



Appendix K

Acoustical Assessment

Acoustical Assessment
Jurupa & Willow Warehouse Project
City of Rialto, California

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LIST OF ABBREVIATED TERMS

ADT	average daily traffic
BNL	basic noise level
CEQA	California Environmental Quality Act
CL	centerline
CNEL	community equivalent noise level
dB	decibel
dBA	A-weighted sound level
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
Ft	foot/feet
FTA	Federal Transit Administration
HVAC	heating ventilation and air conditioning
Hz	hertz
in/sec	inches per second
L _%	exceeded/percent noise level
L _{dn}	day-night noise level
L _{eq}	equivalent noise level
L _{max}	maximum noise level
L _{min}	minimum noise level
mph	miles per hour
PPV	peak particle velocity
RMS	root mean square
μPa	micropascals
VdB	vibration velocity level

1 INTRODUCTION

This report documents the results of the Acoustical Assessment completed for the Jurupa & Willow Warehouse Project (Project). The purpose of this Acoustical Assessment is to evaluate the potential construction and operational noise and vibration levels associated with the Project and determine the level of impact the Project would have on the environment.

1.1 Project Location

The Project site is located at the northeast corner of Jurupa Avenue and S Willow Avenue in the City of Rialto, California (City). The proposed site is zoned as Light Industrial (M-1) and consists of three parcels (APNs 0258-111-31, -41, and -42) on 6.55 acres. Currently, the site is used for industrial and non-confirming single-family residential uses. The Project site is relatively flat and has elevations ranging from 957 to 977 feet above mean sea level (amsl). The site's topography slightly slopes down to the south.

The Project site is bounded by industrial uses to the north and west, S Willow Avenue to the east, and Jurupa Avenue to the south. Local access to the Project site is provided via Jurupa Avenue and S Willow Avenue. The nearest major freeways to the site include San Bernardino Freeway (I-10), located approximately 1.30-mile to the north; Interstate 210, located approximately 3.00-miles to the east; and Route 60, located approximately 3.22-miles to the south; refer to [Exhibit 1: Regional Vicinity](#) and [Exhibit 2: Site Vicinity](#).

1.2 Project Description

The Project proposes the development of a single new industrial warehouse building totaling 119,908 square feet, including 5,000 square feet of office space. The structure will be supported by a truck yard, vehicular parking areas, drive aisles, dock doors, and landscaped areas. Vehicular access to the Project site will be provided by one new 40-foot-wide driveway off S Willow Avenue and one 35-foot-wide driveway and one 26-foot-wide driveway off Jurupa Avenue. The Project provides a total of 118 parking stalls that includes 35 trailer stalls and 83 standard auto stalls. Refer to [Exhibit 3: Site Plan](#) for further Project details.

Hours of Operation

The tenant(s) of the warehouse facility has not been identified; therefore, the precise nature of facility operations cannot be determined at this time. Any future occupant would be required to adhere to the pertinent City regulations. For the purposes of this analysis, the hours of operation are assumed to be 7 days a week, 24 hours per day.

Project Phasing

The Project is anticipated to be developed in one phase. Construction activity of the Project is anticipated to begin in October 2023 with a construction duration of approximately 7 months. Construction of the Project would require the following phases: demolition, site preparation, grading, building construction, paving, and architectural coatings.

Walls and Fences

The Project would include the following walls and fences on-site:

- An 8-foot-high tubular steel fence would be located along the northwestern corner and northern boundaries of the Project site;
- One 14-foot-high concrete screen wall along the warehouse building's northern elevation and standard auto stall parking area, near the access point at Willow Avenue;
- Two 8-foot-high louvered metal gates at the access point at Willow Avenue and along the western boundary of the Project site;

Site Access

Local access to the Project site is provided via Jurupa Avenue, which bounds the south of the site in a west-east direction, and S Willow Avenue, which bounds east of the site in a north-south direction. Regional access to the Project site is provided via San Bernardino Freeway (I-10), located approximately 1.30-mile to the north; Interstate 210, located approximately 3.00-miles to the east; and Route 60, located approximately 3.22-miles to the south. The Project would include one new 40-foot-wide driveway off S Willow Avenue and one 35-foot-wide driveway and one 26-foot-wide driveway off Jurupa Avenue.

Parking

The Project proposes to provide a total of 118 parking stalls that includes 83 standard auto stalls (9 feet by 20 feet) and 35 trailer stalls (10 feet by 55 feet). Trailer stalls would be positioned along the northern Project boundary, east of the automobile parking area. Standard auto parking stalls would be provided at the northeastern corner of the Project site and along the southern Project boundary.

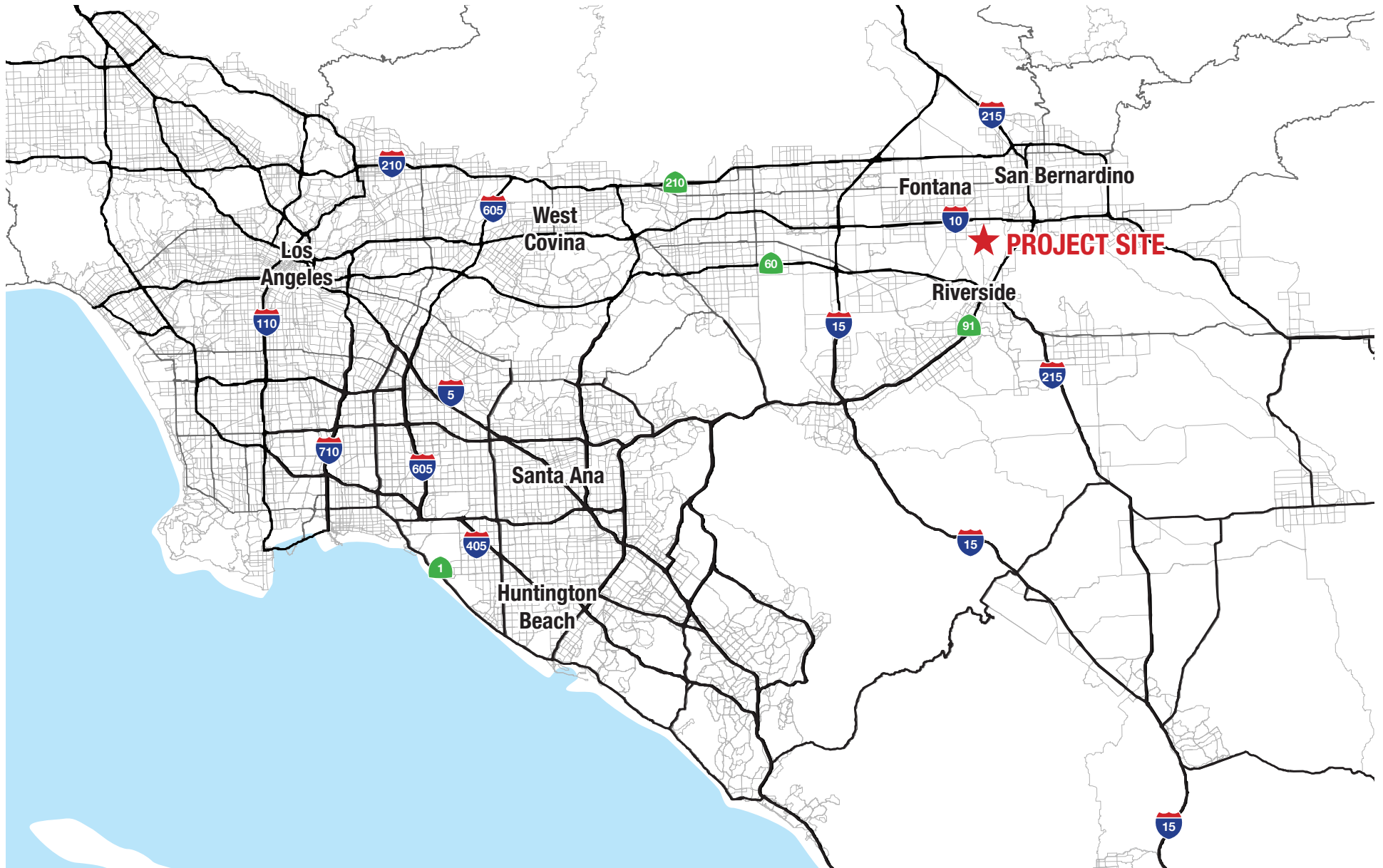


EXHIBIT 1: Regional Vicinity Map
Jurupa & Willow Warehouse Project
City of Rialto

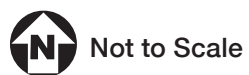
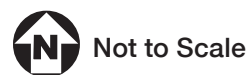




EXHIBIT 2: Site Vicinity Map
Jurupa & Willow Warehouse Project
City of Rialto



Not to Scale

2 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).

Noise is defined as loud, unexpected, or annoying sound. The fundamental acoustics model consists of a noise source, a receptor, and the propagation path between the two. 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. A typical noise environment consists of a base of steady background noise that is the sum of many distant and indistinguishable noise sources. The sound from individual local sources is superimposed on this background noise. 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 micropascals (μPa) as a point of reference, defined as 0 dB. 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
	– 110 –	Rock Band
Jet fly-over at 1,000 feet	– 100 –	
Gas lawnmower at 3 feet	– 90 –	
Diesel truck at 50 feet at 50 mph	– 80 –	Food blender at 3 feet Garbage disposal at 3 feet
Noisy urban area, daytime	– 70 –	Vacuum cleaner at 10 feet Normal Speech at 3 feet
Gas lawnmower, 100 feet	– 60 –	
Commercial area	– 50 –	Large business office Dishwasher in next room
Heavy traffic at 300 feet	– 40 –	Theater, large conference room (background)
Quiet urban daytime	– 30 –	Library
Quiet urban nighttime	– 20 –	Bedroom at night, concert hall (background)
Quiet suburban nighttime	– 10 –	Broadcast/recording studio
Quiet rural nighttime	– 0 –	Lowest threshold of human hearing
Lowest threshold of human hearing		

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

Noise Descriptors

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. 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. While L_{eq} represents the continuous sound pressure level over a given period, the day-night noise level (L_{dn}) and Community Equivalent Noise Level (CNEL) are measures of energy average during a 24-hour period, with dB weighted sound levels from 7:00 p.m. to 7:00 a.m. 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 pascals 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.
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 PM to 7:00 AM 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 AM to 10:00 PM and a 10 dBA weighting added to noise during the hours of 10:00 PM to 7:00 AM 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.

Because sound levels can vary markedly over a short period of time, a method for describing either the sound's average character (L_{eq}) or the variations' statistical behavior must be utilized. 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. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The predicted models' accuracy depends on various factors, such as the distance between the noise receptor and noise source, the character of the ground surface (e.g., hard or soft), and the presence or absence of structures (e.g., walls or buildings) or topography, and how well model inputs reflect these conditions.

A-Weighted Decibels

The perceived loudness of sound is dependent on many factors, including sound pressure level and frequency content. 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 section are in terms of dBA, but are expressed as dB, unless otherwise noted.

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 10.¹ When the standard logarithmic dB is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness.² For example, a 70 dBA sound is half as loud as an 80 dBA sound and twice as loud as a 60 dBA sound. 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.³ Under the dB scale, three sources of equal loudness together would produce an increase of 5 dBA.⁴

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.⁵ 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.⁶ 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. 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 noise receptor and 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.⁷ The manner in which older homes in California were constructed

¹ California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

² Ibid.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

⁷ Federal Highway Administration, *Highway Traffic and Construction Noise - Problem and Response*, April 2006.

generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

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 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.⁸ 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.⁹ 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:¹⁰

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA 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.

⁸ Compiled from James P. Cowan, *Handbook of Environmental Acoustics*, 1994, and Cyril M. Harris, *Handbook of Noise Control*, 1979.

⁹ *ibid.*

¹⁰ Compiled from California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, and FHWA, *Noise Fundamentals*, 2017.

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.¹¹

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). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave and is 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 velocity decibels (VdB). 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 annoyance levels shown in Table 3 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 individual's sensitivity. 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.

¹¹ Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Analysis Issues, August 1992.

Table 3: Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibrations			
Maximum PPV (in/sec)	Vibration Annoyance Potential Criteria	Vibration Damage Potential Threshold Criteria	FTA Vibration Damage Criteria
0.008	--	Extremely fragile historic buildings, ruins, ancient monuments	--
0.01	--	--	--
0.04	--	--	--
0.10	Readily perceptible	Fragile buildings	--
0.12	Begins to Annoy	--	Buildings extremely susceptible to vibration damage
0.2	--	--	Non-engineered timber and masonry buildings
0.25	Annoying	Historic and some old buildings	--
0.3	--	Older residential structures	Engineered concrete and masonry (no plaster)
0.4	--	--	--
0.5	Unpleasant	New residential structures, Modern industrial/commercial buildings	Reinforced-concrete, steel or timber (no plaster)
PPV = peak particle velocity; in/sec = inches per second; FTA = Federal Transit Administration			
Source: California Department of Transportation, <i>Transportation and Construction Vibration Guidance Manual</i> , 2020 and Federal Transit Administration, <i>Transit Noise and Vibration Assessment Manual</i> , 2018.			

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. 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. For the purposes of this analysis, a PPV descriptor with units of in/sec is used to evaluate construction-generated vibration for building damage and human complaints.

3 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 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. 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. Single-family homes are “normally acceptable” in exterior noise environments up to 60 CNEL and “conditionally acceptable” up to 70 CNEL. Multiple-family residential uses are “normally acceptable” up to 65 CNEL and “conditionally acceptable” up to 70 CNEL. Schools, libraries, and churches are “normally acceptable” up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

Title 24 – Building Code

The State’s noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new multi-family residential buildings, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.2 Local

City of Rialto General Plan

The City of Rialto General Plan (General Plan) is a roadmap that encompasses the hopes, aspirations, values, and dreams of the community. The General Plan specifies exterior noise guidelines for land uses in the Safety and Noise chapter. The City requires that new developments be designed to meet these guidelines¹². Noise compatibility can be achieved by avoiding the location of conflicting land uses adjacent to one another, incorporating buffers and noise control techniques including setbacks, landscaping, building transitions, site design, and building construction techniques. Selection of the appropriate noise control technique would vary depending on the level of noise that needs to be reduced as well as the location and intended land use. General Plan policies that directly address reducing and avoiding noise or vibration impacts include the following:

¹² City of Rialto, *General Plan Chapter 5*, 2010.

Goal 2-9: Protect residential, schools, parks, and other sensitive land uses from the impacts associated with industrial and trucking-related land uses, as well as commercial and retail areas.

Policy 2-9.1: Require mitigation and utilize other techniques to protect residential development and other sensitive land uses near industrial land uses or within identified health risk areas from excessive noise, hazardous materials and waste releases, toxic air pollutant concentrations, and other impacts.

Goal 5-10: Minimize the impact of point source and ambient noise levels throughout the community.

Policy 5-10.2: Consider noise impacts as part of the development review process, particularly the location of parking, ingress/egress/loading, and refuse collection areas relative to surrounding residential development and other noise-sensitive land uses.

Policy 5-10.3: Ensure that acceptable noise levels are maintained near schools, hospitals, and other noise sensitive areas in accordance with the Rialto Municipal Code (Municipal Code) and noise standards contained in Exhibit 5-5 of the General Plan.

Policy 5-10.4: Limit the hours of operation at all noise generation sources that are adjacent to noise-sensitive areas.

Policy 5-10.5: Require all exterior noise sources (construction operations, air compressors, pumps, fans and leaf blowers) to use available noise suppression devices and techniques to reduce exterior noise to acceptable levels that are compatible with adjacent land uses.

Goal 5-11: Minimize the impacts of transportation-related noise.

Policy 5-11.3: Require development of truck-intensive uses to minimize noise impacts on adjacent uses through appropriate site design.

Policy 5-11.4: Develop a program for monitoring noise levels and investigating complaints.

The City of Rialto is largely built out and the street system is well established, creating challenges for separating noise-sensitive land uses from primary noise sources. Thus, the Safety and Noise chapter of the General Plan establishes policies guarding against new noise or land use conflicts to minimize the impact of existing noise sources on the community. [Table 4: Rialto Noise Guidelines for Land Use Planning](#) presents the City's exterior noise guidelines for land use planning. It should also be noted that the Safety and Noise chapter of the General Plan mentions sound levels exceeding 40 to 45 dBA are generally considered to cause sleep interference within a residence. The General Plan also references Title 24 of the California Health and Safety Code stipulating a maximum of 45 dBA for interior residential noise levels.

Table 4: Rialto Noise Guidelines for Land Use Planning				
Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
R2 - Residential 2, R6 - Residential 6	50 – 60	60 – 65	65 – 70	70 – 85
R12 - Residential 12	50 – 60	60 – 65	65 – 70	70 – 85
R21 - Residential 21, R45 - Residential 45	50 – 60	60 – 70	70 – 75	75 – 85
DMU - Downtown Mixed-Use	50 – 60	60 – 75	75 – 80	80 – 85
CC - Community Commercial	50 – 65	65 – 75	75 – 80	80 – 85
GC - General Commercial	50 – 65	65 – 75	75 – 80	80 – 85
BP - Business Park, O - Office	50 – 65	65 – 75	75 – 80	80 – 85
LI - Light Industrial	50 – 70	70 – 75	75 – 80	80 – 85
GI - General Industrial	50 – 75	75 – 85	NA	NA
P - Public Facility, P - School Facility	50 – 60	60 – 65	65 – 70	70 – 85
OSRC - Open Space - Recreation	50 – 75	NA	75 – 80	80 – 85
OSRS - Open Space - Resources	50 – 75	NA	75 – 80	80 – 85
NA: Not Applicable; dBA: Decibel				
Notes:				
Normally Acceptable – Specified land use is satisfactory, assuming buildings are of conventional construction.				
Conditionally Acceptable – New development should be undertaken only after detailed analysis of noise reduction requirements are made.				
Normally Unacceptable – New development should be discouraged, or a detailed analysis of noise reduction requirements must be made.				
Clearly Unacceptable – New development should generally not be undertaken.				
Source: City of Rialto, <i>General Plan Chapter 5</i> , 2010.				

City of Rialto Code of Ordinances

A noise ordinance is intended to control unnecessary, excessive, and annoying sounds from stationary, non-transportation noise sources. Noise ordinance requirements are not applicable to mobile noise sources such as heavy trucks traveling on public roadways. Federal and State laws preempt control of mobile noise sources on public roads. Noise ordinance standards generally apply to industrial and commercial noise sources, as well as parks and schools affecting residential areas. The Municipal Code prohibits the production of excessive noise and is applied to future development within the City to determine potential noise impacts.

Chapter 9.50 Noise Control of the Municipal Code discusses all noise-related requirements. The City has also instated permitted hours for disturbances specifically from construction activity under Municipal Code Section 9.50.070. This code states that no person shall be engaged in any type of work relating to construction, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours provided in [Table 5: Permitted Hours of Construction Work](#) below. However, Section 9.50.060 of the Municipal Code indicates exclusions from the provisions of this specific chapter of the Municipal Code. As described in Section 9.50.060(L) of the Municipal Code, noise sources associated with construction, repair, or excavation, are exempt so long as there is a valid written agreement with the City or any of its political subdivisions that provides for noise mitigation measures.

Table 5: Permitted Hours of Construction Work	
Days of Week	Time^{1,2}
October 1 st through April 30 th	
Monday – Friday	7:00 a.m. to 5:30 p.m.
Saturday	8:00 a.m. to 5:00 p.m.
Sunday	No Permissible Hours
State Holidays	No Permissible Hours
May 1 st through September 30 th	
Monday – Friday	6:00 a.m. to 7:00 p.m.
Saturday	8:00 a.m. to 5:00 p.m.
Sunday	No Permissible Hours
State Holidays	No Permissible Hours
Notes: For purposes of this section, the following exceptions shall apply: 1. Emergency repair of existing installations, equipment, or appliances; and 2. Such work that complies with the terms and conditions of a written early work permit issued by the city manager or his or her designee upon a showing of a sufficient need and justification for the permit due to hot or inclement weather, the use of an unusually long process material, or other circumstances of an unusual and compelling nature.	
Source: City of Rialto, <i>Code of Ordinances</i> , Section 9.50.070, 2018.	

The Project would be subject to the limitations imposed by the City regarding construction noise as depicted in [Table 5](#).

The following section of the Municipal Code noise ordinance is relevant for operational noise.

9.50.050: Controlled hours of operation.

It is unlawful for any person to engage in the following activities other than between the hours of 7:00 a.m. and 8:00 p.m. in all zones.

- A. Operate or permit the use of powered model vehicles and planes;
- B. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous or unnecessary noise within one thousand feet of a residence;
- C. Operate or permit the use of domestic power tools, or machinery or any other equipment or tool in any garage, workshop, house or any other structure;
- D. Operate or permit the use of gasoline or electric powered leaf blowers, such as commonly used by gardeners and other persons for cleaning lawns, yards, driveways, gutters and other property;
- E. Operate or permit the use of privately operated street/parking lot sweepers or vacuums, except that emergency work and/or work necessitated by unusual conditions may be performed with the written consent of the city manager;
- F. Operate or permit the use of pile driver, steam or gasoline shovel, pneumatic hammer, steam or electric hoist or other similar devices;

- G. Operate or permit the use of electrically operated compressor, fan, and other similar devices;
- H. Perform ground maintenance on golf course grounds and tennis courts contiguous to golf courses that creates a noise disturbance across a residential or commercial property line;
- I. Operate or permit the use of any motor vehicle with a gross vehicle weight rating in excess of ten thousand pounds, or of any auxiliary equipment attached to such a vehicle, including but not limited to refrigerated truck compressors, for a period longer than fifteen minutes in any hour while the vehicle is stationary and on a public right-of-way or public space except when movement of the vehicle is restricted by other traffic;
- J. Repair, rebuild, reconstruct or dismantle any motor vehicle or other mechanical equipment or devices in a manner so as to be plainly audible across property lines.

Additionally, Section 9.50.060(O) of the Municipal Code states that sounds generated in commercial and industrial zones that are necessary and incidental to the uses permitted therein are exempt from the Controlled Hours of Operation.

4 EXISTING CONDITIONS

4.1 Existing Noise Levels

The City is impacted by various noise sources. Mobile sources of noise, especially cars, trucks, and trains are the most common and significant sources of noise. Other noise sources are the various land uses (e.g. residential, commercial, institutional, and recreational and parks activities) throughout the City that generate stationary-source noise. The existing mobile noise sources in the Project area are generated by motor vehicles traveling on Willow Avenue and Jurupa Avenue. The primary sources of stationary noise in the Project vicinity are those associated with the industrial uses to the north, east, and south. Industrial stationary noise sources may include mechanical equipment (use of heating, ventilation, and air conditioning [HVAC] units, etc.) and parking lot activities (cars parking, open and closing doors, truck movements and loading activities, etc.). The noise associated with these sources may represent a single-event noise occurrence, short-term, or long-term/continuous noise.

4.2 Sensitive Receptors

Noise exposure standards and guidelines for various types of land uses reflect the varying noise sensitivities associated with each of these uses. Residences, hospitals, schools, guest lodging, libraries, and churches are treated as the most sensitive to noise intrusion and therefore have more stringent noise exposure targets than do other uses, such as manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. The nearest sensitive receptors to the Project site are the single-family residences located approximately 25 feet to the west, 93 feet to the south, and 125 feet to the southwest.

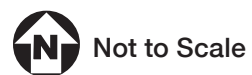
4.3 Noise Measurements

To quantify existing ambient noise levels in the Project area, Kimley-Horn conducted four short-term noise measurements on April 18, 2023, and one long-term (24-hour) measurement on April 18-19, 2023; see [Appendix A: Existing Ambient Noise Measurements](#). The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site, see [Exhibit 4: Noise Measurement Locations](#). The 10-minute measurements were taken between 1:03 p.m. and 2:04 p.m. The 24-hour measurement was taken between 2:20 p.m. and 2:09 p.m. of the following day. Measurements of L_{eq} are considered representative of the noise levels throughout the day. The average noise levels and measurement location are listed in [Table 6: Existing Noise Measurements](#).

Table 6: Existing Noise Measurements						
Site	Location	Time	Duration	Daytime Average Leq (dBA) ¹	Nighttime Average Leq (dBA) ¹	24-hour Average Leq (dBA)
Short-Term Noise Measurements (10-minute measurements)						
ST-1	Intersection of Jurupa Avenue and S Willow Avenue, adjacent to residential uses.	1:03 – 1:13 p.m.	10 Minutes	68.2	--	--
ST-2	Along Jurupa Avenue near the southwest corner of the Project site.	1:18 – 1:28 p.m.	10 Minutes	68.9	--	--
ST-3	Intersection of Maywood Avenue and Vista Avenue, northwest of the Project site.	1:36 – 1:46 p.m.	10 Minutes	61.4	--	--
ST-4	Directly north of the northeastern corner of the Project site along S Willow Avenue.	1:54 – 2:04 p.m.	10 Minutes	67.7	--	--
Long-Term Noise Measurement (24-hour measurement)						
LT-1	On the Project site near residential properties on the western Project boundary.	2:20 p.m.	24 hours	65.0	60.9	63.9
Notes: 1. Daytime hours are from 7:00 a.m. to 10:00 p.m. and nighttime hours are from 10:00 p.m. to 7:00 a.m. The 15-hour daytime average (15-hour Leq) and 9-hour daytime average (9-hour Leq) for LT-1 were calculated from 24-hour measurement data obtained by Kimley-Horn on April 18-19, 2023. The daytime average noise levels for ST-1 through ST-4 represent the 10-minute measurement data taken by Kimley-Horn on April 18, 2023.						
Source: Noise measurements taken by Kimley-Horn and Associates April 18, 2023. See Appendix A for noise measurement results.						



EXHIBIT 4: Noise Measurement Locations
Jurupa & Willow Warehouse Project
City of Rialto



5 SIGNIFICANCE CRITERIA AND METHODOLOGY

5.1 CEQA Thresholds

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains analysis guidelines related to noise impacts. These guidelines have been used by the City to develop thresholds of significance for this analysis. A Project would create a significant environmental impact if it would:

- 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; and
- 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.

5.2 Methodology

Construction Noise

Construction noise levels were based on typical noise levels generated by construction equipment published by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). Construction noise is assessed in dBA L_{eq} . This unit is appropriate because L_{eq} can be used to describe noise level from operation of each piece of equipment separately, and levels can be combined to represent the noise level from all equipment operating during a given period.

Construction noise modeling was conducted using the FHWA Roadway Construction Noise Model (RCNM). Reference noise levels are used to estimate operational noise levels at nearby sensitive receptors based on a standard noise attenuation rate of 6 dB per doubling of distance (line-of-sight method of sound attenuation for point sources of noise). Noise level estimates do not account for the presence of intervening structures or topography, which may reduce noise levels at receptor locations. Therefore, the noise levels presented herein represent a conservative, reasonable worst-case estimate of actual temporary construction noise. The City of Rialto does not establish quantitative construction noise standards. Therefore, this analysis conservatively uses the FTA's threshold of 80 dBA (8-hour L_{eq}) for residential uses and 90 dBA (8-hour L_{eq}) for non-residential uses to evaluate construction noise impacts.

Operational Noise

Reference noise level data are used to estimate the Project operational noise impacts from stationary sources. Noise levels are collected from field noise measurements and other published sources from similar types of activities are 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 standards within the Municipal Code and General Plan.

A qualitative analysis was conducted of the Project's potential effect on traffic noise conditions at off-site land uses. The Project-generated daily trips were compared to existing conditions to determine potential traffic noise impacts.

Vibration

Ground-borne vibration levels associated with construction activities for the Project were evaluated utilizing typical ground-borne vibration levels associated with construction equipment, obtained from FTA published data for construction equipment. Potential ground-borne 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 and human annoyance.

6 POTENTIAL IMPACTS AND MITIGATION

6.1 Acoustical Impacts

Threshold 6.1 Would the Project 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?

Construction

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. During construction, exterior noise levels could affect the residential uses near the construction site. The nearest sensitive receptors to the Project site are the single-family residences located adjacent to the Project site to the west. Construction would occur up to the shared boundary line. However, it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the sensitive receptors.

Construction activities would include demolition, site preparation, grading, infrastructure improvements, building construction, paving, and architectural coating applications. Such activities would require excavators, and dozers during demolition; dozers and tractors during site preparation; excavators, graders, dozers, and tractors during grading; excavators, dozers, and tractors during infrastructure improvements; cranes, forklifts, generators, tractors, and welders during building construction; pavers, rollers, and paving equipment during paving; and air compressors during architectural coating applications. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Construction noise was calculated accounting for each piece of equipment's usage factor, or fraction of time that the equipment would be in use at full power over a specific period of time.¹³ Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels. Typical noise levels associated with individual construction equipment when operating at full power are listed in Table 7: Typical Construction Noise Levels.

Equipment	Typical Noise Level (dBA L_{max}) at 50 feet from Source
Air Compressor	80
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	82

¹³ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

Table 7: Typical Construction Noise Levels	
Equipment	Typical Noise Level (dBA L_{max}) at 50 feet from Source
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	80
Paver	85
Pneumatic Tool	85
Pump	77
Roller	85
Saw	76
Scraper	85
Shovel	82
Truck	84
Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Manual</i> , September 2018.	

The FHWA Roadway Construction Noise Model (RCNM) was used to calculate the worst-case construction noise levels at nearby sensitive receptors surrounding the Project site during construction. The modeled receptor locations represent the closest existing receiving land uses to Project construction activities. Noise levels at other sensitive receptors surrounding the Project site would be located further away and would experience lower construction noise levels than the closest receptors modeled. Per the FTA Transit Noise and Vibration Manual which provides guidance for construction noise analyses, when calculating construction noise, all construction equipment is assumed to operate simultaneously at the center of the active construction zone. Under realistic circumstances, equipment would be operating throughout the site during a workday. Multiple pieces of equipment could not realistically be operating at the same time at the same point closest to a specific sensitive receptor. Additionally, there may be instances where multiple types of equipment would not be operated simultaneously. Therefore, assuming the distance between the center of the Project site and a sensitive receptor would account for average noise levels as construction equipment move through the Project site and would be a reasonable assumption. Therefore, the distance used in the RCNM model was approximately 315 feet from the center of the Project site to the nearest sensitive receptor (single family residential uses adjacent to the Project site to the west) and 260 feet from the center of the Project site to the adjacent industrial use to the west where every piece of construction equipment assumed for each individual phase is assumed to operate simultaneously; refer to [Appendix B: Noise Model Output Files](#) for RCNM modeling results.

The Municipal Code does not establish quantitative exterior construction noise standards. While the Municipal Code does not establish quantitative construction noise standards, this analysis conservatively uses the FTA's threshold of 80 dBA (8-hour L_{eq}) for residential uses and 90 dBA (8-hour L_{eq}) for industrial uses to evaluate construction noise impacts.¹⁴

The noise levels calculated in [Table 8: Project Construction Noise Levels](#) show estimated exterior noise levels for the worst-case construction noise scenario without accounting for attenuation from intervening barriers, structures, or topography. The nearest noise sensitive receptors to the Project site are the residences located adjacent to the Project site to the west and the nearest non-residential receptors are

¹⁴ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Table 7-3, Page 179, September 2018.

the industrial uses located adjacent to the west and north of the Project site. Noise levels at other receptors in the Project vicinity would be located further away and would experience lower construction noise levels than the closest receptors modeled. Because building construction, paving, and architectural coating activities are anticipated to overlap, the equipment from these phases have been combined. All construction equipment for each individual phase was assumed to operate simultaneously to represent a worst-case noise scenario as construction activities would routinely be spread throughout the construction site and would operate at different intervals.

Table 8: Project Construction Noise Levels

Construction Phase	Land Use	Receptor Location			Noise Threshold ² (dBA L _{eq})	Exceeded?
		Direction	Distance (feet)	Worst Case Modeled Exterior Noise Level (dBA L _{eq})		
Demolition	Residential	West	315	70.5	80	No
	Industrial	West	260	72.1	90	No
Site Preparation	Residential	West	315	68.3	80	No
	Industrial	West	260	70.0	90	No
Grading	Residential	West	315	68.8	80	No
	Industrial	West	260	70.5	90	No
Building Construction	Residential	West	315	72.0	80	No
	Industrial	West	260	73.7	90	No
Paving	Residential	West	315	70.1	80	No
	Industrial	West	260	71.8	90	No
Architectural Coating	Residential	West	315	57.7	80	No
	Industrial	West	260	59.4	90	No
Building Construction/ Paving/ Architectural Coating	Residential	West	315	74.3	80	No
	Industrial	West	260	75.9	90	No

Notes:

1. Per the methodology described in the FTA *Transit Noise and Vibration Impact Assessment Manual* (September 2018), distances are measured from the nearby buildings to the center of the Project construction site.
2. The City does not have a quantitative noise threshold for construction and only limits the hours of the construction activities. Therefore, FTA's construction noise threshold are conservatively used for this analysis (FTA, *Transit Noise and Vibration Impact Assessment Manual*, September 2018).

Source: Federal Highway Administration, *Roadway Construction Noise Model*, 2006. Refer to [Appendix B](#) for noise modeling results.

As shown in [Table 8](#), the worst-case scenario construction noise levels would not exceed the applicable FTA construction thresholds. The highest exterior noise level at residential receptors would occur during the overlap of building construction, paving, and architectural coating phases and would be 74.3 dBA which is below the FTA's 80 dBA threshold. Additionally, the highest exterior noise level at non-residential (industrial) receptors would also occur during the overlap of building construction, paving, and architectural coating phases and would be 75.9 dBA which is below the FTA's 90 dBA threshold. Construction equipment would operate throughout the Project site and the associated noise levels would not occur at a fixed location for extended periods of time. Although sensitive uses may be exposed to elevated noise levels during Project construction, these noise levels would be acoustically dispersed throughout the Project site and not concentrated in one area near surrounding sensitive uses.

The City has set restrictions on construction hours to control noise impacts from construction activities. Municipal Code Section 9.50.070 states that construction activities may only take place between the hours of 7:00 a.m. and 5:30 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays from October 1 through April 30 and shall only occur between 6:00 a.m. and 7:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays from May 1 through September 30. Although the Municipal Code limits the hours of construction, it does not provide specific noise level performance standards for construction. By following the City's standards, construction noise impacts would be less than significant.

Operations

Implementation of the proposed Project would create new sources of noise in the Project vicinity. The major noise sources associated with the Project that would potentially impact existing and future nearby residences include the following:

- Mechanical equipment;
- Slow moving trucks on the Project site, approaching and leaving the loading areas;
- Activities at the loading areas (i.e., maneuvering and idling trucks, equipment noise);
- Parking areas (i.e., car door slamming, car radios, engine start-up, and car pass-by); and
- Off-site traffic.

On-Site Noise Sources

Mechanical Equipment

Mechanical equipment (e.g., heating, ventilation, and air conditioning [HVAC] equipment) typically generates noise levels of approximately 52 dBA at 50 feet.¹⁵ HVAC units would be installed on the roof of the proposed structure. Sound levels decrease by 6 dBA for each doubling of distance from the source.¹⁶ The nearest sensitive receptors (residential uses to the west) would be located as close as 50 feet from the edge of the proposed building. At this distance, mechanical equipment noise levels would be approximately 52.0 dBA, which is well below the City's normally acceptable residential exterior noise standard (60 dBA). Further, intervening structures are located between the proposed warehouse structure and the receptors to the south, which would further attenuate HVAC noise levels. Operation of mechanical equipment would not increase ambient noise levels beyond the acceptable compatible land use noise levels. Therefore, the proposed Project would result in a less than significant impact related to mechanical equipment noise levels.

Truck and Loading Dock Noise

During loading and unloading activities, noise would be generated by the trucks' diesel engines, exhaust systems, and brakes during low gear shifting/braking activities; backing up toward the docks; dropping down the dock ramps; and maneuvering away from the docks. Loading/unloading activities would occur on the north side of the Project site.

¹⁵ Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.

¹⁶ Cyril M. Harris, *Noise Control in Buildings*, 1994.

Typically, heavy truck and loading dock operations generate a noise level of 64.4 dBA at a distance of 50 feet.¹⁷ The closest sensitive receptors would be the single-family residences located approximately 250 feet southwest of the loading dock areas. At this distance, heavy truck and loading dock noise levels would be 50.4 dBA, which would not exceed the City's normally acceptable residential exterior noise standard (60 dBA). Loading dock doors would be surrounded with protective aprons, gaskets, or similar improvements that, when a trailer is docked, would serve as a noise barrier between the interior warehouse activities and the exterior loading area. This would attenuate noise emanating from interior activities, and as such, interior loading and associated activities would be permissible during all hours of the day. As described above, noise levels associated with trucks and loading/unloading activities would not exceed the City's standards and impacts would be less than significant.

Back-Up Alarms

Medium and heavy-duty trucks reversing into loading docks would produce noise from back-up alarms (also known as back-up beepers). Back-up beepers produce a typical volume of 97 dBA at one meter (3.28 feet) from the source.¹⁸ The property line of the nearest sensitive receptor would be located approximately 250 feet southwest of the loading dock areas where trucks could be reversing and maneuvering. At this distance, exterior noise levels from back-up beepers would be approximately 59.4 dBA, which is below the City's normally acceptable residential exterior noise standard (60 dBA). It is also noted that back-up beeper noise is short in duration and would occur intermittently throughout the day/night. Therefore, back-up alarm noise impacts would be less than significant.

Parking Noise

Parking stalls would be located to the south of the proposed building, along Jurupa Avenue. According to the *Vehicles Miles Traveled Memorandum for 322 Jurupa Avenue Industrial Project* (VMT Memo) prepared by Kimley-Horn (dated March 17, 2023), the Project would generate up to 22 trips during the peak hour. For the purpose of providing a conservative, quantitative estimate of the noise levels that would be generated from the vehicles entering and exiting the parking lot, the methodology recommended by FTA for the general assessment of stationary transit noise sources is used. Using the methodology, the Project's peak hourly noise level that would be generated by the on-site parking levels was estimated using the following FTA equation for a parking lot:

$$L_{eq(h)} = SEL_{ref} + 10 \log (NA/1,000) - 35.6$$

Where:

$L_{eq(h)}$ = hourly L_{eq} noise level at 50 feet

SEL_{ref} = reference noise level for stationary noise source represented in sound exposure level (SEL) at 50 feet

NA = number of automobiles per hour

35.6 is a constant in the formula, calculated as 10 times the logarithm of the number of seconds in an hour

¹⁷ Loading dock reference noise level measurements conducted by Kimley-Horn on December 18, 2018.

¹⁸ Environmental Health Perspectives, *Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/>, accessed June 2023.

Using the FTA's reference noise level of 92 dBA SEL¹⁹ at 50 feet from the noise source, the Project's highest peak hour vehicle trips would generate noise levels of approximately 39.8 dBA L_{eq} at 50 feet from the parking lot. The nearest sensitive receptors (to the west and south) are located approximately 75 feet from the parking area. Conservatively assuming that all vehicles would park at a location nearest to sensitive receptors rather than dispersed throughout all available parking and based strictly on distance attenuation, parking lot noise at the nearest receptor would be 36.3 dBA, which is below City's normally acceptable residential exterior noise standard (60 dBA). Therefore, noise impacts from parking lots would be less than significant.

Composite Operational Noise

An evaluation of the combined noise levels from the Project's various operational noise sources (i.e., composite noise level) was conducted to conservatively ascertain the potential maximum Project-related noise level increase that may occur at the nearest noise-sensitive receptors. Table 9: On-Site Composite Noise Levels details the on-site noise levels from the Project site at the nearest residential uses. As shown in Table 9, the composite on-site operational noise attributable to the Project would result in a maximum increase in ambient nighttime conditions of 2.9 dBA L_{eq} at the residential uses located adjacent to the Project site to the west. In general, an increase of 3 dBA is considered to be barely perceptible and a 5 dBA change in noise levels is required before any noticeable change in community response would be expected. Therefore, the Project would not result in a significant permanent increase in ambient noise levels, and a less than significant impact would occur in this regard.

Receptor	Maximum On-Site Noise Levels by Source (dBA L _{eq})				Combined Noise Level at Receptor (dBA L _{eq})	Ambient Nighttime Noise Level (dBA L _{eq})	Ambient + Combined Project Noise (dBA L _{eq})	Incremental Increase over Ambient (dBA L _{eq})
	Mechanical Equipment	Truck and Loading	Backup Alarm	Parking				
Single Family Residential (West)	52.0	50.4	59.4	36.3	60.6	60.9	63.8	2.9
Single Family Residential (south)	42.5	46.0	55.0	36.3	55.8	60.9	62.1	1.2

Off-Site Noise Sources

Off-Site Traffic Noise

Project implementation would result in an increase of traffic trips to Project area roadways. According to the *Vehicles Miles Traveled Memorandum for 322 Jurupa Avenue Industrial Project* (VMT Memo) prepared by Kimley-Horn (dated March 17, 2023), the Project would generate 123 daily vehicle trips. In general, a 3-dBA increase in traffic noise is barely perceptible to people, while a 5-dBA increase is readily noticeable. Traffic volumes on Project area roadways would have to approximately double for the resulting traffic noise levels to generate a barely perceptible 3-dBA increase.²⁰ Project access would be provided via one driveway along Willow Avenue and one driveway along Jurupa Avenue, which has existing average daily traffic (ADT) of 4,640 vehicles and 2,739 vehicles, respectively.²¹ The proposed Project would result in

¹⁹ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

²⁰ According to the California Department of Transportation, *Technical Noise Supplement to Traffic Noise Analysis Protocol* (September 2013), it takes a doubling of traffic to create a noticeable (i.e., 3 dBA) noise increase.

²¹ ReplicaHQ, <https://www.replicahq.com/>, Accessed June 2023.

approximately 123 daily trips, which is not enough to double the existing traffic volumes on roadways surrounding the Project site. Therefore, the proposed Project would not generate enough traffic to result in a noticeable 3-dBA increase in ambient noise levels. Impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

Threshold 6.2 Would the Project expose persons to or generate excessive ground borne vibration or ground borne noise levels?

Once operational, the Project would not be a source of groundborne vibration. Increases in groundborne vibration levels attributable to the proposed Project would be primarily associated with short-term construction-related activities. Construction on the Project site 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 types of construction vibration impacts include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. 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 underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment. The City does not provide numerical vibration standards for construction activities. Therefore, this impact discussion uses the FTA and Caltrans standard of 0.20 in/sec PPV with respect to the prevention of structural damage for normal buildings and human annoyance.

The FTA has published standard vibration velocities for construction equipment operations. [Table 10: Typical Construction Equipment Vibration Levels](#), lists vibration levels for typical construction equipment. It should be noted that the Project would not require the use of pile drivers. Groundborne vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. As indicated in [Table 10](#), based on FTA data, vibration velocities from typical heavy construction equipment operations 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.

Table 10: Typical Construction Equipment Vibration Levels			
Equipment	PPV in/sec at 20 Feet	PPV in/sec at 25 Feet	PPV in/sec at 30 Feet
Vibratory Roller	0.293	0.210	0.160
Large Bulldozer	0.124	0.089	0.068
Loaded Trucks	0.106	0.076	0.058
Jackhammer	0.049	0.035	0.027
Small Bulldozer/Tractors	0.004	0.003	0.002
Notes: Calculated using the following formula: $PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$ where: PPV_{equip} = the peak particle velocity in in/sec of the equipment adjusted for the distance PPV_{ref} = the reference vibration level in in/sec from Table 12-2 of the Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Guidelines</i> , 2006. D = the distance from the equipment to the receiver Source: Federal Transit Administration, <i>Transit Noise and Vibration Impact Assessment Guidelines</i> , 2006.			

The nearest structures to any construction activity include a residential structure and industrial structure, both located approximately 20 feet to the west of the Project boundary. Vibration velocities from construction equipment would range from 0.004 to 0.293 in/sec PPV at the nearest structure, which would exceed the structural damage and human annoyance criteria of 0.2 in/sec PPV; refer to [Table 10](#). It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure or sensitive receptor. However, Mitigation Measure **MM NOI-1** requires the use of vibratory rollers to operate at a minimum distance of 30 feet away from off-site structures. With implementation of mitigation measure **MM NOI-1**, vibration impacts associated with the proposed Project would be less than significant.

Mitigation Measures:

MM NOI-1 The use of vibratory rollers shall be a minimum of 30 feet away from off-site structures adjacent to the Project site.

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

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

The public airport nearest to the Project site is the San Bernardino International Airport, located approximately 7.1 miles to the northeast. As such, the Project would not be located within two miles of a public airport or within an airport land use plan. Additionally, there are no private airstrips located within the Project vicinity. Therefore, the Project would not expose people residing or working in the Project area to excessive airport- or airstrip-related noise levels and no impact would occur.

Mitigation Measures: No mitigation is required.

Level of Significance: No impact.

6.2 Cumulative Noise Impacts

Noise by definition is a localized phenomenon, and drastically reduces as distance from the source increases. Cumulative noise impacts involve development of the proposed Project in combination with ambient growth and other related development projects. As noise levels decrease as distance from the source increases, only projects in the nearby area could combine with the proposed Project to potentially result in cumulative noise impacts.

Cumulative Construction Noise

The Project's construction activities would not result in a substantial temporary increase in ambient noise levels. Construction noise would be periodic and temporary noise impacts that would cease upon completion of construction activities. The Project would contribute to other proximate construction project noise impacts if construction activities were conducted concurrently. However, based on the noise analysis above, the Project's construction-related noise impacts would be less than significant following the City of Rialto Municipal Code.

Construction activities at other planned and approved projects near the Project site would be required to comply with applicable City rules related to noise and would take place during daytime hours on the days permitted by the applicable Municipal Code, and projects requiring discretionary City approvals would be required to evaluate construction noise impacts, comply with the City's standard conditions of approval, and implement mitigation, if necessary, to minimize noise impacts. Construction noise impacts are by nature localized. Based on the fact that noise dissipates as it travels away from its source, noise impacts would be limited to the Project site and vicinity. Therefore, Project construction would not result in a cumulatively considerable contribution to significant cumulative impacts, assuming such a cumulative impact existed, and impacts in this regard are not cumulatively considerable.

Cumulative Operational Noise

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the proposed Project and other foreseeable projects. Cumulative noise impacts would occur primarily as a result of the Project-generated traffic on local roadways in combination with cumulative projects in the vicinity. However, noise from generators and other stationary sources could also generate cumulative noise levels.

Cumulative Stationary Noise

As discussed above, impacts from the Project's operational stationary noise would be less than significant. Due to site distance, intervening land uses, and the fact that noise dissipates as it travels away from its source, noise impacts from on-site activities and other stationary sources would be limited to the Project site and vicinity. No known past, present, or reasonably foreseeable projects would compound or increase the operational noise levels generated by the Project. Thus, cumulative operational noise impacts from related projects, in conjunction with Project-specific noise impacts, would not be cumulatively significant.

Cumulative Traffic Noise

Cumulative noise impacts describe how much noise levels are projected to increase over existing conditions with the development of the proposed Project and other foreseeable projects. Cumulative noise impacts generally occur as a result of increased traffic on local roadways due to buildout of the proposed Project and other projects in the vicinity. However, the Project is projected to result in 123 daily vehicular trips and would not increase noise associated with off-site traffic. Therefore, the proposed Project's contribution would not be cumulatively considerable.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

7 REFERENCES

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4. City of Rialto, *A Codification of the General Ordinances of Rialto, California*, codified through Ordinance No. 1669, passed November 4, 2022.
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6. Cyril M. Harris, *Handbook of Noise Control*, 1979.
7. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, June 26, 2015.
8. Environmental Health Perspectives, *Vehicle Motion Alarms: Necessity, Noise Pollution, or Both?* <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/>, accessed June 2023.
9. James P. Cowan, *Handbook of Environmental Acoustics*, 1994.
10. Kimley-Horn, *Vehicles Miles Traveled Memorandum for 322 Jurupa Avenue Industrial Project (VMT Memo)*, March 2023.
11. Federal Highway Administration, *Highway Traffic and Construction Noise - Problem and Response*, April 2006.
12. Federal Highway Administration, *Noise Fundamentals*, 2017.
13. Federal Highway Administration, *Roadway Construction Noise Model*, 2006.
14. Federal Highway Administration, *Roadway Construction Noise Model User's Guide Final Report*, 2006.
15. Federal Interagency Committee on Noise, *Federal Agency Review of Selected Airport Noise Analysis Issues*, August 1992.
16. Federal Transit Administration, *Transit Noise and Vibration Assessment Manual*, 2018.
17. ReplicaHQ, <https://www.replicahq.com/>, Accessed June 2023.

Appendix A

Existing Ambient Noise Measurements

Noise Measurement Field Data

Project:	South Willow, Rialto Industrial project	Job Number:	094859039
Site No.:	ST-1	Date:	4/18/2023
Analyst:	Kiana Graham and Sarah Miller	Time:	1:03 - 1:13 PM
Location:	Intersection of Jurupa Ave and S Willow Ave		

Noise Sources: cars/trucks along Jurupa Ave

Comments:

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:

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

Weather	
Temp. (degrees F):	65
Wind (mph):	6
Sky:	Partly Cloudy
Bar. Pressure:	29.93
Humidity:	51%

Photo:



Kimley»Horn

Summary	
File Name on Meter	ST_007.5
File Name on PC	LuTse_0007051_20230418 130357 ST_007.5dbn
Serial Number	0007051
Model	SoundExpertLiLT
Firmware Version	2.454
User	
Location	
Job Description	
Note	

Measurement	
Description	2023-04-18 13:03:57
Start	2023-04-18 13:13:57
Step	
Duration	60:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-18 10:51:42
Post-Calibration	None
Calibration Deviation	---

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Pre-amplifier	PRMAUTL
Microphone Correction	FF-90-2135
Integration Method	Linear
OSR Range	Normal
OSR Bandwidth	1/1 and 1/2
OSR Frequency Weighting	A Weighting
OSR Max Spectrum	At LMax
Overload	120.5 dB
	A C Z
Under Range Peak	77.0 74.0 79.0 dB
Under Range Limit	23.7 24.3 29.7 dB
Noise Floor	14.6 15.1 20.6 dB
	First Second Third
Instrument Identification	1100 W. Town&Country Rd. #700 Orange, CA 92668

Results	
L _{Aeq}	68.2 dB
L _{A1}	96.0 dB
L _A	440-462 µPa
L _{Apeak (max)}	2023-04-18 13:09:44 94.9 dB
L _{A1max}	2023-04-18 13:09:44 81.7 dB
L _{A1min}	2023-04-18 13:08:14 45.1 dB
SEA	--- dB

L _{A1} > 85.0 dB	Exceedance Counts	Duration
L _{A1} > 115.0 dB	0	0.0 s
L _{Apeak} > 125.0 dB	0	0.0 s
L _{Apeak} > 127.0 dB	0	0.0 s
L _{Apeak} > 140.0 dB	0	0.0 s
Community Noise	Ldn	LDay 07:00-22:00 LNight 22:00-07:00 Lden LDay 07:00-19:00 LEvening 19:00-22:00 UNight 22:00-07:00
	68.2	68.2 68.2 68.2

L _{eq}	68.5 dB
L _{Aeq}	68.2 dB
L _{den} - L _{Aeq}	12.3 dB
L _{den}	70.0 dB
L _{Aeq}	68.2 dB
L _{A1eq} - L _{Aeq}	1.8 dB
L _{eq}	A Time Stamp C Time Stamp Z Time Stamp
L _{eqmax}	68.7 2023/04/18 13:09:44 80.5
L _{eqmin}	45.1 2023/04/18 13:08:14
L _{eqmaxmin}	94.8 2023/04/18 13:09:44
Overload Count	0
Overload Duration	0.0 s
OSR Overload Count	0
OSR Overload Duration	0.0 s

Statistics	
L _A 5.00	75.1 dB
L _A 10.00	71.9 dB
L _A 15.00	64.3 dB
L _A 50.00	61.6 dB
L _A 60.00	57.9 dB
L _A 90.00	51.2 dB

Calibration History	
Preamp	Date dB re 1V/Pa
PRMAUTL	2023-04-18 10:51:42 76.39
PRMAUTL	2023-04-12 14:55:45 77.52
PRMAUTL	2023-04-12 10:35:35 77.58
PRMAUTL	2023-03-23 11:12:03 79.25
PRMAUTL	2023-03-23 09:47:22 79.16
PRMAUTL	2023-03-10 09:04:46 79.55
PRMAUTL	2023-03-17 08:12:23 79.49
PRMAUTL	2023-03-06 09:41:26 79.34
PRMAUTL	2023-03-08 09:31:17 79.73
PRMAUTL	2023-03-07 15:44:29 79.57
PRMAUTL	2023-03-07 10:07:14 79.63

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	
65.86	69.74	64.51	65.45	65.45	61.96	60.75	64.38	62.00	59.17	51.10	53.97	48.27	51.42	51.73	50.51	54.71	56.40	55.29	58.02	115.17	98.70	54.44	58.71	59.81	60.60	49.88	48.99	46.75	43.53	42.43	41.33	42.90	41.45
71.56	69.33	66.37	68.86	61.07	57.80	58.06	61.54	55.31	53.91	56.56	53.01	48.95	43.69	41.57	41.56	42.08	43.05	48.14	113.89	48.98	34.19	61.97	20.43	59.64	26.50	30.04	21.61	22.22	21.95	23.13	26.97	30.52	
55.56	53.00	58.17	61.58	55.88	53.41	51.88	59.91	48.41	52.64	47.42	44.32	46.49	46.71	59.97	58.75	48.95	47.82	52.17	115.05	50.13	36.42	64.24	25.29	60.16	26.30	31.87	22.81	24.12	23.85	24.09	28.37	31.68	
86.30	79.84	59.75	49.88	55.70	49.91	50.95	48.87	53.84	41.24	41.01	42.06	38.63	36.36	31.27	25.84	23.59	24.87	29.85	114.50	48.32	13.71	65.83	21.50	60.95	25.73	15.48	22.22	22.45	22.77	23.94	27.72	30.95	
39.97	44.48	57.43	60.24	55.69	60.63	63.35	61.10	60.73	59.37	58.85	60.69	59.04	59.25	53.23	51.50	53.63	54.72	56.60	113.38	59.55	55.36	65.18	52.76	60.90	50.96	50.44	49.76	47.53	45.08	43.21	42.89		
49.48	39.74	43.36	37.33	53.88	37.15	37.19	30.45	34.46	34.17	35.71	35.68	33.38	17.03	16.81	17.00	15.50	14.63	27.25	113.92	48.20	18.86	66.16	20.06	59.01	24.52	20.62	23.46	21.83	21.67	22.63	26.63	30.35	
55.20	65.39	64.43	66.90	61.56	61.30	58.28	56.63	54.69	52.88	51.62	46.58	64.35	62.64	57.80	57.90	58.43	39.36	52.56	113.97	48.52	24.49	66.30	26.77	59.12	23.20	26.79	22.25	21.93	22.08	21.02	26.81	30.45	
67.88	62.26	62.46	59.19	67.50	65.47	62.43	61.68	72.02	62.54	61.16	64.79	57.23	58.87	53.83	51.83	48.41	44.42	32.36	114.14	48.74	20.27	65.89	21.13	60.29	26.94	31.06	21.77	22.38	22.52	22.27	27.08	30.91	
65.33	69.35	62.91	63.35	61.91	69.32	63.08	63.81	62.18	62.37	60.06	63.75	61.27	63.49	54.78	58.03	54.64	47.00	38.60	113.92	48.41	23.36	65.36	21.63	60.09	26.59	36.92	21.42	22.03	21.54	23.15	27.12	30.37	
59.85	56.75	50.43	50.14	47.52	46.28	40.09	34.87	34.15	31.88	28.06	36.58	39.08	34.11	33.10	28.66	21.55	23.05	29.36	114.45	48.29	20.72	65.96	20.91	60.02	25.87	31.10	22.38	22.55	22.47	23.70	27.62	30.79	
62.87	52.83	52.37	57.48	61.99	60.59	59.40	60.18	57.85	50.27	47.68	38.90	44.52	35.11	27.41	37.36	26.81	19.99	28.13	113.62	48.39	20.12	65.44	20.46	59.88	25.14	30.97	21.59	21.62	21.87	23.18	26.60	30.27	

Noise Measurement Field Data

Project:	South Willow, Rialto Industrial project	Job Number:	094859039
Site No.:	ST-2	Date:	4/18/2023
Analyst:	Kiana Graham and Sarah Miller	Time:	1:18 - 1:28 PM
Location:	Along Jurupa Ave near S/W corner of Project site		

Noise Sources:	Cars/trucks along Jurupa Ave.
Comments:	Dogs barking in neighborhood

Results (dBA):				
	Leq:	Lmin:	Lmax:	Peak:
	68.9	40.7	86.8	99.7

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

Weather	
Temp. (degrees F):	66
Wind (mph):	7
Sky:	Partly Cloudy
Bar. Pressure:	29.93
Humidity:	50%

Photo:



Kimley»Horn

Summary	
File Name on Meter	ST_058.6
File Name on PC	LuTse_0007051_20230418 131857 ST_058.tdbin
Serial Number	0007051
Model	SoundExpert LiT
Firmware Version	2.454
User	
Location	
Job Description	
Note	

Measurement	
Description	
Start	2023-04-18 13:18:57
Stop	2023-04-18 13:28:57
Duration	60:10:0.0
Run Time	02:10:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-18 10:51:42
Post-Calibration	None
Calibration Deviation	---

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Pre-amplifier	PRMAUTL
Microphone Correction	FF-90-2136
Integration Method	Linear
OSR Range	Normal
OSR Bandwidth	1/1 and 1/2
OSR Frequency Weighting	A Weighting
OSR Max Spectrum	At LMax
Overload	120.5 dB
	A C Z
Under Range Peak	77.0 74.0 79.0 dB
Under Range Limit	23.7 24.3 29.7 dB
Noise Floor	14.6 15.1 20.6 dB
	First Second Third
Instrument Identification	1100 W. Town&Country Rd. #700 Orange, CA 92668

Results	
L _{eq}	68.9 dB
L _{Aeq}	68.7 dB
L _A	517.469 µPa
L _{Aeqw} (max)	2023-04-18 13:18:18 99.7 dB
L _{Aeqw}	2023-04-18 13:18:18 86.8 dB
L _{Aeqw}	2023-04-18 13:26:37 40.7 dB
SEA	--- dB

L _{Aeq} > 85.0 dB	Exceedance Counts	Duration
L _{Aeq} > 115.0 dB	1	1.3 s
L _{Aeqw} > 125.0 dB	0	0.0 s
L _{Aeqw} > 127.0 dB	0	0.0 s
L _{Aeqw} > 140.0 dB	0	0.0 s
Community Noise	Ldn	LDay 07:00-22:00 LNight 22:00-07:00 Lden LDay 07:00-19:00 LEvening 19:00-22:00 LNight 22:00-07:00 dB
	68.9	68.9 68.9 68.9

L _{eq}	74.5 dB
L _{Aeq}	68.9 dB
L _{den} - L _{Aeq}	5.6 dB
L _{den}	74.4 dB
L _{eq}	68.9 dB
L _{Aeq} - L _{Aeq}	2.5 dB
L _{eq}	A C Z
	Time Stamp dB Time Stamp dB Time Stamp
L _{eqw}	68.9 2023/04/18 13:18:18 74.5
L _{eqw}	40.7 2023/04/18 13:26:37
L _{eqw} (max)	99.7 2023/04/18 13:18:18
Overload Count	0
Overload Duration	0.0 s
OSR Overload Count	0
OSR Overload Duration	0.0 s

Statistics	
L _A 5.00	75.1 dB
L _A 10.00	72.2 dB
L _A 15.00	64.7 dB
L _A 50.00	60.4 dB
L _A 68.00	54.5 dB
L _A 90.00	45.4 dB

Calibration History	
Preamp	Date dB re 1V/Pa
PRMAUTL	2023-04-18 10:51:42 72.79
PRMAUTL	2023-04-12 14:55:45 77.52
PRMAUTL	2023-04-12 10:35:35 77.58
PRMAUTL	2023-03-23 11:12:03 79.29
PRMAUTL	2023-03-23 09:47:22 79.16
PRMAUTL	2023-03-10 09:04:46 79.55
PRMAUTL	2023-03-17 08:12:33 76.24
PRMAUTL	2023-03-06 09:47:26 69.89
PRMAUTL	2023-03-08 09:31:17 69.78
PRMAUTL	2023-03-07 15:44:29 69.69
PRMAUTL	2023-03-07 10:07:14 69.35

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
65.86	69.74	64.51	65.45	61.96	60.75	64.38	62.00	59.17	51.10	53.97	48.27	51.42	51.73	50.51	54.71	56.40	55.29	58.02	115.17	98.70	54.44	58.71	59.81	60.60	49.88	48.99	46.75	43.53	42.40	41.33	42.90	41.46
71.56	69.33	66.37	68.86	61.67	57.80	58.06	61.54	55.31	53.91	50.56	48.95	43.69	41.57	41.56	42.08	43.05	48.14	113.89	48.98	34.19	61.97	20.43	59.64	26.50	30.04	21.61	22.22	21.95	23.13	26.97	30.52	
55.56	53.00	51.58	55.88	53.41	51.88	48.41	52.64	47.42	44.32	46.49	46.71	59.97	58.75	48.95	47.82	52.17	115.05	50.13	38.42	64.24	25.29	60.16	26.30	31.87	22.81	24.12	23.85	24.09	28.37	31.68		
86.30	79.84	59.75	49.88	55.70	49.91	50.95	48.87	53.84	41.24	41.01	42.06	38.63	36.36	31.27	25.84	23.59	24.87	29.85	114.50	48.32	13.71	65.93	21.50	60.95	25.73	15.48	22.22	22.45	22.77	23.94	27.72	30.95
39.97	44.48	57.43	60.24	55.69	60.63	63.35	61.10	60.73	59.37	58.85	60.69	59.04	59.25	53.23	51.50	53.63	54.72	56.60	113.38	59.55	55.36	65.18	52.76	60.50	50.96	50.44	49.76	47.53	45.08	43.21	42.89	
49.46	39.74	43.36	37.33	53.88	37.15	37.19	34.45	34.46	34.17	35.70	15.58	15.38	17.03	16.81	17.00	15.92	14.63	27.25	113.92	48.20	18.86	66.16	20.06	59.01	24.52	20.62	23.46	21.83	21.67	22.63	26.63	30.35
55.20	65.39	64.43	66.90	61.56	61.30	58.28	56.63	54.69	52.88	51.62	46.08	64.35	62.64	57.80	57.50	58.43	39.36	52.56	113.97	48.52	24.49	66.30	26.77	59.12	23.20	26.79	22.25	21.93	22.08	21.02	26.81	30.45
67.88	62.26	62.46	59.19	67.50	65.47	62.43	61.68	72.02	62.54	61.16	64.79	57.23	58.87	53.83	51.83	48.41	44.42	32.36	114.14	48.74	20.27	65.89	21.13	60.29	26.94	31.06	21.77	22.38	22.52	22.27	27.08	30.91
65.33	69.35	62.91	63.35	61.91	69.32	63.08	63.81	62.18	62.37	60.06	63.76	61.27	63.49	54.78	58.03	54.64	47.00	38.60	113.92	48.41	23.36	65.36	21.63	60.09	26.59	36.92	21.42	22.03	21.54	23.15	27.12	30.37
59.85	56.75	50.43	50.14	47.52	46.28	40.09	34.87	34.15	31.88	28.06	36.58	39.08	34.11	33.10	28.66	21.55	23.05	29.36	114.45	48.29	20.72	65.96	20.91	60.02	25.87	31.10	22.38	22.55	22.47	23.70	27.62	30.79
62.87	52.83	52.37	57.48	61.99	60.59	59.40	60.18	57.85	50.27	47.68	38.90	44.52	35.11	27.41	37.36	26.81	19.99	28.13	113.62	48.19	20.12	65.44	20.46	59.88	25.14	30.97	21.59	21.62	21.87	23.18	26.60	30.27

Noise Measurement Field Data

Project:	South Willow, Rialto Industrial project	Job Number:	094859039
Site No.:	ST-3	Date:	4/18/2023
Analyst:	Kiana Graham and Sarah Miller	Time:	1:36 - 1:46 PM
Location:	Maywood Ave and S vista Ave		

Noise Sources: body shop noise

Comments:

Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
61.4	58.1	69.8	86.7

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

Weather	
Temp. (degrees F):	65
Wind (mph):	8
Sky:	Partly Cloudy
Bar. Pressure:	29.92
Humidity:	51%

Photo:



Kimley»Horn

Summary	
File Name on Meter	ST_009.6
File Name on PC	LuTse_0007051_20230418 132659 ST_009.ldbin
Serial Number	0007051
Model	SoundExpert LiT
Firmware Version	2.454
User	
Location	
Job Description	
Note	

Measurement	
Description	
Start	2023-04-18 13:36:59
Stop	2023-04-18 13:46:59
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-18 10:51:42
Post-Calibration	None
Calibration Deviation	---

Overall Settings	
RMS Weighting	A Weighting
Peak Weighting	A Weighting
Detector	Slow
Pre-amplifier	PRMx1TL
Microphone Correction	FF-90-2135
Integration Method	Linear
OSR Range	Normal
OSR Bandwidth	1/1 and 1/2
OSR Frequency Weighting	A Weighting
OSR Max Spectrum	At LMax
Overload	120.5 dB
	A C Z
Under Range Peak	77.0 74.0 79.0 dB
Under Range Limit	23.7 24.3 29.7 dB
Noise Floor	14.6 15.1 20.6 dB
	First Second Third
Instrument Identification	1100 W. Town&Country Rd. #700 Orange, CA 92668

Results	
L _{eq}	61.4 dB
L _{AE}	69.2 dB
L _A	92.059 dBA
L _{Amax} (max)	2023-04-18 13:37:05 86.7 dB
L _{AE} (max)	2023-04-18 13:46:30 69.8 dB
L _A (max)	2023-04-18 13:39:16 58.1 dB
SEA	--- dB

L _A > 85.0 dB	Exceedance Counts	Duration
L _A > 115.0 dB	0	0.0 s
L _A > 125.0 dB	0	0.0 s
L _A > 135.0 dB	0	0.0 s
L _A > 145.0 dB	0	0.0 s
Community Noise	Ldn	LDay 07:00-22:00 LNight 22:00-07:00 Lden LDay 07:00-19:00 LEvening 19:00-22:00 UNight 22:00-07:00
	61.4	61.4 61.4 61.4

L _{eq}	71.4 dB			
L _{AE}	61.4 dB			
L _{AE} - L _{eq}	22.0 dB			
L _{AE}	61.4 dB			
L _{AE}	61.4 dB			
L _{AE} - L _{eq}	6.6 dB			
	A	C		Z
	Time Stamp	Time Stamp		Time Stamp
L _{eq}	61.4	71.4		
L _{eq} (max)	68.8 2023/04/18 13:40:30			
L _{eq} (min)	58.1 2023/04/18 13:39:16			
L _{eq} (max)	86.7 2023/04/18 13:37:05			
Overload Count	0			
Overload Duration	0.0 s			
OSA Overload Count	0			
OSA Overload Duration	0.0 s			

Statistics	
L _A 5.00	64.1 dB
L _A 10.00	61.4 dB
L _A 15.00	61.1 dB
L _A 20.00	60.5 dB
L _A 25.00	59.9 dB
L _A 30.00	59.2 dB

Calibration History					
Preamp	Date	dB re 1V/Pa	6.3	8.0	10.0
PRMx1TL	2023-04-18 10:51:42	-26.39	72.79	75.77	63.17
PRMx1TL	2023-04-12 14:55:46	-27.88	77.92	79.75	67.81
PRMx1TL	2023-04-12 10:35:35	-27.58	50.03	47.29	56.55
PRMx1TL	2023-03-23 11:12:03	-28.64	85.31	79.29	90.61
PRMx1TL	2023-03-23 09:47:22	-29.16	2.44	1.41	30.70
PRMx1TL	2023-03-10 09:04:46	-29.55	45.85	53.64	51.36
PRMx1TL	2023-03-17 08:12:23	-28.49	67.24	63.78	62.94
PRMx1TL	2023-03-06 09:47:26	-28.48	63.94	68.89	69.29
PRMx1TL	2023-03-08 09:31:17	-28.63	65.51	57.73	60.78
PRMx1TL	2023-03-07 15:44:29	-28.57	61.89	59.62	59.69
PRMx1TL	2023-03-07 10:07:14	-29.03	65.35	66.48	63.00

	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
65.86	60.74	54.51	65.45	65.45	61.96	60.75	64.38	62.00	59.17	51.10	53.97	48.27	51.42	51.73	50.51	54.71	55.40	55.29	58.02	115.17	98.70	54.44	58.71	59.81	60.60	49.88	48.99	46.75	43.53	42.40	41.33	42.90	41.45
71.56	69.33	66.37	68.86	61.67	57.80	58.06	61.54	55.31	53.91	50.56	53.01	48.95	43.69	41.57	41.56	42.08	43.05	48.14	113.89	48.98	34.19	61.97	20.43	59.64	26.50	30.04	21.61	22.22	21.95	23.13	26.97	30.52	
55.56	53.00	58.17	61.58	55.88	53.41	51.88	59.91	48.41	52.64	47.42	44.32	46.49	46.71	59.97	58.75	48.95	47.82	52.17	115.05	50.13	38.42	64.24	25.29	60.16	26.30	31.87	22.81	24.22	23.85	24.09	28.37	31.68	
86.30	79.84	59.75	49.88	55.70	49.91	50.95	48.87	53.84	41.24	41.01	42.06	38.63	36.36	33.27	32.84	23.59	24.87	29.85	114.50	48.32	13.71	65.93	21.50	60.95	25.73	15.48	22.22	22.45	22.77	23.94	27.72	30.95	
39.97	44.48	57.43	60.24	55.69	60.63	63.35	61.10	60.73	59.37	58.85	60.69	59.04	59.25	53.23	51.50	53.03	54.72	56.60	113.38	59.95	55.36	65.18	52.76	60.50	50.96	50.44	49.76	47.53	45.08	43.21	42.89		
49.48	33.74	43.35	37.33	33.88	37.15	37.19	34.45	34.46	34.77	35.71	35.58	33.38	17.03	16.81	17.00	15.50	14.63	27.25	113.92	48.20	18.86	66.16	20.06	59.01	24.52	20.62	23.46	21.83	21.67	22.63	26.63	30.35	
55.20	65.39	64.43	66.90	61.56	61.30	58.28	56.69	54.69	52.88	51.62	46.08	64.35	62.64	57.80	57.90	58.43	39.36	52.56	113.97	48.52	24.49	66.30	26.77	59.12	23.20	26.79	22.25	21.93	22.08	21.02	26.81	30.45	
67.88	62.26	61.46	59.19	67.50	65.47	62.43	61.68	72.02	62.54	61.16	64.79	57.23	58.87	53.83	51.83	48.41	44.42	32.36	114.14	48.74	20.27	65.89	21.13	60.29	26.94	31.06	21.77	22.38	22.52	22.27	27.08	30.91	
65.33	69.35	62.91	63.35	61.91	69.32	63.08	63.81	62.18	62.37	60.06	63.76	61.27	63.49	54.78	58.03	54.64	47.00	38.60	113.92	48.41	23.36	65.36	21.63	60.09	26.59	36.92	21.42	22.03	21.54	23.15	27.12	30.37	
59.85	56.75	50.43	50.14	47.52	46.28	40.09	34.87	34.15	33.88	39.06	36.58	39.08	34.11	33.10	28.66	21.55	23.05	29.36	114.45	48.29	20.72	65.96	20.91	60.02	25.87	31.10	22.38	22.55	22.47	23.70	27.62	30.79	
62.87	52.83	52.37	57.48	61.99	60.59	59.40	60.18	57.85	50.22	47.68	38.90	44.52	35.11	27.41	37.36	26.81	19.99	28.13	113.62	48.19	20.12	65.44	20.46	59.88	25.14	30.97	21.59	21.62	21.87	23.18	26.60	30.27	

Noise Measurement Field Data

Project:	South Willow, Rialto Industrial project	Job Number:	094859039
Site No.:	ST-4	Date:	4/18/2023
Analyst:	Kiana Graham and Sarah Miller	Time:	1:54 - 2:04 PM
Location:	Along S. Willow Ave		

Noise Sources:	Cars/trucks along S willow Ave
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Comments:	
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Results (dBA):

Leq:	Lmin:	Lmax:	Peak:
67.7	44.8	85.1	97.2

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

Weather	
Temp. (degrees F):	65
Wind (mph):	8
Sky:	Partly Cloudy
Bar. Pressure:	29.92
Humidity:	50%

Photo:



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Summary	
File Name on Meter	ST_100.1
File Name on PC	LuTse_0007051_20230418 135-451 ST_100.1dbin
Serial Number	0007051
Model	SoundExpertLiLT
Firmware Version	2.454
User	
Location	
Job Description	
Note	

Measurement	
Description	2023-04-18 13:54:51
Start	2023-04-18 14:04:51
Stop	
Duration	60:00:00.0
Run Time	00:00:00.0
Pause	00:00:00.0
Pre-Calibration	2023-04-18 10:51:42
Post-Calibration	None
Calibration Deviation	---

Overall Settings	
RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Pre-amplifier	PMAX-TTL
Microphone Correction	FF-90-2135
Integration Method	Linear
OSR Range	Normal
OSR Bandwidth	1/1 and 1/3
OSR Frequency Weighting	A Weighting
OSR Max Spectrum	At LMax
Overload	120.5 dB
	A C Z
Under Range Peak	77.0 74.0 79.0 dB
Under Range Limit	23.7 24.3 29.7 dB
Noise Floor	14.6 15.1 20.6 dB
	First Second Third
Instrument Identification	1100 W. Town&Country Rd. #700 Orange, CA 92668

Results	
L _{eq}	67.7 dB
L _{AE}	95.3 dB
L _A	392-562 µPa
L _{Amax} (max)	2023-04-18 14:03:43 97.2 dB
L _{AE} (max)	2023-04-18 14:03:44 95.1 dB
L _A (max)	2023-04-18 13:59:19 44.8 dB
SEA	--- dB
	Exceedance Counts Duration
L _A > 85.0 dB	1 1.4 s
L _A > 115.0 dB	0 0.0 s
L _A > 125.0 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	Ldn 67.7 LDay 07:00-22:00 LNight 22:00-07:00 Lden LDay 07:00-19:00 LEvening 19:00-22:00 LNight 22:00-07:00 dB

L _{eq}	76.3 dB
L _{AE}	67.7 dB
L _{AE} - L _{eq}	8.8 dB
L _{AE}	79.2 dB
L _{AE}	67.7 dB
L _{AE} - L _{eq}	12.5 dB
	A C Z
L _{eq}	67.7 Time Stamp
L _{AE}	85.1 2023/04/18 14:03:44
L _{AE} (max)	44.8 2023/04/18 13:59:19
L _{AE} (max)	97.2 2023/04/18 14:03:43
Overload Count	0
Overload Duration	0.0 s
OSR Overload Count	0
OSR Overload Duration	0.0 s

Statistics	
L _A 5.00	73.5 dB
L _A 10.00	71.9 dB
L _A 15.00	63.4 dB
L _A 50.00	59.8 dB
L _A 60.00	54.8 dB
L _A 90.00	49.7 dB

Calibration History	
Preamp	Date dB re 1V/Pa
PMAX-TTL	2023-04-18 10:51:42 26.39 72.79 75.77 63.17
PMAX-TTL	2023-04-12 14:55:46 -27.88 77.52 79.75 67.81
PMAX-TTL	2023-04-12 10:35:35 -27.58 50.63 47.29 56.55
PMAX-TTL	2023-03-23 11:10:03 -28.64 85.31 79.29 90.61
PMAX-TTL	2023-03-23 09:47:22 -29.55 2.44 1.41 32.70
PMAX-TTL	2023-03-10 09:04:46 -29.55 45.86 53.64 61.36
PMAX-TTL	2023-03-17 08:13:23 -28.49 67.24 63.78 62.94
PMAX-TTL	2023-03-06 09:47:26 -28.48 63.94 69.89 69.29
PMAX-TTL	2023-03-08 09:31:17 -28.63 65.51 57.73 60.78
PMAX-TTL	2023-03-07 15:44:29 -28.57 61.89 59.62 59.69
PMAX-TTL	2023-03-07 10:07:14 -29.03 65.35 66.48 63.00

	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
65.86	69.74	64.51	65.45	65.45	61.96	60.75	64.38	62.00	59.17	51.10	53.97	48.27	52.42	51.73	50.51	54.71	55.49	55.29	58.02	115.17	98.70	54.44	58.71	59.81	60.60	49.88	48.99	46.79	43.53	42.43	41.33	42.90	41.45
71.56	69.33	66.37	68.86	61.67	57.80	59.06	61.54	55.31	53.91	56.56	53.01	48.95	43.69	41.57	41.56	42.08	43.05	48.14	113.89	48.98	34.19	61.97	20.43	59.64	26.50	30.04	21.61	22.22	21.95	23.13	26.97	30.52	
55.56	53.00	58.17	61.58	55.88	53.41	51.88	59.91	48.41	52.64	47.42	44.32	46.49	46.71	59.97	58.75	48.99	47.82	52.17	115.05	50.13	36.42	64.24	25.29	60.16	26.30	31.87	22.81	24.12	23.85	24.09	28.37	31.68	
86.30	79.84	59.75	49.88	55.70	49.91	50.95	48.87	53.84	42.24	41.01	42.06	38.63	36.36	33.27	32.84	23.59	24.87	29.85	114.50	48.32	13.71	65.93	21.50	60.97	25.73	15.48	22.22	22.45	22.77	23.94	27.72	30.95	
39.97	44.48	57.43	60.24	55.69	60.63	63.35	61.10	60.73	59.37	58.85	60.69	59.04	59.25	53.23	51.50	53.63	54.72	56.60	113.38	59.55	55.36	65.18	52.76	60.90	50.96	50.44	49.76	47.53	45.08	43.21	42.89		
49.48	39.74	43.36	37.13	53.88	37.15	37.19	34.45	34.46	34.17	35.70	15.58	15.38	17.03	16.81	17.00	15.50	14.63	27.25	113.92	48.20	18.86	66.16	20.06	59.01	24.52	20.62	23.46	21.83	21.67	22.63	26.63	30.35	
55.20	65.39	64.43	66.90	61.56	61.30	58.28	56.69	54.69	52.88	51.62	46.18	64.35	62.64	57.80	57.90	58.43	39.36	52.56	113.97	48.52	24.49	66.30	26.77	59.12	23.20	26.79	22.25	21.93	22.08	21.02	26.81	30.45	
67.88	62.26	62.46	59.19	67.50	65.47	62.43	61.68	72.02	62.54	61.16	64.79	57.23	58.87	53.83	51.83	48.42	44.42	32.36	114.14	48.74	20.27	65.89	21.13	60.29	26.94	31.06	21.77	22.38	22.52	22.27	27.08	30.91	
65.33	69.35	62.91	63.35	61.91	69.32	63.08	63.81	62.18	62.37	60.06	63.76	61.27	63.49	54.78	58.03	54.64	47.00	38.60	113.92	48.41	23.36	65.36	21.63	60.09	26.59	36.92	21.42	22.03	21.54	23.15	27.12	30.37	
59.85	56.75	50.43	50.14	47.52	46.28	40.09	34.87	34.15	31.88	28.06	36.58	39.08	34.11	33.10	28.66	21.55	23.05	29.36	114.45	48.29	20.72	65.96	20.91	60.02	25.87	31.10	22.38	22.55	22.47	23.70	27.62	30.79	
62.87	52.83	52.37	57.48	61.99	60.59	59.40	60.18	57.85	50.27	47.68	38.90	44.52	35.11	27.41	37.36	26.81	19.99	28.13	113.62	48.19	20.12	65.44	20.46	59.88	25.14	30.97	21.59	21.62	21.87	23.18	26.60	30.27	

Noise Measurement Field Data

Project:	South Willow, Rialto Industrial project	Job Number:	094859039
Site No.:	LT-1	Date:	4/18/2023
Analyst:	Kiana Graham and Sarah Miller	Time:	2:20 PM (4/18) - 2:09 PM 4/19
Location:	Inside project site near residential properties on the western side		
Noise Sources:	cars/trucks along Jurupa Ave and neighborhood dogs		
Comments:			
Results (dBA):			
	Leq:	Lmin:	Lmax:
	63.9	36.7	90.7
			Peak:
			106.2

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

Weather	
Temp. (degrees F):	66
Wind (mph):	10
Sky:	Partly Cloudy
Bar. Pressure:	29.92
Humidity:	48%

Photo:



Kimley»Horn

Summary	
File Name on Meter	LT_023.s
File Name on PC	LuTe_0007051_20230418 140348 LT_023.sbin
Serial Number	0007051
Model	SoundExpert LT
Firmware Version	2.454
User	
Location	
Job Description	
Note	

Measurement	
Description	
Start	2023-04-18 14:30:48
Stop	2023-04-18 14:09:38
Duration	23:48:50.2
Run Time	23:48:50.2
Pause	00:00:00.0
Pre-Calibration	2023-04-18 14:15:49
Post-Calibration	None
Calibration Deviation	---

Overall Settings	
RMS Weighting	A Weighting
Peak Weighting	A Weighting
Detector	Slow
Pre-amplifier	PRMxTL
Microphone Correction	FF-90-2135
Integration Method	Linear
OSM Range	Normal
OSM Bandwidth	1/1 and 1/3
OSM Frequency Weighting	A Weighting
OSM Max Spectrum	At LMax
Overload	123.1 dB
	A C Z
Under Range Peak	77.6 74.6 79.6 dB
Under Range Limit	23.9 24.5 30.2 dB
Noise Floor	14.7 15.4 21.1 dB
	First Second Third
Instrument Identification	1100 W. Town&Country Rd. #700 Orange, CA 92668

Results	
L _{eq}	63.9 dB
L _{AE}	111.2 dB
L _A	23.380 mPa/H
L _{Amax (max)}	2023-04-18 15:43:52 106.2 dB
L _{A1max}	2023-04-18 13:32:25 90.7 dB
L _{A5min}	2023-04-18 23:19:21 36.7 dB
L _{SA}	---
	Exceedance Counts Duration
L _{A5} > 85.0 dB	6 11.0 s
L _{A5} > 115.0 dB	0 0.0 s
L _{Amax} > 125.0 dB	0 0.0 s
L _{Amax} > 127.0 dB	0 0.0 s
L _{Amax} > 140.0 dB	0 0.0 s
Community Noise	Ldn 68.2 Lday 07:00-22:00 Lnight 22:00-07:00 Lden Lday 07:00-19:00 LEvening 19:00-22:00 Lnight 22:00-07:00 65.0 65.9 65.5 62.5 65.9 dB

L _{eq}	70.9 dB
L _{AE}	63.9 dB
L _{AE} - L _{eq}	7.0 dB
L _{AE}	66.1 dB
L _{AE}	63.9 dB
L _{AE} - L _{eq}	1.2 dB
L _{eq}	63.9
L _{eqmax}	90.7 2023/04/18 10:32:25
L _{eqmin}	36.7 2023/04/18 23:19:21
L _{eqmax-min}	106.2 2023/04/18 15:43:52
Overload Count	0
Overload Duration	0.0 s
OSM Overload Count	0
OSM Overload Duration	0.0 s

Statistics	
L _A 5.00	70.6 dB
L _A 10.00	68.4 dB
L _A 15.00	69.1 dB
L _A 50.00	63.3 dB
L _A 60.00	49.1 dB
L _A 90.00	42.7 dB

Calibration History	
Preamp	Gain dB re 1V/Pa 6.3 8.0 10.0
PRMxTL	2023-04-18 14:30:48 -77.27 43.33 53.76 54.84
PRMxTL	2023-04-18 10:51:42 -26.69 72.70 75.77 63.17
PRMxTL	2023-04-12 14:55:46 -27.88 77.80 79.75 67.61
PRMxTL	2023-04-12 13:35:35 -27.58 59.63 47.29 56.55
PRMxTL	2023-03-23 11:12:03 -28.64 85.31 79.29 90.61
PRMxTL	2023-03-13 09:47:23 -29.16 7.44 1.41 32.70
PRMxTL	2023-03-19 06:43:46 -28.55 45.86 53.64 50.36
PRMxTL	2023-03-17 08:12:23 -28.49 67.34 63.76 62.84
PRMxTL	2023-03-08 09:41:26 -28.48 63.94 68.89 69.29
PRMxTL	2023-03-08 09:31:17 -28.63 65.51 57.73 60.78
PRMxTL	2023-03-07 15:44:29 -28.57 61.89 59.62 59.69

	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
56.13	54.02	55.00	52.08	52.32	52.97	57.70	55.80	52.23	55.36	47.30	43.89	40.64	38.89	41.09	41.80	38.14	39.34	113.29	48.73	31.52	58.36	30.38	58.69	25.13	30.24	21.29	21.76	21.32	22.75	26.40	30.04		
65.96	69.74	64.53	65.45	65.46	66.75	64.38	62.60	59.17	53.10	53.97	48.27	52.42	51.73	50.51	54.71	56.45	55.29	58.01	115.17	58.70	54.44	59.71	50.81	60.60	49.88	48.99	46.75	43.53	41.43	41.33	42.90	41.45	
71.56	69.33	66.37	68.86	61.07	57.80	58.06	61.54	55.31	53.91	50.56	53.01	48.95	43.69	41.57	41.56	42.00	43.05	48.14	113.09	48.98	34.13	61.97	20.43	59.04	26.50	30.04	21.61	22.22	21.95	23.13	26.97	30.52	
65.36	53.00	51.17	61.58	55.88	53.41	51.89	59.93	48.41	52.64	47.42	44.32	46.49	46.71	59.97	59.75	48.97	47.32	52.17	115.35	51.13	35.41	64.24	25.29	62.18	25.30	31.67	22.51	24.22	23.89	24.09	26.37	31.68	
86.30	70.84	59.75	49.69	55.70	49.93	50.95	48.87	52.84	43.24	41.01	42.06	36.63	36.36	33.27	32.34	32.59	24.67	29.35	114.50	49.32	19.71	65.93	21.50	60.96	25.73	31.48	22.21	22.45	22.77	23.94	27.72	30.95	
39.57	44.48	57.43	60.24	55.69	60.63	63.35	61.10	60.73	59.57	59.05	69.09	101.04	59.25	53.33	53.50	53.93	54.17	56.60	113.38	58.95	53.36	65.18	52.76	60.50	50.96	50.44	49.70	47.53	45.04	41.92	43.21	42.89	
48.46	26.74	43.38	37.33	33.88	37.19	37.19	31.45	34.05	34.27	25.71	15.08	13.38	17.03	16.81	17.00	15.82	14.83	27.25	113.92	48.20	18.86	66.16	20.06	59.01	24.32	29.82	21.46	21.83	21.87	22.93	26.83	30.35	
55.22	62.39	54.43	66.39	61.55	61.20	59.28	58.83	54.69	53.88	51.62	46.08	64.25	62.64	57.90	57.90	58.40	39.36	52.56	113.37	48.52	24.49	66.30	20.77	59.12	23.20	29.79	22.25	21.63	22.08	23.02	26.81	30.45	
67.88	62.26	63.46	59.19	57.50	65.47	62.43	63.68	72.02	62.64	61.15	64.79	57.33	58.87	53.83	51.83	48.41	44.42	32.36	114.14	48.74	20.37	65.89	21.13	60.29	26.94	31.05	21.77	22.38	22.62	23.27	27.08	30.91	
65.33	60.35	62.91	63.35	62.91	69.32	63.08	63.81	62.18	62.37	60.06	63.75	61.27	63.49	54.78	58.03	54.64	47.00	38.60	113.92	48.41	23.30	65.36	21.63	60.09	26.59	30.30	21.42	22.03	21.54	23.15	27.12	30.37	
59.85	58.75	55.45	50.14	47.52	46.28	40.07	34.87	34.15	33.88	39.06	38.59	39.08	34.13	33.19	28.66	21.55	23.55	29.36	114.46	49.29	20.77	65.96	20.81	60.82	25.87	31.10	22.38	22.55	22.47	23.70	27.62	30.79	

Appendix B

Noise Model Output Files

Project: Jurupa & Willow Warehouse
 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	Single Family Residential	315	0	W
2	Single Family Residential	325	0	S
3	Industrial	260	0	W

		RECEPTOR 1			RECEPTOR 2			RECEPTOR 3		
Construction Phase	Equipment Type	No. of Equip.	Reference Acoustical Usage Factor	Noise Level at 50ft per Unit, Lmax	Noise Level at Receptor 1, Lmax	Noise Level at Receptor 1, Leq	Noise Level at Receptor 2, Lmax	Noise Level at Receptor 2, Leq	Noise Level at Receptor 3, Lmax	Noise Level at Receptor 3, Leq
Demolition	Concrete Saw	1	20%	90	73.6	66.6	73.3	66.4	75.3	68.3
	Excavator	3	40%	81	69.5	65.5	69.2	65.2	71.2	67.2
	Dozer	2	40%	82	68.7	64.7	68.5	64.5	70.4	66.4
	Combined LEQ					70.5		70.2		72.1
Site Preparation	Dozer	3	40%	82	70.5	66.5	70.2	66.2	72.2	68.2
	Backhoe	4	40%	78	67.6	63.7	67.4	63.4	69.3	65.3
	Combined LEQ					68.3		68.0		70.0
Grading	Excavator	1	40%	81	64.7	60.7	64.4	60.5	66.4	62.4
	Grader	1	40%	85	69.0	65.0	68.7	64.8	70.7	66.7
	Dozer	1	40%	82	65.7	61.7	65.4	61.5	67.4	63.4
	Backhoe	3	40%	78	66.4	62.4	66.1	62.1	68.1	64.1
	Combined LEQ					68.8		68.5		70.5
Building Construction	Crane	1	16%	81	64.6	56.7	64.3	56.4	66.3	58.3
	All Other Equipment > 5 HP	3	50%	85	73.8	70.8	73.5	70.5	75.5	72.4
	Generator	1	50%	81	64.6	61.6	64.3	61.3	66.3	63.3
	Backhoe	3	40%	78	66.4	62.4	66.1	62.1	68.1	64.1
	Welder/Torch	1	40%	74	58.0	54.0	57.7	53.8	59.7	55.7
	Combined LEQ					72.0		71.7		73.7
Paving	Paver	2	50%	77	64.2	61.2	64.0	60.9	65.9	62.9
	All Other Equipment > 5 HP	2	50%	85	72.0	69.0	71.8	68.7	73.7	70.7
	Roller	2	20%	80	67.0	60.0	66.8	59.8	68.7	61.7
	Combined LEQ					70.1		69.9		71.8
Architectural Coating	Compressor (air)	1	40%	78	61.7	57.7	61.4	57.5	63.4	59.4
	Combined LEQ					57.7		57.5		59.4
Overlapping Phases										
Building Construction + Paving + Architectural Coating						74.3		74.0		75.9
Maximum Noise Level						74.3		74.0		75.9

Source for Ref. Noise Levels: RCNM, 2005

Project: Jurupa Willow Warehouse
Mechanical Equipment Noise Calculations

Receptor	Reference Level (dBA)	Reference Distance (feet)	Distance to Receptor (feet)	Level at Receptor (dBA)	Nighttime Threshold	Significant (Night)?
Single Family Residential (Adjacent W)	52	50	50	52.0	60.0	No
Single Family Residential (S)	52	50	150	42.5	60.0	No

1. 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.
2. Distance estimated using location of rooftop equipment as indicated on Site Plan

Project: Jurupa Willow Warehouse
Truck / Loading

Receptor	Reference Level (dBA) ¹	Reference Distance (feet)	Distance to Receptor (feet) ²	Level at Receptor (dBA)	Nighttime Threshold	Significant (Night)?
Single Family Residential (Adjacent W)	64.4	50	250	50.4	60.0	No
Single Family Residential (S)	64.4	50	415	46.0	60.0	No

1. Loading dock reference noise level measurements conducted by Kimley-Horn on December 18, 2018.

2. Distance estimated using location of trash room as indicated on Site Plan

Project: Jurupa Willow Warehouse
Back-Up Alarms

Receptor	Reference Level (dBA) ¹	Reference Distance (feet)	Distance to Receptor (feet) ²	Level at Receptor (dBA)	Nighttime Threshold	Significant (Night)?
Single Family Residential (Adjacent W)	97	3.3	250	59.4	60.0	No
Single Family Residential (S)	97	3.3	415	55.0	60.0	No

1. Environmental Health Perspectives, Vehicle Motion Alarms: Necessity, Noise Pollution, or Both? <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3018517/>, accessed September 2022

2. Distance estimated using location of loading area as indicated on Site Plan

**Project: Jurupa Willow Warehouse
Parking**

Receptor	Reference Level (dBA) ¹	Reference Distance (feet)	Distance to Receptor (feet) ²	Level at Receptor (dBA)	Nighttime Threshold	Significant (Night)?
Single Family Residential (Adjacent W)	39.8	50	75	36.3	60.0	No
Single Family Residential (S)	39.8	50	75	36.3	60.0	No

1. FTA's reference noise level is 92 dBA SEL at 50 feet from the noise source for a parking lot

2. Distance estimated using location of parking as indicated on Site Plan

Parking Lot Noise

Number of Vehicles Per Hour: 22
Hourly L_{eq} at 50 feet: 39.8

$$L_{eq(h)} = SEL_{ref} + 10\log(NA/1,000) - 35.6$$

Where:

$L_{eq(h)}$	=	39.8	hourly L_{eq} noise level at 50 feet
SEL_{ref}	=	92	reference noise level for stationary noise source represented in sound exposure level (SEL) at 50 feet
NA	=	22	number of automobiles per hour
35.6	=	35.6	Constant, calculated as 10 times the logarithm of the number of seconds in an hour

FTA's reference noise level is 92 dBA SEL at 50 feet from the noise source for a parking lot
Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual* , September 2018.

Project: Jurupa Willow Warehouse
Composite Operational Noise

Receptor	Mechanical	Truck and Loading	Backup Alarm	Parking	Composite Project Noise level	Ambient (nighttime average)	Ambient + Project	Increase	Significant?
Single Family Residential (Adjacent W)	52.0	50.4	59.4	36.3	60.6	60.9	63.8	2.9	No
Single Family Residential (S)	42.5	46.0	55.0	36.3	55.8	60.9	62.1	1.2	No

Construction Vibration

Equipment	PPV at 25 feet (in/sec)	Calculated distance (feet) 20	Calculated distance (feet) 30
Vibratory Roller	0.21	0.293	0.160
Large bulldozer	0.089	0.124	0.068
Loaded trucks	0.076	0.106	0.058
Jackhammer	0.035	0.049	0.027
Small bulldozer	0.003	0.004	0.002

Notes:

1. Calculated using the following formula:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance

PPV (ref) = the reference vibration level in in/sec from Table 12-2 of the FTA Transit Noise and Vibration Impact Assessment Guidelines

D = the distance from the equipment to the receiver