-Weighted Decibels

The decibel 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. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within that range better than sounds of the same amplitude in higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an “A-weighted” sound level (expressed in units of dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-, C-, D-, and G-scales), but these scales are rarely used in conjunction with highway traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted decibels (dBA). Table 2 provides typical outdoor and indoor noise sources against a decreasing linear scale of A-weighted sound levels.

Table 2. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	– 110 –	Rock band
Jet fly-over at 1000 feet		
	– 100 –	
Gas lawn mower at 3 feet		
	– 90 –	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	– 80 –	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	– 70 –	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	– 60 –	
		Large business office
Quiet urban daytime	– 50 –	Dishwasher next room
Quiet urban nighttime	– 40 –	Theater, large conference room (background)
Quiet suburban nighttime		
	– 30 –	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	– 20 –	
		Broadcast/recording studio
	– 10 –	
Lowest threshold of human hearing	– 0 –	Lowest threshold of human hearing

Source: Caltrans 2013.

Human Response to Changes in Noise Levels

As discussed above, doubling sound energy results in a 3 dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1 dB changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000 Hz–8,000 Hz) range (Caltrans 2013). In typical noisy environments, changes in noise of 1 to 2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness. Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3 dB increase in sound would generally be perceived as barely detectable.

Noise Descriptors

Noise in our daily environment fluctuates over time at varying rates. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors are utilized in this analysis.

- **Equivalent Sound Level (L_{eq}):** L_{eq} represents an energy average of the sound level occurring over a specified period. The 1-hour A-weighted equivalent sound level ($L_{eq}[h]$) is the energy average of A-weighted sound levels occurring during a one-hour period and is the basis for noise abatement criteria used by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA). Note that L_{eq} is not an arithmetic average of varying dB levels over a period of time, it accounts for greater sound energy represented by higher decibel contributions.
- **Percentile-Exceeded Sound Level (L_{xx}):** L_{xx} represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10% of the time, and L_{90} is the sound level exceeded 90% of the time).
- **Maximum Sound Level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period.
- **Day-Night Level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during nighttime hours between 10 p.m. and 7 a.m.
- **Community Noise Equivalent Level (CNEL):** Similar to L_{dn} , CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10 dB penalty applied to A-weighted sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m., and a 5 dB penalty applied to the A-weighted sound levels occurring during evening hours between 7 p.m. and 10 p.m.

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors:

- **Geometric Spreading** – Sound from a localized source (i.e., an ideal point source) propagates uniformly outward in a spherical pattern (or hemispherical when near a surface). The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roadways consist of several

localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

- **Ground Absorption** – The propagation path of noise from a sound emission source to a receptor is usually horizontal and proximate to the ground. Under these conditions, noise attenuation from ground absorption and reflective-wave canceling can add to the attenuation associated with geometric spreading. For acoustically “hard” paths over which sound may traverse (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or “soft” sites (i.e., those sites with an absorptive ground surface between the source and the receptor, such as fresh-fallen snow, soft dirt, or dense vegetative ground cover), an additional ground-attenuation value of +1.5 dB per doubling of distance is normally assumed. When added to cylindrical spreading for line source sound propagation, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.
- **Atmospheric Absorption** – In addition to aforementioned geometric spreading, the fluid medium (i.e., the air) through which sound travels yields frequency-dependent attenuation that increases in magnitude with increasing frequency. The effect is influenced by temperature and relative humidity, and typically negligible over short source-to-receptor distances (e.g., less than 500 feet); but it helps explain why lower-frequency sound such as a thunderclap appears to “travel farther” over great distances.
- **Meteorological Effects** – Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound pressure levels can also be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects when distances between a source and receptor are large.
- **Shielding by Natural or Human-Made Features** – A large object or barrier in the direct path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and ridgelines) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. While a line of trees may visually occlude the direct line between a source and a receptor, its actual noise-reducing effect is usually negligible because it does not create an acoustically solid barrier. Deep expanses of dense wooded areas, on the other hand, can offer noise reduction under the right conditions.

3.2 Vibration

Vibration is oscillatory movement of mass (typically a solid) over time. It is described in terms of frequency and amplitude and, unlike sound, can be expressed as displacement, velocity, or acceleration. For environmental studies, vibration is often studied as a velocity that, akin to the discussion of sound pressure levels, can also be expressed in dB as a way to cast a large range of quantities into a more convenient scale. Vibration impacts to buildings are generally discussed in terms of inches per second (ips) peak particle velocity (PPV), which will be used herein to discuss vibration levels for ease of reading and comparison with relevant standards. Vibration can also be annoying and thereby impact occupants of structures, and vibration of sufficient amplitude can disrupt sensitive

equipment and processes (Caltrans 2020), such as those involving the use of electron microscopes and lithography equipment. Common sources of vibration within communities include construction activities and railroads. Groundborne vibration generated by construction projects is usually highest during pile driving, rock blasting, soil compacting, jack hammering, and demolition-related activities where sudden releases of subterranean energy or powerful impacts of tools on hard materials occur. Depending on their distances to a sensitive receptor, operation of large bulldozers, graders, loaded dump trucks, or other heavy construction equipment and vehicles on a construction site also have the potential to cause high vibration amplitudes. The maximum vibration level standard used by Caltrans for the prevention of structural damage to typical residential buildings is 0.3 ips PPV (Caltrans 2020). For human annoyance, Caltrans guidance indicates that a more stringent threshold of 0.24 ips PPV due to continuous vibration (e.g., nearby roadway traffic) would be “annoying.” Vibration velocity limits for transient or single events tend to be less stringent than those for continuous or “steady-state” vibration sources.

3.3 Sensitive Receptors

Sound- and vibration-sensitive land uses are typically considered locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, and hospitals are usual examples, with others depending on what the local jurisdiction may have defined or established. Based on context from the City of Jurupa Valley General Plan Noise Element (City of Jurupa Valley 2017), sensitive receptors include residential uses, schools, hospitals, assisted living facilities, mental health care facilities, places of worship, libraries, and passive recreation areas. Residences and a church are the nearest noise-sensitive land uses in the vicinity of the Project site. Existing single-family residences are located to the north, southwest and east, and a church is located to the southwest. These existing sensitive receptors represent the nearest land uses with the potential to be impacted by construction and operation of the Project.

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4 Existing Sound Environment

Sound pressure level measurements were conducted near the proposed Project site on January 12, 2024, to quantify and characterize the existing outdoor ambient sound levels. Table 3 provides the location, date, and time period at which these baseline sound level measurements were performed. Measurements were performed by an attending Dudek field investigator using a Rion-branded Model NL-52 sound level meter equipped with a 0.5-inch, pre-polarized condenser microphone with pre-amplifier. The sound level meter meets the current American National Standards Institute (ANSI) standard for a Type 1 (Precision Grade) sound level meter. The accuracy of the sound level meter was verified using a field calibrator before and after the measurements, and the measurements were conducted with the microphone positioned approximately 5 feet above the ground.

Three short-term (ST) sound level measurement locations (ST1–ST3) that represent existing sound-sensitive receivers were selected on and near the proposed Project site. These locations, depicted as receivers ST1–ST3 on Figure 3, Sound Measurement and Modeling Locations, were selected to characterize the baseline outdoor ambient sound levels for residential receptors and the traffic noise exposure from Project adjacent roadways (see Figure 3). The measured average (L_{eq}) and percentile-exceeded sound levels (L_{50} , L_{90} , L_{10}) are provided in Table 3. The primary sound sources at the sites identified in Table 3 consisted of traffic along adjacent roadways, distant industrial noise and conversations/yelling. As shown in Table 3, the measured sound level ranged from 51 dBA L_{eq} at ST2 to 68 dBA L_{eq} at ST3. The primary sound source at ST1 and ST3 is local traffic, whereas ST2 includes distant traffic and sounds common in a quieter residential neighborhood (conversations, animal noise). Beyond the summarized information presented in Table 3, detailed sound measurement data is included in Appendix A, Baseline Field Sound Measurement Data.

Table 3. Measured Baseline Outdoor Ambient Sound Levels

Receptors	Location/Address	Date	Time	L_{eq} (dBA)	L_{50} (dBA)	L_{90} (dBA)	L_{10} (dBA)
ST1	North of Project site, adjacent to single-family residence at 1900 Brown Avenue	January 12, 2024	11:54 a.m. – 12:14 p.m.	65	52	45	66
ST2	East of Project site, adjacent to single-family residences on Peach Grove Street	January 12, 2024	12:47 p.m. – 13:07 p.m.	51	49	41	53
ST3	Southwest of Project site, adjacent to church and single-family residences along 24 th Street	January 12, 2024	12:22 p.m. – 12:37 p.m.	68	65	57	71

Source: Appendix A

Notes: L_{eq} = equivalent continuous sound level (time-averaged sound level); L_x = percentile-exceeded sound level during the measurement interval.

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Figure 3 Sound Measurement and Modeling Locations

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5 Regulatory Setting

5.1 Federal Regulations

Federal Transit Administration

Although no federal regulations are applicable to this Project, guidance and methodologies from the Federal Transit Administration's (FTA's) Transit Noise and Vibration Impact Assessment Manual (FTA 2018) pertaining to construction noise and vibration are used in this analysis. For example, in its Transit Noise and Vibration Impact Assessment guidance manual (FTA 2018), the Federal Transit Administration (FTA) offers guidance on the estimation of construction noise levels from a construction Project site. It also provides suggested thresholds that include no more than 80 dBA L_{eq} (over an 8-hour daytime period) as received at a residential land use. Since the City does not provide a quantified construction noise limit, this analysis adopts the 80 dBA L_{eq} 8-hr FTA guidance for quantitative construction noise impact assessment.

5.2 State Regulations

California Department of Transportation

In its Transportation and Construction Vibration Guidance Manual (Caltrans 2020), Caltrans recommends 0.5 inches per second (ips) PPV as a threshold for the avoidance of structural damage to typical newer residential buildings exposed to continuous or frequent intermittent sources of ground-borne vibration. For older structures, these guidance thresholds would be more stringent: 0.3 ips PPV for continuous/intermittent vibration sources. With respect to human annoyance, Caltrans guidance (Caltrans 2020) indicates that building occupants exposed to continuous ground-borne vibration at a level of 0.24 ips PPV would find it "annoying" and thus a likely significant impact. Although these Caltrans guidance thresholds are not regulations, they can serve as quantified standards in the absence of such limits at the local jurisdictional level.

Government Code Section 65302(g)

California Government Code Section 65302(g) requires the preparation of a Noise Element in a general plan, which shall identify and appraise the noise problems in the community. The Noise Element shall recognize the guidelines adopted by the Office of Noise Control in the State Department of Health Services and shall quantify, to the extent practicable, current and projected noise levels for the following sources:

- Highways and freeways
- Primary arterials and major local streets
- Passenger and freight on-line railroad operations and ground rapid transit systems
- Aviation and airport-related operations
- Local industrial plants
- Other ground stationary noise sources contributing to the community noise environment

California General Plan Guidelines

The California General Plan Guidelines, published by the Governor’s Office of Planning and Research, provides guidance for the acceptability of specific land use types within areas of specific noise exposure. Table 4, Land Use Compatibility for Community Noise Environments, presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community’s sensitivity to noise, and the community’s assessment of the relative importance of noise pollution. The Office of Planning and Research guidelines are advisory in nature. Local jurisdictions, including the City of Pomona, have the responsibility to set specific noise standards based on local conditions.

Table 4. Land Use Compatibility for Community Noise Environments

Land Use Type	Community Noise Exposure (CNEL)			
	Normally Acceptable ¹	Conditionally Acceptable ²	Normally Unacceptable ³	Clearly Unacceptable ⁴
Residential-low density, single-family, duplex, mobile homes	50–60	55–70	70–75	75–85
Residential – multiple-family	50–65	60–70	70–75	70–85
Transit lodging – motel, hotels	50–65	60–70	70–80	80–85
Schools, libraries, churches, hospitals, nursing homes	50–70	60–70	70–80	80–85
Auditoriums, concert halls, amphitheaters	NA	50–70	NA	65–85
Sports arenas, outdoor spectators’ sports	NA	50–75	NA	70–85
Playgrounds, neighborhood parks	50–70	NA	67.5–77.5	72.5–85
Golf courses, riding stables, water recreation, cemeteries	50–70	NA	70–80	80–85
Office buildings, business commercial and professional	50–70	67.5–77.5	75–85	NA
Industrial, manufacturing, utilities, agriculture	50–75	70–80	75–85	NA

Source: OPR 2017

CNEL = Community Noise Equivalent Level; NA = not applicable

- ¹ Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
- ² Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
- ³ Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise-insulation features must be included in the design.
- ⁴ Clearly Unacceptable: New construction or development should generally not be undertaken.

California Code of Regulations Title 24

The State of California has adopted noise standards in areas of regulation not preempted by the federal government. State standards regulate noise levels of motor vehicles, sound transmission through buildings,

occupational noise control, and noise insulation. State regulations governing noise levels generated by individual motor vehicles and occupational noise control are not applicable to planning efforts, nor are these areas typically subject to CEQA analysis. State noise regulations and policies applicable to the Project include Title 24 requirements and noise exposure limits for various land use categories. The 2022 California Building Code (CBC, Part 2, Title 24, Section 1204.6, California Code of Regulations) stipulates “interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. The noise metric shall be either the day-night average sound level (L_{dn}) or the community noise equivalent level (CNEL).”

California Green Building Standards (CALGreen)

The State of California’s noise insulation standards for nonresidential uses are given in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 11, California Green Building Standards (CALGreen) Code. The CALGreen Code noise standards are applied to new or renovation construction projects in California to control interior noise levels resulting from exterior noise sources. Proposed Projects may use either the prescriptive method (CALGreen Code Section 5.507.4.1) or the performance method (CALGreen Code Section 5.507.4.2) to show compliance. Under the prescriptive method, a project must demonstrate transmission loss ratings for the wall and roof-ceiling assemblies and exterior windows when located within a noise environment of 65 dBA CNEL or higher. Under the performance method, a project must demonstrate that interior noise levels do not exceed 50 dBA $L_{eq(1hr)}$.

5.3 Local Regulations

City of Jurupa Valley General Plan Noise Element

The City of Jurupa Valley General Plan Noise Element (City of Jurupa Valley 2017) is written to ensure compliance with state requirements through a comprehensive, long-range program of achieving acceptable noise levels throughout the City. The Noise Element identifies noise-generating uses and activities within City limits, and institutes goals, policies and programs to promote noise/land use compatibility (shown in Table 5). The Noise Element contains the following policies and programs pertaining to the Project:

- NE 1.1** Utilize the Land Use/Noise Compatibility Matrix, Figure 7-3, to determine the compatibility of proposed development, including General Plan amendments, specific plan amendments, town center plans, and rezoning’s, with existing land uses and/or noise exposure due to transportation sources.





- NE 1.3** New or Modified Stationary Noise Sources. Noise created by new stationary noise sources, or by existing stationary noise sources that undergo modifications that may increase noise levels, shall be mitigated so as not exceed the noise level standards of Figure 7-3. This policy does not apply to noise levels associated with agricultural operations existing in 2017.

- NE 3.1** Noise Analysis. Require that a noise analysis be conducted by an acoustical specialist for all proposed development projects that have the potential to generate significant noise near a noise-sensitive land use, or on or near land designated for noise-sensitive land uses, and ensure that recommended mitigation measures are implemented.

NE 3.5 Construction Noise. Limit commercial construction activities adjacent to or within 200 feet of residential uses to weekdays, between 7:00 a.m. and 6:00 p.m., and limit high noise generating construction activities (e.g., grading, demolition, pile driving) near sensitive receptors to weekdays between 9:00 a.m. and 3:00 p.m.

Table 5. City of Jurupa Valley Noise/Land Use Compatibility Guidelines

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE Ldn or CNEL, dB					
	55	60	65	70	75	80
Residential - Low Density Single Family, Duplex, Mobile Homes	White	White	White	White	White	White
Residential - Multi Family	White	White	White	White	White	White
Transient Lodging - Motels, Hotels	White	White	White	White	White	White
Schools, Libraries, Churches, Hospitals, Nursing Homes	White	White	White	White	White	White
Auditoriums, Concert Halls, Amphitheatres	White	White	White	White	White	White
Sports Arena, Outdoor Spectator Sports	White	White	White	White	White	White
Playgrounds, Neighborhood Parks	White	White	White	White	White	White
Golf Courses, Riding Stables, Water Recreation, Cemeteries	White	White	White	White	White	White
Office Buildings, Business Commercial and Professional	White	White	White	White	White	White
Industrial, Manufacturing Utilities, Agriculture	White	White	White	White	White	White

	NORMALLY ACCEPTABLE Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	NORMALLY UNACCEPTABLE New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise reduction features included in the design.
	CLEARLY UNACCEPTABLE New construction or development should generally not be undertaken.

Source: Jurupa Valley 2017 General Plan, Figure 7-3.

City of Jurupa Valley Municipal Code

The City of Jurupa Valley Municipal Code establishes limits to the hours of construction through Section 11.05.020 (Exemptions), which indicates that noise associated with any private construction activity located within one-quarter of a mile from an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., from June through September, and 7:00 a.m. and 6:00 p.m., from October through May (City of Jurupa Valley 2012).

Environmental Review Guidelines and Thresholds of Significance

The City of Jurupa Valley Environmental Review Guidelines were adopted on May 13, 2020 and include the following noise and vibration policies relevant to the Project:

- A project may have a significant impact if traffic generated by the project would result in a noticeable increase in roadway noise in areas where exterior noise is already in excess of City standards. A noticeable increase in roadway noise would occur in traffic noise increased by 3 dBA or more.
- A project may have a significant impact if it creates construction or operational vibration in excess of 0.20 PPV inch/second adjacent to or within one-quarter mile of sensitive receptors.

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6 Significance Criteria

6.1 Significance Thresholds

The following significance criteria, included in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.), will determine the significance of a noise impact. Impacts related to noise would be significant if the proposed Project would result in:

- a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- b. Generation of excessive groundborne vibration or groundborne noise levels.
- c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the exposure of people residing or working in the project area to excessive noise levels.

Quantitative thresholds of significance have been established for the purposes of this analysis based on the local polices and regulations described in Section 5.3 and guidance from the City, as summarized in Table 6.

Table 6. Thresholds of Significance - Noise and Vibration

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site	Noise-Sensitive	If ambient is < 65 dBA CNEL ¹	Project plus ambient > 65 dBA CNEL and a ≥ 3 dBA CNEL Project increase ²	
	Non-Noise-Sensitive	If ambient is < 70 dBA CNEL ¹	Project plus ambient > 70 dBA CNEL and a ≥ 3 dBA CNEL Project increase ²	
Operational	Noise-Sensitive	Exterior Noise Level Standards ²	65 dBA L _{eq}	45 dBA L _{eq}
		If ambient is > 65 dBA L _{eq} ¹	≥ 3 dBA L _{eq} Project increase ³	
		Vibration Level Threshold ³	0.2 in/sec PPV ³	
Construction	Noise-Sensitive	Limit typical construction activities to weekdays between 7:00 a.m. and 6:00 p.m. Limit grading, demolition, pile driving to weekdays between 9:00 a.m. and 3:00 p.m. ⁴		
		Noise Level Threshold ⁵	80 dBA L _{eq}	70 dBA L _{eq}
		Vibration Level Threshold ²	0.2 in/sec PPV ³	

¹ City of Jurupa Valley General Plan Noise Element Policy NE 1.5 and Figure 7-3 *normally acceptable* noise exposure.

² City of Jurupa Valley noise-related CEQA thresholds guidance for noise-sensitive receivers (Appendix 4.1).

³ City of Jurupa Valley, Environmental Review Guidelines and Thresholds of Significance.

⁴ City of Jurupa Valley Municipal Code, Section 11.05.020. (9).

⁵ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "PPV" = Peak Particle Velocity

7 Impact Analysis

7.1 Significance Threshold A

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

7.1.1 Construction

On-Site Construction

It is anticipated that the Project would be constructed in one major phase (with sub-phases for site preparation, fine grading, building construction and so on) and would begin in January 2025, lasting approximately 14 months. The types of construction equipment that would be used to construct the proposed Project include standard equipment that would be employed for any routine construction Project of this scale, such as graders, tractors, loaders, cranes, rubber-tired bulldozers, generators, and paving equipment. No blasting, on-site rock crushing or pile driving would be necessary.

Construction noise is difficult to quantify because of the many variables involved, including the specific equipment types, size of equipment used, percentage of time each piece is in operation, condition of each piece of equipment, and number of pieces that would operate on the site. One of the most extensive and widely used databases for sound levels from motorized or powered construction equipment is the Noise Source Database developed under National Cooperative Highway Research Program 25-49 Development of a Highway Construction Noise Prediction Model¹. While the focus of data compilation was for equipment that would typically be employed for the construction of transportation facilities, the list is comprehensive enough to be useful in assessing sound levels for nearly every activity for which powered equipment is used. Table 7 provides a list of the maximum sound levels generated by various powered equipment that could be associated with construction of the Project. Noise levels from construction operations decrease at a rate of approximately 6 dB per doubling of distance from the source.

Table 7. Typical Construction Equipment Noise Emission Levels

Equipment	Average Sound Level (dBA L_{eq}) – 50 feet from Source	Maximum Sound Level (dBA L_{max}) – 50 feet from Source
Air Compressor	66	67
Aerial Lift (Man Lift)	72	73
Backhoe	76	84
Compactor (Plate)	-	75
Compactor (Roller)	82	83
Concrete Mixer	81	82
Concrete Saw	85	88

¹ Project 25-49 Data, National Cooperative Highway Research Program, <https://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=3889>, October 2018.

Table 7. Typical Construction Equipment Noise Emission Levels

Equipment	Average Sound Level (dBA L_{eq}) – 50 feet from Source	Maximum Sound Level (dBA L_{max}) – 50 feet from Source
Crane, Mobile	74	76
Dozer	80	86
Forklift	-	88
Generator	67	68
Grader	-	79
Horizontal Bore Drill	87	88
Loader	72	81
Paving - Asphalt	-	83
Paving - Concrete	85	88
Pump	73	74
Scraper	-	92
Flatbed Truck	-	74
Welding Machine	71	72

Source: Project 25-49 Data, National Cooperative Highway Research Program, <https://apps.trb.org/cmsfeed/trbnetprojectdisplay.asp?projectid=3889>, October 2018.

Notes: (-) Equipment without average (L_{eq}) noise levels are non-stationary and best represented only by maximum instantaneous noise level (L_{max}).

Note that the equipment sound levels presented in Table 7 include both average L_{eq} and maximum L_{max} sound levels, measured at a distance of 50 feet using a “slow” response time constant (1-second). Usually, construction equipment operates in alternating cycles of full power and low power, producing average noise levels over time that are less than the maximum noise level. The average sound level of construction activity also depends on the amount of time that the equipment operates and the intensity of construction activities during that time. Sound emissions from the construction of the Project were estimated based upon construction information provided for use in the air quality analysis of this Project, as provided in Table 8.

Table 8. Construction Equipment Per Phase

Construction Phase (Duration)	On Site Equipment Types (and Quantities)	One-Way Vehicle Trips (by Type) per Day
Site Preparation (10 workdays)	Dozers (3), Backhoes (4)	Light vehicles (18)
Grading (20 workdays)	Grader (1), Excavator (1), Backhoes (3), Dozer (1)	Light vehicles (16)
Building Construction (230 workdays)	Forklifts (3), Generator (1), Crane (1), Welder (1), Backhoes (3)	Light vehicles (34), vendor trucks (14)
Paving (20 workdays)	Pavers (2), Paving Equipment (2), Rollers (2)	Light vehicles (16)
Architectural Coating (20 workdays)	Air Compressor (1)	Light vehicles (8)

With the sound sources identified in Tables 7 and 8 above, an analysis was performed with a Microsoft Excel-based noise prediction model using the NCHRP reference data. Input variables include the equipment type (i.e., backhoe, crane, truck, etc.), the number of equipment pieces, and the distance from the sensitive receptor.

Construction noise levels were predicted at the nearest sound-sensitive land use, residences located about 800 feet to the north (represented by ST1 and R1) and 1,500 feet to the southeast (represented by ST2 and R2), across Santa Ana River. Aggregate sound emissions from project construction activities, broken down by sequential phase of construction, was predicted for the worst-case construction activity occurring along the closest construction boundary to the off-site closest sensitive receptors. The results of this analysis are summarized in Table 9. Note that Table 9 does not include the sound reduction provided by intervening topography or structures, which would be substantial for residences located both the north and those to the southeast.

Table 9. Construction Noise Levels at Worst-Case Residences

Task/Activity	Closest Residence to North (800 feet)	Closest Residence to Southeast (1,500 feet)
	Leq 8hr	Leq 8hr
Site Preparation (10 workdays)	62	57
Grading (20 workdays)	60	55
Building Construction (230 workdays)	66	60
Paving (20 workdays)	67	61
Architectural Coating (20 workdays)	42	36
Background Sound Level	65	51

Table 9 presents the results of the construction noise prediction model assuming all equipment is simultaneously operating along the project site boundary closest to the identified receiver. As indicated in Table 9, worst-case construction noise levels would range from 36 to 67 dBA $L_{eq\ 8hr}$ at the nearest residences. The predicted construction noise levels reported in Table 9 at residences to the southeast, not taking shielding from topography or structures into account would be up to 10 dB above the documented daytime level, which would be clearly noticeable. Construction noise at the northern residences would be similar or lower in level to existing background sound levels. During other phases of construction and as construction equipment travels around the site, sound levels would be lower and may be barely noticeable.

Construction hours are limited for activities adjacent to or within 200 feet of residential uses. The Project site is not within 200 feet of residences; however, construction activities would still be conducted within the allowable hours of 7:00 a.m. and 6:00 p.m. No noise limit for mobile sources is given, therefore a numeric standard adopted by another agency would be appropriate to employ for daytime construction noise assessment. In its Transit Noise and Vibration Impact Assessment guidance manual, the Federal Transit Authority (FTA) recommends a daytime construction noise level threshold of 80 dBA L_{eq} over an eight-hour period (L_{eq8hr}) when detailed construction noise assessments are performed to evaluate potential impacts to community residences or other noise-sensitive land uses surrounding a project (FTA 2018). Although this FTA guidance is not a regulation, many communities employ it as a quantified standard in the absence of such limits at the local jurisdictional level. Dudek compared predicted construction noise levels to the recommended FTA construction noise exposure limits and to measured ambient noise levels.

Construction activities would comply with the FTA recommended construction noise limit of 80 dBA L_{eq} 8hr. The average noise levels at exterior areas would not be harmful, nor present a deterrent to use of outdoor activity, yard or patio areas. With typical outdoor to indoor attenuation of 15 dBA for standard construction residential structures with windows open, interior noise levels at the closest residences during construction would be as high as approximately 52 dBA L_{eq} , which should not interfere with conversation or other daytime activities indoors. Consequently, on-site construction noise levels would result in a **less than significant** temporary noise impact.

Off-Site Construction Activities

The Project would result in local, short-term increases in roadway noise as a result of construction traffic. Based on information developed as part of the Project's air quality analysis, Project-related traffic would include workers commuting to and from the Project site as well as vendor trucks. No haul truck trips are anticipated because no soil would be imported or exported from the Project site. The highest number of daily average trips would be 34 worker (light vehicle) trips and 14 vendor trucks, occurring during the building construction phase.

Based upon available data provided as part of the Project's transportation analysis, Fleetwood Drive carries approximately 1,292 daily trips in the Project vicinity, and Market Street carries approximately 19,633 daily trips in this area². Comparing the maximum number of daily construction-related trips (34 worker trips and 14 vendor trips) to the average daily traffic volume of the lowest-volume street (1,292 daily trips on Fleetwood Drive), the additional vehicle trips would amount to an increase of approximately 4 percent. Based upon the fundamentals of acoustics, a doubling (i.e., a 100 percent increase) would be needed to result in a 3-dB increase in noise levels, which is the level corresponding to an audible change to the typical human listener. An increase in traffic volumes (all other things being equal) would amount to a negligible increase of less than 1 dB. Therefore, traffic related to construction activities would not result in 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. Impacts from Project-related construction traffic noise would be **less than significant**. No mitigation measures are required.

7.1.2 Operation

On-Site Operational Noise

This analysis assumes that the Project facility could be operated 24 hours a day, 7 days a week; thus, on-site operational noise was modeled to feature a daytime and nighttime scenario. Project operations would occur at a nearest horizontal distance of approximately 850 feet to the sound-sensitive receptor to the north, or approximately 1,760 feet and 2,650 feet to the sound-sensitive receptors to the southeast and southwest, respectively.

Facility operations would add a variety of sound-producing equipment for activities including the ingress and egress of passenger vehicles and trucks, the loading and unloading of trucks with designated truck courts/loading areas, and the internal and external movement of materials around the outdoor storage area via forklifts, pallet jacks, yard hostlers, and similar equipment. In addition, the office space would support general internal office activities related to the warehouse uses, and thus require outdoor mechanical equipment in the form of heating, ventilation, and air conditioning (HVAC) equipment including air-handling units (AHU) and air-cooled condenser (ACC) units, 24 hours a day (i.e., during daytime and nighttime hours). Based upon the square footage of the warehouse space (84,000 square

² Average daily volumes (ADTs) were collected by Dudek in April 2024.

feet total), it was assumed the AHU units would have an overall A-weighted sound power level (L_w) of 85 dBA, and 94 dBA L_w for the ACC units (Loren Cook Company 1999).

Such sound-producing equipment is presented in Table 10 below. Most of this equipment would be considered stationary, or exhibit limited mobility within a defined area—and were modeled as such. Using Datakustik CadnaA that has algorithms based on the International Organization of Standardization (ISO) Standard 9613-2, “Attenuation of Sound During Propagation Outdoors, Part 2: General Method of Calculation” (ISO 1996), sound propagation prediction of project on-site noise sources was assumed to reflect the following conditions and parameters:

- Acoustical ground absorption coefficient estimated to be one (1), which represents absorptive ground cover (e.g., highly porous soils and/or vegetative natural terrain surfaces).
- Acoustical reflection order is set at zero (0), which precludes sound path reflections when contact is made with a modeled building surface, but is still appropriate when source-to-receptor distances are relatively large and would diminish the acoustical contribution of reflected paths owing to the attenuation with greater distance travelled.
- Climate conditions are 50° degrees Fahrenheit, 70% relative humidity. While these temperature and humidity settings may vary with the seasons, their influence on the predicted aggregate sound levels for the nearest potentially impacted offsite receptors would tend to be no greater than a decibel.
- Because the facility would operate 24 hours a day, two (2) total scenarios were modeled to represent the one-hour L_{eq} of Project operations over two time periods: a daytime hour and a nighttime hour. Both modeled operational time periods, in addition to the facility’s rooftop mechanical equipment (ACCs and AHUs), includes fourteen (14) idling trucks located at the facility loading docks (represented by point sources), an onsite truck scale (represented by an area source), and three (3) forklifts³ (point sources). The daytime hour scenario also includes two (2) mobile “line-source” paths, which are meant to represent the travel paths of trucks entering the loading/unloading area of the facility; however, these sources are not included in the nighttime hour scenario.

The reference sound power (L_w) levels listed below in Table 10 were used to define area sources of sound emission in the CadnaA computer model space with respect to an arrangement of rendered line, area, and point sources that depict the various equipment structures required for Project operation. Please see Appendix C for quantitative details of the inputs and outputs that form the basis of the following assessment presentations.

Table 10. - Sound Power Levels for the Modeled Individual Sources of Outdoor Noise Emission

Source	A-weighted Sound Level per Octave Band Center Frequency (OBCF in Hertz [Hz])								Overall Sound Level (dBA)
	63	125	250	500	1k	2k	4k	8k	
Idling Trucks	87	88	86	80	77	72	63	55	83
Warehouse AHU	66	78	79	80	77	70	64	59	85
Warehouse ACC	93	93	92	93	86	84	83	79	94

³ Forklifts were modeled have an overall A-weighted L_w of 87 dBA, per Project 25-49 Data (NCHRP 2018)

Notes: OBCF = Octave Band Center Frequency; dBA = A-weighted decibels
 * Reference sound power level data shown in Appendix C.

Predicted sound exposure levels attributed to concurrent operation of the Project’s onsite stationary sources (i.e., rooftop mechanical equipment, truck loading/unloading, forklifts) as modeled appear in Table 11. As shown, the highest hourly sound level during an operational daytime hour would be 29 dBA L_{eq} , or 23 dBA L_{eq} during a nighttime hour at the modeled receptor ST2/R2. Operational sound levels are well below the measured ambient sound levels in the Project area and would not exceed the City of Jurupa Valley’s noise-related CEQA thresholds guidance for noise-sensitive receivers of 65 dBA L_{eq} during daytime hours and 45 dBA L_{eq} during nighttime hours. Thus, Project operation during daytime and nighttime hours would result in **a less than significant impact**. No mitigation measures are required.

Table 11. Project Operation Noise Prediction Model Results Summary

Modeled Receptor	Modeled Receptor Distance from Project Boundary	Predicted Operation Noise (dBA hourly L_{eq}) at Indicated Modeled Receptor
Daytime Operations		
ST1/R1	850 feet north	26
ST2/R2	1,760 feet southeast	29
ST3/R3	2,650 feet southwest	16
Nighttime Operations		
ST1/R1	850 feet north	22
ST2/R2	1,760 feet southeast	23
ST3/R3	2,650 feet southwest	12

Notes: dBA = A-weighted decibels; L_{eq} = equivalent noise level. See Figure 3 for modeled “ST#/R#” receptor locations.

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Figure 4 Predicted Stationary Source Operation Sound from Proposed Project (Daytime Operations)

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Figure 5 Predicted Stationary Source Operation Sound from Proposed Project (Nighttime Operations)

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Off-Site Operational Noise

The Project would result in the creation of additional vehicle trips on local arterial roadways (i.e., Fleetwood Drive and Market Street), which could result in increased traffic noise levels at adjacent noise-sensitive land uses. Appendix D, Traffic Noise Modeling Calculations contains a spreadsheet with traffic volume data for each roadway.

The FHWA’s Highway Traffic Noise Prediction Model RD-77-108 was used to estimate potential noise impacts at adjacent sound-sensitive uses. Information used in the model included Average Daily Traffic (ADT) from Dudek’s Trip Generation and Vehicle Miles Traveled (VMT) Analysis (Dudek 2024), posted traffic speeds, day/evening/night mix percentage, and truck mix percentage. Consistent with guidance from the Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol [TeNS] (Caltrans 2013), this analysis assumes 80% of the ADT occurs during daytime hours (7:00 a.m. to 7:00 p.m.), 5% during the evening (7:00 p.m. to 10:00 p.m.), and 15% during the nighttime (10:00 p.m. to 7:00 a.m.) for existing conditions. The truck percentages used (4%) in the noise model for existing arterials were derived from Dudek’s Trip Generation and VMT Analysis, as appearing in Appendix C (Dudek 2024). The change in roadway noise levels was predicted for the Project in an existing and existing plus project scenario. Table 12 below provides a summary of the results for the analysis of roadway noise based on the existing ADT volumes for each studied roadway segment.

Table 12. Off-Site Traffic Noise Modeling Results

Street Name	From	To	Noise Level Without Project (CNEL dBA)	Noise Level With Project (CNEL dBA)	Project Increase (CNEL dBA)
Fleetwood Drive	Via Cerro	Via Ricardo	46	48	1.4
Market Street	24 th Street	SR-60	68	68	< 0.1

Source: Appendix D

Project operational traffic would result in a maximum traffic noise increase of 1.4 dB along Fleetwood Drive. Thus, the anticipated combined traffic noise level, encompassing both existing and Project-related traffic, would not cause an increase in existing traffic noise levels greater than 3 dB CNEL. Additionally, in the context of community noise (i.e., outside of a controlled environment), the predicted increase in Project-attributed roadway traffic noise would not be discernable to the human ear, and therefore, project-attributed traffic noise levels would be **less than significant**.

7.2 Significance Threshold B

Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

7.2.1 Construction

Construction activities that might expose persons to excessive ground-borne vibration or ground-borne noise could cause a potentially significant impact. Groundborne vibration from construction activities is typically attenuated over short distances. The heavier pieces of construction equipment used at this site could include graders, tractors, loaders, cranes, rubber-tired bulldozers, generators, and paving equipment.

Based on published vibration data, the anticipated heavy construction equipment would generate a vibration level of approximately 0.089 inches per second peak particle velocity (PPV) at a distance of 25 feet from the source; lighter construction equipment, such as a small bulldozer, would generate a substantially lower vibration level of

approximately 0.003 inches per second PPV at a distance of 25 feet from the source.⁴ Although heavy equipment would operate throughout the Project site at various construction phases, it is anticipated that heavy equipment would occasionally operate as close as approximately 950 feet from existing residences (the single-family residence to the north, represented by receiver ST1 and R1). At the distance from the nearest vibration-sensitive receivers to where construction activity would be occurring on the Project site, the peak particle velocity vibration level would be approximately 0.0004 inches per second or less. As such, vibration levels would be less than the standard used by the City of 0.2 ips PPV (City of Jurupa Valley 2020). Because groundborne vibration from Project construction would not exceed recognized standards, and due to the temporary and intermittent occurrence of vibration levels, vibration impacts would be **less than significant**. No mitigation measures are required.

7.2.2 Operation

During operation, no major sources of groundborne vibration are anticipated. Therefore, the project will have **No Impact** with respect to operational vibration. No mitigation measures are required.

7.3 Significance Threshold C

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

No private airstrips exist in the Project vicinity. The nearest airport is Flabob Airport, located approximately 2.5 miles to the southwest of the Project site. The Project site is not located within 2 miles of any public airport, nor is it located within the boundaries of any airport land use plans. Therefore, the proposed Project would not expose or result in excessive noise for people residing or working in the Project area, and **no impact** would occur. No mitigation measures are required.

⁴ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, Table 7-4, page 184, 2018.

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8 Summary of Findings

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

Short-Term Construction Impacts

The Project would result in less-than-significant impacts with regard to short-term construction noise. No mitigation is required.

Long-Term Operational Impacts

The Project would result in less-than-significant on-site operational impacts as well as less-than-significant off-site operational traffic noise impacts. As such, no mitigation is required.

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

The Project would result in less-than-significant impacts with regard to groundborne vibration and groundborne noise levels. No mitigation is required.

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

The Project would result in no impact with regard to excessive airport noise levels. No mitigation is required.

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9 References

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Appendix A

Baseline Field Noise Measurement Data

Appendix B

Construction Noise Model Input / Output

Appendix C

Operational Noise Model Input / Output

Appendix D

Traffic Noise Modeling Calculations