

NOISE IMPACT ANALYSIS

**945 – 995 W. MARKHAM STREET INDUSTRIAL
BUILDING PROJECT**

CITY OF PERRIS

Lead Agency:

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TABLE OF CONTENTS

1.0	Executive Summary	1
	1.1 Purpose of Analysis and Study Objectives	1
	1.2 Site Location and Study Area	1
	1.3 Proposed Project Description	2
	1.4 Standard Noise Regulatory Conditions	2
	1.5 Summary of Analysis Results	3
	1.6 Applicable Mitigation Measures from the PVCCSP EIR.....	3
	1.7 Specific Mitigation Measures for the Proposed Project.....	4
2.0	Noise Fundamentals	7
	2.1 Noise Descriptors	7
	2.2 Tone Noise	7
	2.3 Noise Propagation.....	7
	2.4 Ground Absorption	8
3.0	Ground-Borne Vibration Fundamentals	9
	3.1 Vibration Descriptors	9
	3.2 Vibration Perception	9
	3.3 Vibration Propagation.....	9
4.0	Regulatory Setting	10
	4.1 Federal Regulations	10
	4.2 State Regulations	10
	4.3 Local Regulations	11
5.0	Existing Noise Conditions.....	14
	5.1 Noise Measurement Equipment.....	14
	5.2 Noise Measurement Results	14
6.0	Modeling Parameters and Assumptions.....	18
	6.1 Construction Noise.....	18
	6.2 Vibration	19
7.0	Impact Analysis	20
	7.1 CEQA Thresholds of Significance.....	20
	7.2 Generation of Noise Levels in Excess of Standards	20
	7.3 Generation of Excessive Groundborne Vibration	23
	7.4 Aircraft Noise	24
8.0	References.....	26

TABLE OF CONTENTS CONTINUED

APPENDICES

Appendix A – Field Noise Measurements Photo Index

Appendix B – Field Noise Measurements Printouts

Appendix C – RCNM Model Construction Noise Calculations

Appendix D – Operational Reference Noise Measurements Printouts

LIST OF FIGURES

Figure 1 – Project Location Map	5
Figure 2 – Proposed Site Plan	6
Figure 3 – Field Noise Monitoring Locations	16
Figure 4 – Field Noise Measurements Graph.....	17

LIST OF TABLES

Table A – Existing (Ambient) Noise Level Measurements	15
Table B – Construction Equipment Noise Emissions and Usage Factors	18
Table C – Vibration Source Levels for Construction Equipment	19
Table D – Construction Noise Levels at the Nearby Sensitive Receptors	21
Table E – Operational Noise Levels at the Nearby Sensitive Receptors	23

ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Perris
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSB	Oriented Strand Board
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
UMTA	Federal Urban Mass Transit Administration
VdB	Vibration velocity level in decibels

1.0 EXECUTIVE SUMMARY

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed 945 – 995 W. Markham Street Industrial Building Project (proposed project). The following is provided in this report:

- A description of the study area and the proposed project;
- Information regarding the fundamentals of noise;
- Information regarding the fundamentals of vibration;
- A description of the local noise guidelines and standards;
- An evaluation of the current noise environment;
- An analysis of the potential short-term construction-related noise and vibration impacts from the proposed project; and,
- An analysis of long-term operations-related noise and vibration impacts from the proposed project.

1.2 Site Location and Study Area

The project site is located within the northwest portion of the City of Perris (City) at 945 and 995 Markham Street. The project site is located southwest of the intersection of Markham Street and Webster Avenue and consists of two parcels that total approximately 4.06 acres. The eastern parcel currently contains a single-family home with pool and several sheds and a workshop, located on the southwestern portion of the parcel. The western parcel currently contains a mobile home with a shed as well as containers and cars scattered over the parcel. The project site is bounded by Markham Street and an Xpo Logistics warehouse to the north, a single-family home to the east, an automobile auto auction lot to the south, and an Amazon fulfillment center to the west. The project study area is shown in Figure 1.

Perris Valley Commerce Center Specific Plan

The project site is located in the northern portion of the Perris Valley Commerce Center Specific Plan (PVCCSP) planning area of the City of Perris. The PVCCSP covers the area south of March Air Reserve Base/Inland Port Airport (MARB/IPA) to the west and south of Harley Knox Boulevard to the east, Redlands Ave to the east, Placentia Avenue to the south and Interstate 215 to the west. PVCCSP was approved in January 2012 and the most recent amendment of the PVCCSP is Amendment No. 12 that was adopted in February 2022. Environmental impacts resulting from implementation of allowed development under the PVCCSP have been evaluated in the Perris Valley Commerce Center Specific Plan Final Environmental Impact Report (PVCCSP EIR) (State Clearinghouse No. 2009081086), which was certified by the City of Perris in January 2012.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptor to the project site is a nonconforming single-family home located as near as 30 feet to the east of the project site. There are also single-family homes located as near as 780 feet

to the north of the project site. The nearest school is Val Verde High School, which is located as near as 0.8 mile south of the project site.

1.3 Proposed Project Description

The proposed project consists of the development and operation of a single-story, non-refrigerated light industrial warehouse building that would total 89,000 square feet, including 3,000 square feet of ground floor office space and 3,000 square feet of mezzanine office space. The proposed warehouse walls would vary between 40 and 43 feet high, with an interior clearance height of 32 feet. The building would be designed fronting Markham Street with 10 loading dock doors on the western portion of the south side in order to screen loading activities from the public right-of-way and to locate loading area as far away as possible from the home on the east side of the project site. The proposed project would have a total of 55 passenger car spaces, including 5 ADA spaces. Pursuant to Section 5.106.5.2 of the 2019 California Green Building Standards Code (CC, Title 24, Part 11 or CalGreen), five of the parking spaces would provide equipment for the charging of electric vehicles. Additionally, a bike rack would be located near the main entrance of the warehouse located at the northeast corner of the building. The proposed site plan is shown in Figure 2.

Construction of the proposed project is anticipated to begin in the fourth quarter of 2023 and occur over ten months. All construction activities would occur within the allowable hours defined in the City of Perris Municipal Code Section 7.34.060, which states that construction shall occur only between the hours of 7:00 a.m. and 7:00 p.m., with no construction on Sundays or legal holidays. The project applicant has committed to adhering to these construction time limits for all construction activities, including concrete pouring activities.

As shown on the Site Plan, the proposed project would include installation of a 14-foot-high concrete tilt up screen wall on the west property line, adjacent to the truck loading area and a 6 foot high concrete masonry unit (cmu) wall on the shared eastern property line between the proposed parking lot for automobiles and nearest home.

1.4 Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the City of Perris and State of California.

City of Perris Noise Regulations

The following lists the noise and vibration regulations from the Municipal Code that are applicable, but not limited to the proposed project.

- Section 7.34.050: General Noise Prohibitions
- Section 7.34.060: Construction Noise Standards

State of California Noise Regulations

The following lists the State of California noise regulations that are applicable, but not limited to the proposed project.

- California Vehicle Code Section 2700-27207 – On Road Vehicle Noise Limits
- California Vehicle Code Section 38365-38350 – Off-Road Vehicle Noise Limits

1.5 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

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

Less than significant impact.

Generation of excessive groundborne vibration or groundborne noise levels?

Potentially significant impact. Mitigation Measure 1 would reduce this impact to less than significant.

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?

Less than significant impact.

1.6 Applicable Mitigation Measures from the PVCCSP EIR

The proposed project is required to adhere to the following noise-related mitigation measures from the PVCCSP EIR.

MM Noise 1

During all project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers consistent with manufacturer's standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.

MM Noise 2

During construction, stationary construction equipment, stockpiling and vehicle staging areas will be placed a minimum of 446 feet away from the closest sensitive receptor.

MM Noise 3

No combustion-powered equipment, such as pumps or generators, shall be allowed to operate within 446 feet of any occupied residence unless the equipment is surrounded by a noise protection barrier.

MM Noise 4

Construction contractors of implementing development projects shall limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes shall not pass sensitive land uses or residential dwellings.

MM Noise 5

New sensitive land uses, including residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, education facilities, and libraries, to be located within the PVCC shall be protected from excessive noise, including existing and projected noise. Attenuation shall be provided to

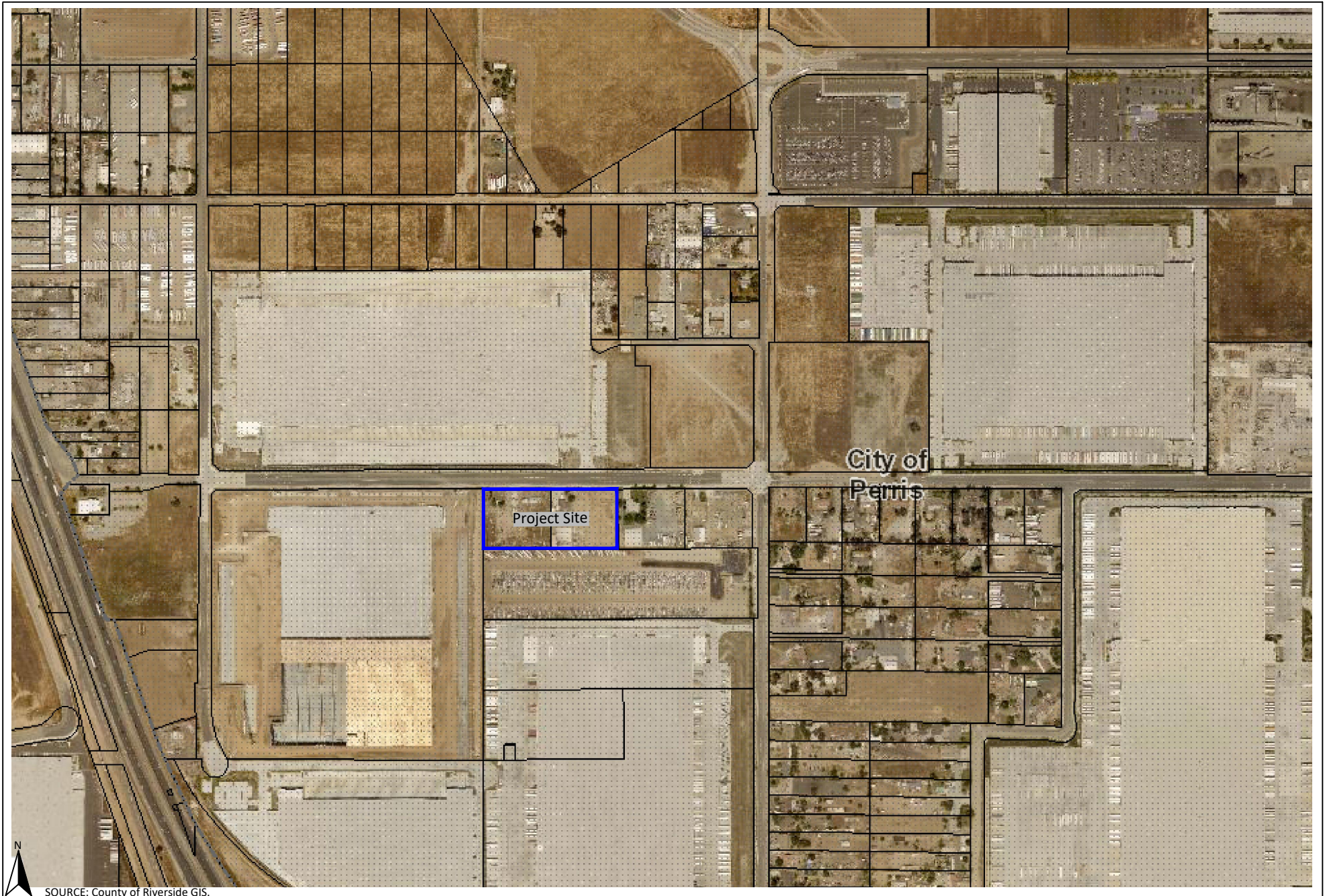
ensure that noise levels do not exceed an exterior standard of 60 dBA (65 dBA is conditionally acceptable) in outdoor living areas and an interior standard of 45 dBA in all habitable rooms. Specifically, special consideration shall be given to land uses abutting Ramona Expressway from Redlands Avenue to Evans Road and from Evans Road to Bradley Road; Rider Street from Evans Road to Bradley Road; Placentia Avenue from Perris Boulevard to Redlands Avenue, from Redlands Avenue to Wilson Avenue, from Wilson Avenue to Murrieta Road, and from Murrieta Road to Evans Road; Perris Boulevard from Orange Avenue to Placentia Avenue and from San Michele Road to Krameria Avenue; and Redlands Avenue from Nuevo Road to Citrus Avenue, from Citrus Avenue to Orange Avenue and from Orange Avenue to Placentia Avenue.

1.7 Specific Mitigation Measures for the Proposed Project

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above, through implementation of the noise and vibration related mitigation measures from the PVCCSP EIR, and through implementation of the following Mitigation Measure 1, all noise and vibration impacts would be reduced to less than significant levels.

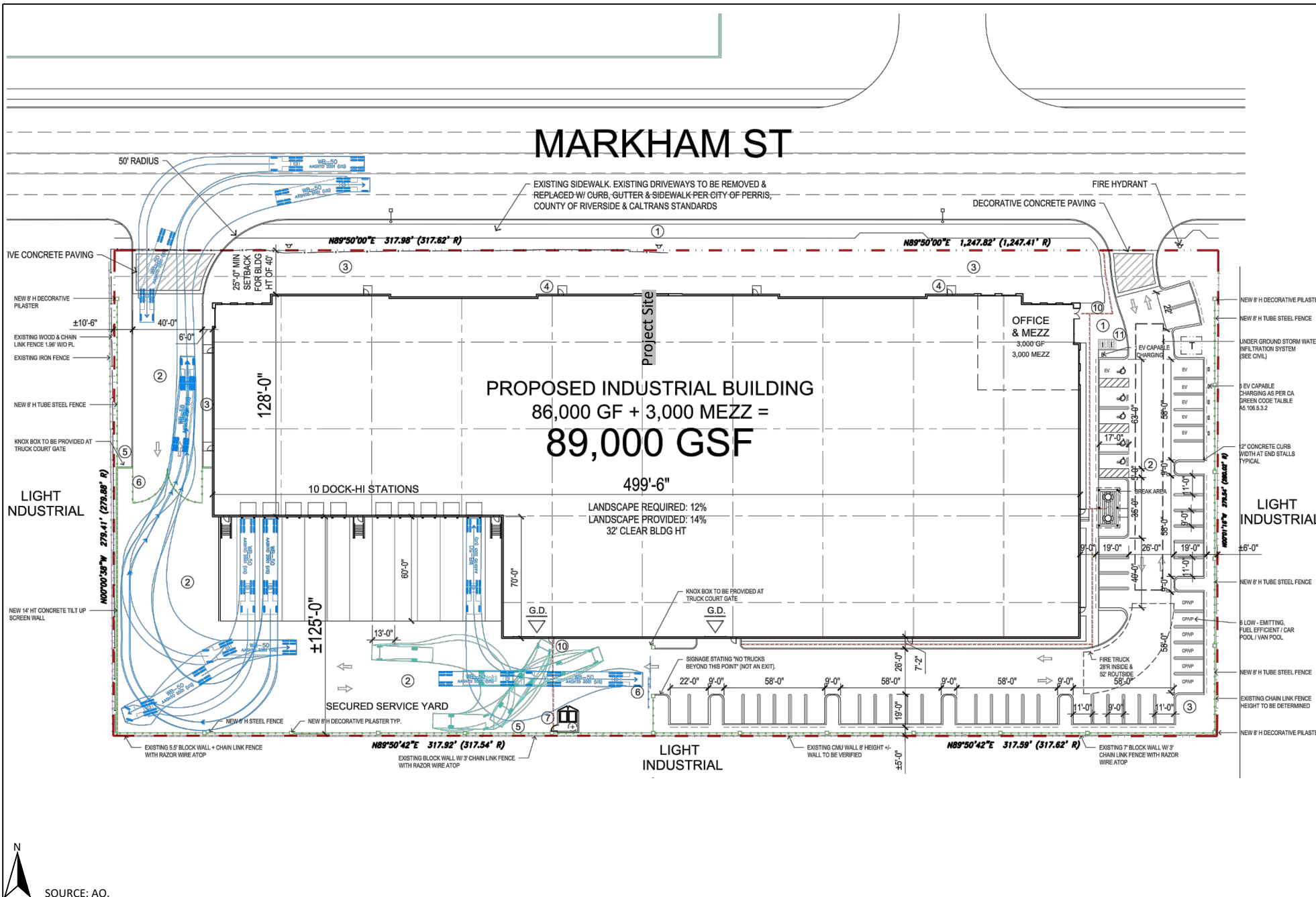
Mitigation Measure 1:

The project applicant shall require that all construction contractors restrict the operation of any large bulldozers that is powered by a greater than 150 horse power engine from operating within 60 feet of the home located on the east side of the project site. The project applicant shall require the use of a small bulldozer (i.e., D1, D2, or D3 dozers) or other type of equipment that is less than 150 horsepower to perform all grading activities that are located within 60 feet of the residential structure on the east side of the project site.



SOURCE: County of Riverside GIS.

Figure 1
Project Location Map



2.0 NOISE FUNDAMENTALS

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. The Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has an added 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The City of Perris relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from

the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis as most ground surfaces between the source and receptor will provide some noise absorption.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 *Vibration Descriptors*

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is vibration decibels (VdB), which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 *Vibration Perception*

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 *Vibration Propagation*

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the City of Perris. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the federal Urban Mass Transit Administration (UMTA), while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, the City is restricted to regulating noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regulatory tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix,” which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required

to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published 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.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

Caltrans prepared the *Transportation and Construction Vibration Guidance Manual*, April 2020. The Manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this Manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for continuous (construction-related) and transient (transportation-related) sources of vibration, which found that the human response becomes distinctly perceptible at 0.25 inch per second PPV for transient sources and 0.04 inch per second PPV for continuous sources.

4.3 Local Regulations

The *City of Perris General Plan Noise Element*, adopted August 30, 2016 and the *Perris Municipal Code for the City of Perris, California*, March 9, 2022 establishes the following applicable policies related to noise and vibration.

City of Perris General Plan Noise Element

The following lists the applicable goals, policies and implementation measures for the proposed project from the City of Perris General Plan Noise Element.

Goal I – Land Use Siting

Future land uses compatible with projected noise environments.

Policy I.A The State of California Noise/Land Use Compatibility Criteria shall be used in determining land use compatibility for new development.

Implementation Measures

I.A.1 All new development proposals will be evaluated with respect to the State Noise/Land Use Compatibility Criteria. Placement of noise sensitive uses will be discouraged within

any area exposed to exterior noise levels that fall into the “Normally Unacceptable” range and prohibited within areas exposed to “Clearly Unacceptable” noise ranges.

Goal IV – Air Traffic Noise

Future land uses compatible with noise from air traffic.

Policy IV.A Reduce or avoid the existing and potential future impacts from air traffic on new sensitive noise land uses in areas where air traffic noise is 60 dBA CNEL or higher.

Implementation Measures

IV.A.2 All new development proposals in the noise contour areas of 60 dBA and above will be evaluated with respect to the State Noise/Land Use Compatibility Criteria.

Goal V – Stationary Source Noise

Future non-residential land uses compatible with noise sensitive land uses.

Policy V.A New large scale commercial or industrial facilities located within 160 feet of sensitive land uses shall mitigate noise impacts to attain an acceptable level as required by the State of California Noise/Land Use Compatibility Criteria.

Implementation Measures

V.A.1 An acoustical impact analysis shall be prepared for new industrial and large scale commercial facilities to be constructed within 160 feet of the property line of any existing noise sensitive land use. This analysis shall document the nature of the commercial or industrial facility as well as all interior or exterior facility operations that would generate exterior noise. The analysis shall document the placement of any existing or proposed noise-sensitive land uses situated within the 160-foot distance. The analysis shall determine the potential noise levels that could be received at these sensitive land uses and specify specific measures to be employed by the large scale commercial or industrial facility to ensure that these levels do not exceed 60 dBA CNEL at the property line of the adjoining sensitive land use. No development permits or approval of land use applications shall be issued until the acoustic analysis is received and approved by the City Staff.

City of Perris Municipal Code

The City of Perris Municipal Code establishes the following applicable standards related to noise.

Section 7.34.040 – Sound amplification

No person shall amplify sound using sound amplifying equipment contrary to any of the following:

- (1) The only amplified sound permitted shall be either music or the human voice, or both.
- (2) The volume of amplified sound shall not exceed the noise levels set forth in this subsection when measured outdoors at or beyond the property line of the property from which the sound emanates.

Time Period	Maximum Noise Level
10:01 p.m. – 7:00 a.m.	60 dBA
7:01 a.m. – 10:00 p.m.	80 dBA

Section 7.34.050 – General prohibition

- (a) It unlawful for any person to willfully make, cause or suffer, or permit to be made or caused, any loud excessive or offensive noises or sounds which unreasonably disturb the peace and quiet of any residential neighborhood or which are physically annoying to persons of ordinary sensitivity or which are so harsh, prolonged or unnatural or unusual in their use, time or place as to occasion physical discomfort to the inhabitants of the city, or any section thereof. The standards for dBA noise level in section 7.34.040 shall apply to this section. To the extent that the noise created causes the noise level at the property line to exceed the ambient noise level by more than 1.0 decibels, it shall be presumed that the noise being created also is in violation of this section.

Section 7.34.060 – Construction noise.

It is unlawful for any person between the hours of 7:00 p.m. of any day and 7:00 a.m. of the following day, or on a legal holiday, with the exception of Columbus Day and Washington's birthday, or on Sundays to erect, construct, demolish, excavate, alter or repair any building or structure in such a manner as to create disturbing, excessive or offensive noise. Construction activity shall not exceed 80 dBA in residential zones in the city.

5.0 EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that noise within the proposed project area is generally characterized by vehicle traffic on Markham Street, which is located adjacent to the north side of the project site and from aircraft landing at March Air Base that is located as near as 0.7 mile north of the project site. There is also noise created from industrial activities occurring in the vicinity of the project site. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using two Larson Davis Model LXT1 Type 1 sound level meters programmed in “slow” mode to record the sound pressure level at 1-second intervals for 24 hours in “A” weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded with both sound level meters. The sound level meters and microphones were mounted on fences on the project site. The noise meters were placed between four and six feet above the ground and were equipped with windscreens during all measurements. The noise meters were calibrated before and after the monitoring using a Larson Davis Cal200 calibrator. All noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain the existing noise levels on the project site and at the nearest home located on the east side of the project site. Descriptions of the noise monitoring sites are provided below in Table A and are shown in Figure 3. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 12:31 p.m. on Monday, September 26, 2022 and 12:36 p.m. on Tuesday, September 27, 2022. At the start of the noise measurements, the sky was clear (no clouds), the temperature was 97 degrees Fahrenheit, the humidity was 29 percent, barometric pressure was 28.31 inches of mercury, and the wind was blowing around six miles per hour. Overnight, the temperature dropped to 66 degrees Fahrenheit and the humidity peaked at 66 percent. At the conclusion of the noise measurements, the sky was clear, the temperature was 102 degrees Fahrenheit, the humidity was 19 percent, barometric pressure was 28.30 inches of mercury, and the wind was blowing around two miles per hour.

5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table A. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table A also shows the L_{eq} , L_{max} , and CNEL, based on the entire measurement time. The noise monitoring data printouts are included in Appendix B. Figure 4 shows a graph of the 24-hour noise measurements.

Table A – Existing (Ambient) Noise Level Measurements

Site No.	Site Description	Average (dBA L _{eq})		1-hr Average (dBA L _{eq} /Time)		Average (dBA CNEL)
		Daytime ¹	Nighttime ²	Minimum	Maximum	
1	Located on a fence near the northwest corner of the project site, approximately 50 feet south of Markham Street centerline.	64.5	61.7	58.3 1:50 a.m.	69.0 5:04 p.m.	68.8
2	Located on a fence near the northeast corner of the project site, approximately 45 feet south of Markham Street centerline.	64.7	61.2	57.7 9:53 p.m.	68.2 1:43 p.m.	69.1

Notes:

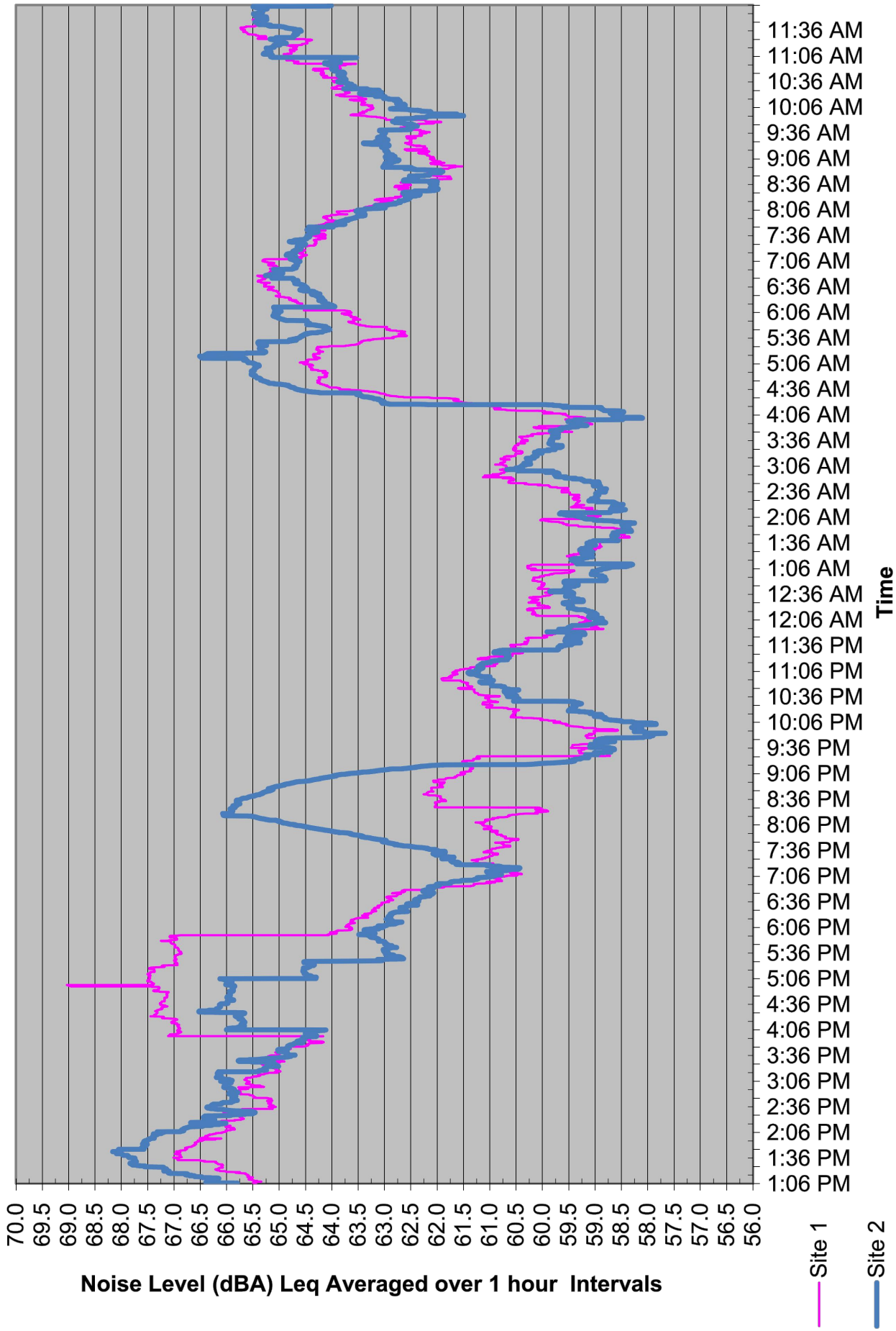
¹ Daytime is defined as 7:01 a.m. to 10:00 p.m. (Section 7.34.040 of the Municipal Code)

² Nighttime define as 10:01 p.m. to 7:00 a.m. (Section 7.34.040 of the Municipal Code)

Source: Noise measurements taken between Monday, September 26 and Tuesday, September 27, 2022.



Figure 3
Field Noise Monitoring Locations



SOURCE: Larson Davis Model LX71, Type 1 Sound Level Meters.



Figure 4
Field Noise Measurements Graph

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table B below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in *Air Quality, Energy, Greenhouse Gas Emissions and Health Risk Assessment Impact Analysis 945 – 995 W. Markham Street Industrial Building Project* (Air Quality Analysis), prepared by Vista Environmental, February 15, 2023.

Table B – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor ¹ (percent)	Spec 721.560 Lmax at 50 feet ² (dBA, slow ³)	Actual Measured Lmax at 50 feet ⁴ (dBA, slow ³)
Demolition				
Concrete/Industrial Saw	1	20	90	90
Excavator	3	40	85	81
Rubber Tired Dozer	2	40	85	83
Site Preparation				
Rubber Tired Dozers	3	40	85	82
Tractors	2	40	84	N/A
Front End Loader	1	40	80	79
Backhoe	1	40	80	78
Grading				
Excavator	1	40	85	81
Grader	1	40	85	N/A
Rubber Tired Dozer	1	40	85	82
Tractor	1	40	84	N/A
Front End Loader	1	40	80	79
Backhoe	1	40	80	78
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	20	90	90
Tractor	1	40	84	N/A
Front End Loader	1	40	80	79
Backhoe	1	40	80	78
Welder	1	40	73	74
Paving				
Cement and Mortar Mixers	2	40	85	79
Paver	1	50	85	77
Paving Equipment	2	50	85	77
Rollers	2	20	85	80
Tractor	1	40	84	N/A

Table B – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor ¹ (percent)	Spec 721.560 Lmax at 50 feet ² (dBA, slow ³)	Actual Measured Lmax at 50 feet ⁴ (dBA, slow ³)
Architectural Coating				
Air Compressor	1	40	80	78

Notes:

¹ Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.

² Spec 721.560 is the equipment noise level utilized by the RCNM program.

³ The “slow” response averages sound levels over 1-second increments. A “fast” response averages sound levels over 0.125-second increments.

⁴ Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.

Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table B also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearest homes have been calculated according to the equipment noise levels and usage factors listed in Table B and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in the *Transit Noise and Vibration Impact Assessment Manual (FTA Manual)*, prepared by FTA, September 2018, for a General Assessment. The RCNM model printouts are provided in Appendix C.

6.2 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the project site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage to the structures at the highest levels. Table C gives approximate vibration levels for particular construction equipment that is provided by the FTA, however it should be noted that not all of these equipment types would be used during construction of the proposed project. The data in Table C provides a reasonable estimate the equipment that would be used at the site under for a wide range of soil conditions.

Table C – Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity (inches/second)	Approximate Vibration Level (L _v) at 25 feet
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Federal Transit Administration, 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table C and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table B.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to result in:

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

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not 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. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the City standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include demolition of the existing structures on the project site, site preparation and grading of the 4.06 gross acre project site, building construction of the warehouse, paving of the truck loading area, driveways, and parking lots, and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptor is a single-family home located as near as 30 feet to the east of the project site. There are also single-family homes located as near as 780 feet to the north of the project site.

Section 7.34.060 of the City's Municipal Code exempts construction noise from the City noise standards provided that construction activities occur between 7:00 a.m. and 7:00 p.m., except for legal holidays and such activities do not exceed 80 dBA Lmax at the nearby homes.

Construction noise impacts to the nearby homes have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table B – Construction Equipment Noise Emissions and Usage Factors. The results are shown below in Table D and the RCNM printouts are provided in Appendix C.

Table D – Construction Noise Levels at the Nearby Sensitive Receptors

Construction Phase	Construction Noise Level (dBA Lmax) at:	
	Nearest Home to East ¹	Nearest Homes to North ²
Demolition	73	64
Site Preparation	69	60
Grading	69	60
Building Construction	70	61
Paving	68	59
Architectural Coatings	61	52
Construction Noise Threshold³	80	80
Exceed Thresholds?	No	No

Notes:

¹ The nearest home to the east is located as near as 340 feet from the center of the project site.

² The nearest homes to north are located as near as 1,000 feet from the center of the project site.

³ The construction noise threshold obtained from Section 7.34.060 of the Municipal Code.

Source: RCNM, Federal Highway Administration, 2006 (See Appendix C, the highest of either Leq or Lmax is shown in Table D)

Table D shows that greatest construction noise impacts would occur during the building construction phase, with a noise level as high as 73 dBA Lmax at the nearest home to the east and as high as 64 dBA Lmax at the nearest homes to the north. The calculated construction noise levels shown in Table D are within the City’s construction noise standard of 80 dBA Lmax. Therefore, through adherence to the limitation of allowable construction times provided in Section 7.34.060 of the Municipal Code, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance nor would construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of the development of a warehouse. Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways and from onsite activities, which have been analyzed separately below.

Roadway Vehicular Noise

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed warehouse would be located in an industrial area that is surrounded by other warehouses. As such, the vehicle mix of automobiles and trucks generated by the proposed warehouse would be anticipated to be similar to the existing vehicle mix on the nearby roads. In addition, the proposed project would not alter the speed limit on any existing roadway so the proposed project’s potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

According to the PVCCSP EIR, a substantial permanent increase at a sensitive receptor location is defined as follows:

- An increase of 3 dBA or more from existing noise levels where the 60 dBA noise standard for sensitive receptors is exceeded; and/or
- An increase of 5 dBA or more from existing noise levels at all other sensitive receptor locations.

According to the *945-995 W. Markham Street Industrial Building DRP22-00020: Vehicle Miles Traveled (VMT) & Trip Generation Screening Analysis*, prepared by EPD Solutions, Inc., September 9, 2022, the proposed project would generate a total of 152 average daily trips (ADT). According to the PVCCSP EIR, Markham Street between Patterson Avenue and Webster Avenue will have 2,200 ADT under buildout conditions. The proposed project would contribute up to 6.9 percent of the ADT on Markham Street. In order for project-generated vehicular traffic to increase the noise level on any of the nearby roadways by 3 dB, the ADT would have to double. As such, the proposed project's roadway noise impacts would be well below a 3 dB increase, which is the most restrictive of the two thresholds listed above from the PVCCSP EIR. Therefore, operational roadway noise impacts would be less than significant.

Onsite Noise Sources

The operation of the proposed warehouse building may create an increase in onsite noise levels from the truck loading area, rooftop mechanical equipment, forklift activities, and automobile parking lot activities. Operation of the proposed project would also include a diesel-powered fire pump that would operate in a maintenance cycle approximately once per week for thirty minutes, however the fire pump would be located inside the proposed warehouse and the noise created from the fire pump would not be audible at the property line. As such, no further analysis is provided of the fire pump noise impacts.

The nearest sensitive receptor is a single-family home located as near as 30 feet to the east of the project site. There are also single-family homes located as near as 780 feet to the north of the project site. Section 7.24.050 of the Municipal Code limits noise created onsite to 80 dBA Lmax between 7:01 a.m. and 10:00 p.m. and 60 dBA Lmax between 10:01 p.m. and 7:00 a.m. at the property lines of the nearby homes. Although, the proposed warehouse would be operational 24 hours per day, the majority of the employees will work during the day shift as well as the majority of the truck deliveries and outside yard activities will occur during the daytime. As such, the level of activities and resultant noise levels would be much more intense between the hours of 7:01 a.m. and 10:00 p.m., than what would occur during the nighttime noise sensitive hours.

In order to determine the noise impacts from the operation of rooftop mechanical equipment, parking lots, and the truck loading area, reference noise measurements were taken of each noise source and are shown in Table E and the reference noise measurements are provided in Appendix D. In order to account for the noise reduction provided by the proposed 6-foot high sound wall on the east property line that will shield ground level noise sources and the minimum 3-foot high parapet walls on the roof that will shield rooftop mechanical equipment, the wall attenuation equations from the *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (TeNS), prepared by Caltrans, September 2013, was utilized and the noise calculation spreadsheet along with the reference noise measurements are provided in Appendix D.

Table E – Operational Noise Levels at the Nearby Sensitive Receptors

Noise Source	Reference Measurements		Nearest Home to East		Nearest Homes to North	
	Distance - Source to Measurement (feet)	Noise Level ¹ (dBA Lmax)	Distance - Source to Home (feet)	Noise Level ¹ (dBA Lmax)	Distance - Source to Homes (feet)	Noise Level ¹ (dBA Lmax)
Rooftop Equipment	10	67.6	90	29.3	810	10.1
Auto Parking Lot	5	74.6	6	59.1	820	30.3
Truck Loading Area	10	76.4	350	39.7	940	36.9
Forklift	10	87.9	350	50.5	940	29.1
Combined Noise Levels				59.7		38.3
City Noise Standards (Day/Night)²				80/60		80/60
Exceed City Noise Standard?				No/No		No/No

Notes:

¹ The calculated noise levels account for the noise reduction provided by the proposed 6-foot high wall on the east side of the project site and the minimum 3-foot high parapet wall on the proposed warehouse.

² City Noise Standards obtained from Section 7.34.050 of the Municipal Code.

Table E shows that the proposed project’s worst-case operational noise from the simultaneous operation of all noise sources on the project site would create a noise level of 59.7 dBA Lmax at the nearest home to the east and 38.3 dBA Lmax at the homes to the north. The worst-case operational noise levels are within the City noise standards of 80 dBA Lmax between 7:01 a.m. and 10:00 p.m. and 60 dBA Lmax between 10:01 p.m. and 7:00 a.m. at the property lines of the nearby homes. Therefore, operational onsite noise impacts would be less than significant.

Level of Significance

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include demolition of the existing structures on the project site, site preparation and grading of the 4.06 gross acre project site, building construction of the warehouse, paving of the truck loading area, driveways, and parking lots, and application of architectural coatings. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptor to the project site is a home located as near as 30 feet to the east of the project site.

The PVCCSP EIR found that potential building damage may occur when vibration levels exceed 0.5 inch per second PPV and humans can be adversely affected by vibration when vibrations levels exceed 80 VdB.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table C above a large bulldozer would create a vibration level of 0.089 inch per second PPV or 87 VdB at 25 feet. Based on typical propagation rates, the vibration level at the nearest home (30 feet away) would

be 0.073 inch per second PPV or 85 VdB. The vibration level would be within the 0.5 inch per second PPV building damage threshold, however it would exceed the human annoyance threshold of 80 VdB. This would be considered a potentially significant impact.

Mitigation Measure 1 is provided that would require that the applicant to restrict the use of a large dozer within 60 feet of the home to the east. For all grading activities that occur within 60 feet of the home, the applicant shall require the use of a small dozer or other type of equipment that is less than 150 horsepower. From Table C above a small bulldozer would create a vibration level of 0.003 inch-per-second PPV or 58 VdB at 25 feet, which would be below the 80 VdB threshold detailed above. Therefore, with implementation of Mitigation Measure 1, a less than significant vibration impact is anticipated from construction of the proposed project.

Operations-Related Vibration Impacts

The proposed project would consist of the development of a warehouse building. The proposed project would result in trucks operating on the project site, which are a known source of vibration. It should be noted that trucks will be restricted from using the east project driveway, which would result in a 340 foot distance between where trucks would operate on the project site and the home to the east.

Caltrans has done extensive research on vibration level created along freeways and State Routes and their vibration measurements of roads have never exceeded 0.08 inches per second PPV or 86 VdB at 15 feet from the center of the nearest lane, with the worst combinations of heavy trucks. As detailed above, truck activities on the project site would occur onsite as near as 340 feet from the nearest home. Based on typical propagation rates, the vibration level at the nearest home would be 58 VdB. Therefore, vibration created from operation of the proposed project would be well below the 80 VdB threshold detailed above. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1:

The project applicant shall require that all construction contractors restrict the operation of any large bulldozers that is powered by a greater than 150 horse power engine from operating within 60 feet of the home located on the east side of the project site. The project applicant shall require the use of a small bulldozer (i.e., D1, D2, or D3 dozers) or other type of equipment that is less than 150 horsepower to perform all grading activities that are located within 60 feet of the residential structure on the east side of the project site.

Level of Significance after Mitigation

Less than significant impact.

7.4 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is MARB/IPA, where the runway is located approximately 0.7 mile north of the project site. According to Figure 6-10 of the *Final Air Installations Compatible Use Zones Study March Air Reserve Base Riverside, California*, prepared by Air Force Reserve Command, 2018, the

project site is located outside the 60 dBA CNEL noise contours of MARB/IPA. As such, the proposed project would be exposed to a less than significant impact from aircraft noise.

Level of Significance

Less than significant impact.

8.0 REFERENCES

Albert A. Webb Associates, *Perris Valley Commerce Center Specific Plan Final Environmental Impact Report*, City of Perris, November 2011.

Air Force Reserve Command, *Final Air Installations Compatible Use Zones Study March Air Reserve Base Riverside, California*, 2018.

California Department of Transportation, *2016 Annual Average Daily Truck Traffic on the California State Highway System*, 2018.

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

California Natural Resources Agency, *2022 California Environmental Quality Act (CEQA) Statute and Guidelines*, Association of Environmental Professionals, 2022.

City of Perris, *Perris, California Code of Ordinances Section 7.34 – Noise Control*, 2000.

City of Perris, *Perris General Plan Environmental Impact Report*, April 26, 2005.

City of Perris, *Perris Valley Commerce Center Specific Plan Amendment No. 12*, February 2022.

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

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide*, January, 2006.

Vista Environmental, *Air Quality, Energy, Greenhouse Gas Emissions and Health Risk Assessment Impact Analysis 945 – 995 W. Markham Street Industrial Building Project*, February 15, 2023.

APPENDIX A

Field Noise Measurements Photo Index



Noise Measurement Site 1 - looking north



Noise Measurement Site 1 - looking northeast



Noise Measurement Site 1 - looking east



Noise Measurement Site 1 - looking southeast



Noise Measurement Site 1 - looking south



Noise Measurement Site 1 - looking southwest



Noise Measurement Site 1 - looking west



Noise Measurement Site 1 - looking northwest



Noise Measurement Site 2 - looking north



Noise Measurement Site 2 - looking northeast



Noise Measurement Site 2 - looking east



Noise Measurement Site 2 - looking southeast



Noise Measurement Site 2 - looking south



Noise Measurement Site 2 - looking southwest



Noise Measurement Site 2 - looking west



Noise Measurement Site 2 - looking northwest

APPENDIX B

Field Noise Measurements Printouts

Site 1 - Near Northwest Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Rows list noise measurements for Site 1.

Site 2 - Near Northeast Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Rows list noise measurements for Site 2.

Site 1 - Near Northwest Corner of Project Site

Site 2 - Near Northeast Corner of Project Site

Table with 8 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL, SPL, Time, Leq (1 hour Avg.), Ldn CNEL. It contains two side-by-side data columns for Site 1 and Site 2, each with 100 rows of numerical data.

Site 1 - Near Northwest Corner of Project Site

Site 2 - Near Northeast Corner of Project Site

Table with columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL (for Site 1) and SPL, Time, Leq (1 hour Avg.), Ldn CNEL (for Site 2). Contains two columns of data for each site, showing noise level measurements over time.

Site 1 - Near Northwest Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 733 rows of data for Site 1.

Site 2 - Near Northeast Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 733 rows of data for Site 2.

Site 1 - Near Northwest Corner of Project Site

Site 2 - Near Northeast Corner of Project Site

Table with 8 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL for Site 1, and SPL, Time, Leq (1 hour Avg.), Ldn CNEL for Site 2. The table lists 300 rows of data comparing noise levels at two sites over time.

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Data for Site 1 - Near Northwest Corner of Project Site, spanning 50.8 to 51.4 and 12:57:16 to 12:59:53.

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Data for Site 2 - Near Northeast Corner of Project Site, spanning 60.8 to 61.4 and 13:01:50 to 13:04:27.

Site 1 - Near Northwest Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 1000 rows of noise level data for Site 1.

Site 2 - Near Northeast Corner of Project Site

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 1000 rows of noise level data for Site 2.

APPENDIX C

RCNM Model Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		Night
		Daytime	Evening	
Nearest Home to East	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)			
Concrete Saw	No	20		89.6	340	0
Excavator	No	40		80.7	340	0
Excavator	No	40		80.7	340	0
Excavator	No	40		80.7	340	0
Dozer	No	40		81.7	340	0
Dozer	No	40		81.7	340	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day	Evening		
			Lmax	Leq	Lmax	Leq
Concrete Saw	72.9	65.9	N/A	N/A	N/A	N/A
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Total	73	70	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Demolition

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		Night
		Daytime	Evening	
Nearest Home to North	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment Spec	Actual Lmax	Receptor Distance	Estimated Shielding
			Lmax (dBA)	(dBA)	(feet)	(dBA)
Concrete Saw	No	20		89.6	1000	0
Excavator	No	40		80.7	1000	0
Excavator	No	40		80.7	1000	0
Excavator	No	40		80.7	1000	0
Dozer	No	40		81.7	1000	0
Dozer	No	40		81.7	1000	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day	Leq	Evening	Leq
			Lmax		Lmax	
Concrete Saw	63.6	57	N/A	N/A	N/A	N/A
Excavator	54.7	50.7	N/A	N/A	N/A	N/A
Excavator	54.7	50.7	N/A	N/A	N/A	N/A
Excavator	54.7	50.7	N/A	N/A	N/A	N/A
Dozer	55.6	51.7	N/A	N/A	N/A	N/A
Dozer	55.6	51.7	N/A	N/A	N/A	N/A
Total	64	60	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Home to East	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Dozer	No	40		81.7	340	0
Dozer	No	40		81.7	340	0
Dozer	No	40		81.7	340	0
Backhoe	No	40		77.6	340	0
Front End Loader	No	40		79.1	340	0
Tractor	No	40	84		340	0
Backhoe	No	40		77.6	340	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Backhoe	60.9	56.9	N/A	N/A	N/A	N/A
Front End Loader	62.5	58.5	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Backhoe	60.9	56.9	N/A	N/A	N/A	N/A
Total	67	69	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Site Preparation

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Home to North	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Dozer	No	40		81.7	1000	0
Dozer	No	40		81.7	1000	0
Dozer	No	40		81.7	1000	0
Backhoe	No	40		77.6	1000	0
Front End Loader	No	40		79.1	1000	0
Tractor	No	40	84		1000	0
Backhoe	No	40		77.6	1000	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Dozer	55.6	51.7	N/A	N/A	N/A	N/A
Dozer	55.6	51.7	N/A	N/A	N/A	N/A
Dozer	55.6	51.7	N/A	N/A	N/A	N/A
Backhoe	51.5	47.6	N/A	N/A	N/A	N/A
Front End Loader	53.1	49.1	N/A	N/A	N/A	N/A
Tractor	58.0	54.0	N/A	N/A	N/A	N/A
Backhoe	51.5	47.6	N/A	N/A	N/A	N/A
Total	58	60	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		Night
		Daytime	Evening	
Nearest Home to East	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	340	0
Grader	No	40	85		340	0
Dozer	No	40		81.7	340	0
Backhoe	No	40		77.6	340	0
Front End Loader	No	40		79.1	340	0
Tractor	No	40	84		340	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Grader	68.3	64.4	N/A	N/A	N/A	N/A
Dozer	65.0	61.0	N/A	N/A	N/A	N/A
Backhoe	60.9	56.9	N/A	N/A	N/A	N/A
Front End Loader	62.5	58.5	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Total	68	69	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Grading

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Home to North	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	1000	0
Grader	No	40	85		1000	0
Dozer	No	40		81.7	1000	0
Backhoe	No	40		77.6	1000	0
Front End Loader	No	40		79.1	1000	0
Tractor	No	40	84		1000	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator	54.7	51	N/A	N/A	N/A	N/A
Grader	59.0	55.0	N/A	N/A	N/A	N/A
Dozer	55.6	51.7	N/A	N/A	N/A	N/A
Backhoe	51.5	47.6	N/A	N/A	N/A	N/A
Front End Loader	53.1	49.1	N/A	N/A	N/A	N/A
Tractor	58.0	54.0	N/A	N/A	N/A	N/A
Total	59	60	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Home to East	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	340	0
Gradall	No	40		83.4	340	0
Gradall	No	40		83.4	340	0
Gradall	No	40		83.4	340	0
Generator	No	50		80.6	340	0
Backhoe	No	40		77.6	340	0
Front End Loader	No	40		79.1	340	0
Tractor	No	40	84		340	0
Welder / Torch	No	40		74	340	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Crane	63.9	55.9	N/A	N/A	N/A	N/A
Gradall	66.7	62.8	N/A	N/A	N/A	N/A
Gradall	66.7	62.8	N/A	N/A	N/A	N/A
Gradall	66.7	62.8	N/A	N/A	N/A	N/A
Generator	64.0	61.0	N/A	N/A	N/A	N/A
Backhoe	60.9	56.9	N/A	N/A	N/A	N/A
Front End Loader	62.5	58.5	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Welder / Torch	57.3	53.4	N/A	N/A	N/A	N/A
Total	67	70	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Building Construction

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Home to North	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment Spec	Actual	Receptor Distance	Estimated Shielding
			Lmax (dBA)	Lmax (dBA)	(feet)	(dBA)
Crane	No	16		80.6	1000	0
Gradall	No	40		83.4	1000	0
Gradall	No	40		83.4	1000	0
Gradall	No	40		83.4	1000	0
Generator	No	50		80.6	1000	0
Backhoe	No	40		77.6	1000	0
Front End Loader	No	40		79.1	1000	0
Tractor	No	40	84		1000	0
Welder / Torch	No	40		74	1000	0

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Crane	54.5	46.6	N/A	N/A	N/A	N/A
Gradall	57.4	53.4	N/A	N/A	N/A	N/A
Gradall	57.4	53.4	N/A	N/A	N/A	N/A
Gradall	57.4	53.4	N/A	N/A	N/A	N/A
Generator	54.6	51.6	N/A	N/A	N/A	N/A
Backhoe	51.5	47.6	N/A	N/A	N/A	N/A
Front End Loader	53.1	49.1	N/A	N/A	N/A	N/A
Tractor	58.0	54.0	N/A	N/A	N/A	N/A
Welder / Torch	48.0	44.0	N/A	N/A	N/A	N/A
Total	58	61	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		Night
		Daytime	Evening	
Nearest Home to East	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	340	0
Concrete Mixer Truck	No	40		78.8	340	0
Paver	No	50		77.2	340	0
Paver	No	50		77.2	340	0
Paver	No	50		77.2	340	0
Roller	No	20		80	340	0
Roller	No	20		80	340	0
Tractor	No	40	84		340	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	62.1	58.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck	62.1	58.2	N/A	N/A	N/A	N/A
Paver	60.6	57.6	N/A	N/A	N/A	N/A
Paver	60.6	57.6	N/A	N/A	N/A	N/A
Paver	60.6	57.6	N/A	N/A	N/A	N/A
Roller	63.3	56.4	N/A	N/A	N/A	N/A
Roller	63.3	56.4	N/A	N/A	N/A	N/A
Tractor	67.3	63.4	N/A	N/A	N/A	N/A
Total	67	68	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/28/2022
 Case Description: 945-995 W Markham St Industrial - Paving

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Home to North	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	1000	0
Concrete Mixer Truck	No	40		78.8	1000	0
Paver	No	50		77.2	1000	0
Paver	No	50		77.2	1000	0
Paver	No	50		77.2	1000	0
Roller	No	20		80	1000	0
Roller	No	20		80	1000	0
Tractor	No	40	84		1000	0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	52.8	48.8	N/A	N/A	N/A	N/A
Concrete Mixer Truck	52.8	48.8	N/A	N/A	N/A	N/A
Paver	51.2	48.2	N/A	N/A	N/A	N/A
Paver	51.2	48.2	N/A	N/A	N/A	N/A
Paver	51.2	48.2	N/A	N/A	N/A	N/A
Roller	54.0	47.0	N/A	N/A	N/A	N/A
Roller	54.0	47.0	N/A	N/A	N/A	N/A
Tractor	58.0	54.0	N/A	N/A	N/A	N/A
Total	58	59	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 11/28/2022

Case Description: 945-995 W Markham St Industrial - Architectural Coatings

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Home to East	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Compressor (air)	No	40		77.7	340	0

Equipment	Calculated (dBA)	Results					
		Noise Limits (dBA)					
		Day	Evening	Lmax	Leq	Lmax	Leq
Compressor (air)	*Lmax 61.0	Leq 57.0	N/A	N/A	N/A	N/A	N/A
Total	61	57	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
Nearest Home to North	Residential	64.7	64.7	61.2

Description	Impact Device	Usage(%)	Equipment Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Compressor (air)	No	40		77.7	1000	0

Equipment	Calculated (dBA)	Results					
		Noise Limits (dBA)					
		Day	Evening	Lmax	Leq	Lmax	Leq
Compressor (air)	*Lmax 51.6	Leq 47.7	N/A	N/A	N/A	N/A	N/A
Total	52	48	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

Operational Reference Noise Measurements Printouts

General Information

Serial Number	02509
Model	831
Firmware Version	2.112
Filename	831_Data.005
User	GT
Job Description	Northwest Fresno Walmart Relocation
Location	Rooftop HVAC Unit
Measurement Description	
Start Time	Saturday, 2013 July 27 18:31:43
Stop Time	Saturday, 2013 July 27 18:41:44
Duration	00:10:01.1
Run Time	00:10:01.1
Pause	00:00:00.0
Pre Calibration	Saturday, 2013 July 27 17:53:07
Post Calibration	None
Calibration Deviation	---

Note

Located 10 feet southeast of rooftop HVAC Unit 14 located on western side of roof
94 F, 30% Hu., 29.45 in Hg, no wind, partly cloudy

Overall Data

LAeq		66.6	dB
LASmax	2013 Jul 27 18:33:16	67.6	dB
LApeak (max)	2013 Jul 27 18:32:17	81.6	dB
LASmin	2013 Jul 27 18:41:08	65.8	dB
LCeq		75.8	dB
LAeq		66.6	dB
LCeq - LAeq		9.2	dB
LAIeq		67.2	dB
LAeq		66.6	dB
LAIeq - LAeq		0.6	dB
Ldn		66.6	dB
LDay 07:00-23:00		66.6	dB
LNight 23:00-07:00		---	dB
Lden		66.6	dB
LDay 07:00-19:00		66.6	dB
LEvening 19:00-23:00		---	dB
LNight 23:00-07:00		---	dB
LAE		94.4	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		0	
OBA Overload Duration		0.0	s

Statistics

LAS5.00	67.0	dBA
LAS10.00	66.9	dBA
LAS33.30	66.7	dBA
LAS50.00	66.6	dBA
LAS66.60	66.5	dBA
LAS90.00	66.3	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	1 / 601.1	s
LAS > 85.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 135.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 137.0 dB (Exceedence Counts / Duration)	0 / 0.0	s
LApeak > 140.0 dB (Exceedence Counts / Duration)	0 / 0.0	s

Settings

RMS Weight	A Weighting	
Peak Weight	A Weighting	
Detector	Slow	
Preamp	PRM831	
Integration Method	Linear	
OBA Range	Normal	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	Z Weighting	
OBA Max Spectrum	Bin Max	
Gain	+0	dB
Under Range Limit	26.2	dB
Under Range Peak	75.8	dB
Noise Floor	17.1	dB
Overload	143.4	dB

1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LZeq	70.9	64.4	61.4	74.2	68.2	64.9	66.3	61.7	55.1	49.9	44.3	44.0
LZSmax	83.8	78.9	70.0	78.4	72.3	66.1	67.8	63.1	56.9	53.2	46.7	45.4
LZSmin	53.2	56.5	56.7	67.7	66.1	63.5	65.0	60.7	53.9	48.4	43.2	43.7

1/3 Spectra

Freq. (Hz):	6.3	8.0	10.0	12.5	16.0	20.0	25.0	31.5	40.0	50.0	63.0	80.0
LZeq	68.1	65.7	63.2	61.0	58.0	59.3	56.0	57.8	55.8	69.7	72.0	59.3
LZSmax	82.3	79.5	78.7	77.2	72.8	72.3	67.9	63.5	64.0	74.2	76.1	72.0
LZSmin	41.9	46.3	48.8	48.7	46.5	49.7	50.1	51.8	41.2	63.9	67.9	54.5
Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LZeq	61.6	63.7	64.5	59.0	58.7	60.9	63.2	60.8	59.9	59.2	56.1	54.6
LZSmax	71.3	68.0	67.3	61.6	61.7	64.1	65.5	64.2	62.0	60.7	57.6	58.6
LZSmin	52.9	60.0	57.2	45.1	56.0	58.9	61.1	58.4	58.4	57.1	54.9	53.3
Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LZeq	52.0	49.8	48.4	46.4	45.4	42.8	41.1	38.6	38.5	38.4	39.0	40.2
LZSmax	54.4	52.3	51.2	50.2	49.7	45.7	45.4	41.6	40.4	40.4	41.4	41.3
LZSmin	50.9	48.4	46.9	45.0	43.7	41.4	39.6	37.5	37.9	38.0	38.7	39.9

Calibration History

Preamp	Date	dB re. 1V/Pa
PRM831	27 Jul 2013 17:53:07	-25.9
PRM831	27 Jul 2013 13:36:08	-25.6
PRM831	28 Apr 2013 15:34:24	-25.9
PRM831	23 Apr 2013 10:17:33	-25.0
PRM831	27 Feb 2013 19:15:30	-25.7
PRM831	24 Jan 2013 12:00:16	-25.6
PRM831	15 Jan 2013 07:50:44	-26.2
PRM831	04 Jan 2013 13:47:46	-26.5

Summary

File Name 831_Data.002
Serial Number 0002509
Model Model 831
Firmware Version 2.301
User GT
Location At 7080 Mayten Ave - Edge of MFR Parking Lot
Job Description Mayten & Foothill

Note

Measurement Description

Start 2015-09-10 15:54:09
Stop 2015-09-10 16:10:10
Duration 0:16:00.5
Run Time 0:16:00.5
Pause 0:00:00.0

Pre Calibration 2015-09-10 15:32:49
Post Calibration None
Calibration Deviation ---

Overall Settings

RMS Weight A Weighting
Peak Weight A Weighting
Detector Slow
Preamp PRM831
Microphone Correction Off
Integration Method Linear
OBA Range High
OBA Bandwidth 1/1 and 1/3
OBA Freq. Weighting Z Weighting
OBA Max Spectrum Bin Max
Gain 0.0 dB
Overload 143.1 dB

	A	C	Z
Under Range Peak	75.6	72.6	77.6 dB
Under Range Limit	26.1	26.4	31.8 dB
Noise Floor	17.0	17.3	22.5 dB

Results

LAeq 52.1 dB
LAE 81.9 dB
EA 17.242 $\mu\text{Pa}^2\text{h}$
LApeak (max) 2015-09-10 16:03:36 98.6 dB
LASmax 2015-09-10 16:03:36 74.6 dB
LASmin 2015-09-10 15:54:57 41.3 dB
SEA -99.9 dB

LAS > 65.0 dB (Exceedance Counts / Duration) 6 11.6 s

LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s

Community Noise	Ldn	:00-23:00	:3:00-07:00	Lden
	52.1	52.1	-99.9	52.1
LCeq	65.0 dB			
LAeq	52.1 dB			
LCeq - LAeq	12.9 dB			
LAlaq	61.6 dB			
LAeq	52.1 dB			
LAlaq - LAeq	9.5 dB			
# Overloads	0			
Overload Duration	0.0 s			
# OBA Overloads	0			
OBA Overload Duration	0.0 s			

Statistics	
LAS5.00	55.0 dB
LAS10.00	53.4 dB
LAS33.30	49.1 dB
LAS50.00	47.1 dB
LAS66.60	45.8 dB
LAS90.00	43.9 dB

Calibration History			
Preamp		Date re. 1V/Pa	6.3
PRM831	2015-09-10 15:32:49	-25.6	73.9
PRM831	2015-08-14 17:54:36	-26.3	36.4
PRM831	2015-08-05 20:29:18	-24.7	64.2
PRM831	2015-07-24 14:47:10	-25.6	60.9
PRM831	2015-05-05 14:56:20	-25.8	61.2
PRM831	2015-04-22 8:42:55	-26.3	58.2
PRM831	2015-04-17 11:29:03	-26.3	21.3
PRM831	2015-04-17 9:59:48	-26.0	30.6
PRM831	2015-04-17 8:00:28	-26.0	9.4
PRM831	2061-08-11 15:40:00	-26.0	44.2
PRM831	2014-10-15 14:30:38	-26.0	72.4

File Translated: Z:\Vista Env\2008\081101-Los Banos Wal-Mart\Noise Measurements\5.slmddl
 Model/Serial Number: 824 / A3176
 Firmware/Software Revs: 4.272 / 3.120
 Name: Vista Environmental
 Descr1: 1021 Didrikson Way
 Descr2: Laguna Beach, CA 92651
 Setup/Setup Descr: slm&rt.a.ssa / SLM & Real-Time Analyzer
 Location: 10 feet south of Walmart truck loading area
 Notel: Noise from a truck unloading and trailer transfer and from mechanical push sweeper
 Note2:

Overall Any Data

Start Time: 20-Jan-2009 14:40:19
 Elapsed Time: 00:10:00.6

	A Weight	C Weight	Flat
Leq:	63.3 dBA	68.8 dBC	69.5 dBF
SEL:	91.1 dBA	96.6 dBC	97.3 dBF
Peak:	90.1 dBA	93.2 dBC	93.2 dBF
20-Jan-2009 14:43:19	20-Jan-2009 14:41:22	20-Jan-2009 14:41:22	
Lmax (slow):	76.4 dBA	79.3 dBC	80.2 dBF
20-Jan-2009 14:43:19	20-Jan-2009 14:43:19	20-Jan-2009 14:43:19	
Lmin (slow):	41.0 dBA	58.0 dBC	59.7 dBF
20-Jan-2009 14:41:35	20-Jan-2009 14:42:11	20-Jan-2009 14:42:11	
Lmax (fast):	77.4 dBA	81.6 dBC	83.2 dBF
20-Jan-2009 14:43:19	20-Jan-2009 14:43:19	20-Jan-2009 14:43:19	
Lmin (fast):	39.8 dBA	56.9 dBC	58.8 dBF
20-Jan-2009 14:42:33	20-Jan-2009 14:42:11	20-Jan-2009 14:42:08	
Lmax (impulse):	78.8 dBA	84.7 dBC	85.3 dBF
20-Jan-2009 14:44:25	20-Jan-2009 14:41:22	20-Jan-2009 14:41:22	
Lmin (impulse):	41.1 dBA	58.5 dBC	61.0 dBF
20-Jan-2009 14:42:11	20-Jan-2009 14:42:11	20-Jan-2009 14:42:08	

Spectra

Date: 20-Jan-2009
 Time: 14:40:19
 Run Time: 00:10:00.6

Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1	Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1
12.5	52.8		65.8		31.8		630	56.0		68.6		27.4	
16.0	53.6	59.3	65.4	71.2	36.1	39.5	800	54.3		67.2		27.6	
20.0	56.3		67.7		35.1		1000	52.9	58.3	67.4	72.1	26.7	31.6
25.0	56.1		77.1		39.3		1250	53.4		67.3		26.2	
31.5	60.2	63.4	77.3	81.5	38.9	44.9	1600	53.8		69.4		25.0	
40.0	58.8		75.6		41.6		2000	53.2	57.7	68.0	72.7	21.3	27.2
50.0	58.3		68.8		45.6		2500	51.6		65.7		18.9	
63.0	58.5	64.0	67.2	73.0	44.9	49.8	3150	48.5		62.2		17.4	
80.0	60.6		68.4		44.4		4000	45.9	51.7	59.8	65.8	15.8	21.0
100	57.5		67.8		40.1		5000	45.8		60.9		15.0	
125	57.0	61.7	70.6	73.4	41.3	45.1	6300	43.6		58.4		14.7	
160	56.3		66.2		39.5		8000	41.9	46.8	54.6	61.2	15.0	19.9
200	52.9		61.5		35.0		10000	39.9		55.3		15.5	
250	52.8	56.9	62.3	66.4	34.4	38.4	12500	37.2		52.9		15.9	
315	50.4		60.9		30.3		16000	33.0	38.9	48.9	54.7	17.3	22.4
400	52.0		63.8		30.8		20000	27.1		44.0		19.0	
500	52.8	58.7	66.2	71.4	27.6	33.7							

Ln Start Level: 15 dB
 L1.00 0.0 dBA L50.00 0.0 dBA L95.00 0.0 dBA
 L5.00 0.0 dBA L90.00 0.0 dBA L99.00 0.0 dBA

Detector: Slow
 Weighting: A
 SPL Exceedance Level 1: 85.0 dB Exceeded: 0 times
 SPL Exceedance level 2: 120 dB Exceeded: 0 times
 Peak-1 Exceedance Level: 105 dB Exceeded: 0 times
 Peak-2 Exceedance Level: 100 dB Exceeded: 0 times
 Hysteresis: 2
 Overloaded: 0 time(s)
 Paused: 0 times for 00:00:00.0

File Translated: Z:\Vista Env\2008\081101-Los Banos Wal-Mart\Noise Measurements\5.slmdl
 Model/Serial Number: 824 / A3176

Current Any Data

Start Time: 20-Jan-2009 14:40:19
 Elapsed Time: 00:10:00.6

	A Weight	C Weight	Flat
Leq:	63.3 dBA	68.8 dBC	69.5 dBF
SEL:	91.1 dBA	96.6 dBC	97.3 dBF
Peak:	90.1 dBA	93.2 dBC	93.2 dBF
20-Jan-2009 14:43:19	20-Jan-2009 14:41:22	20-Jan-2009 14:41:22	
Lmax (slow):	76.4 dBA	79.3 dBC	80.2 dBF
20-Jan-2009 14:43:19	20-Jan-2009 14:43:19	20-Jan-2009 14:43:19	
Lmin (slow):	41.0 dBA	58.0 dBC	59.7 dBF
20-Jan-2009 14:41:35	20-Jan-2009 14:42:11	20-Jan-2009 14:42:11	
Lmax (fast):	77.4 dBA	81.6 dBC	83.2 dBF
20-Jan-2009 14:43:19	20-Jan-2009 14:43:19	20-Jan-2009 14:43:19	
Lmin (fast):	39.8 dBA	56.9 dBC	58.8 dBF
20-Jan-2009 14:42:33	20-Jan-2009 14:42:11	20-Jan-2009 14:42:08	
Lmax (impulse):	78.8 dBA	84.7 dBC	85.3 dBF
20-Jan-2009 14:44:25	20-Jan-2009 14:41:22	20-Jan-2009 14:41:22	
Lmin (impulse):	41.1 dBA	58.5 dBC	61.0 dBF
20-Jan-2009 14:42:11	20-Jan-2009 14:42:11	20-Jan-2009 14:42:08	

Calibrated:	20-Jan-2009 08:31:09	Offset:	-49.2 dB
Checked:	20-Jan-2009 08:31:09	Level:	94.0 dB
Calibrator	not set	Level:	94.0 dB
Cal Records Count:	0		

Interval Records:	Disabled	Number Interval Records:	0
History Records:	Disabled	Number History Records:	0
Run/Stop Records:		Number Run/Stop Records:	2

File Translated: V:\Vista Env\2010\10022-Fresno Walmart\Noise Measurements\LD\10.slm1
 Model/Serial Number: 824 / A3176
 Firmware/Software Revs: 4.283 / 3.120
 Name:
 Descr1: 1021 Didrikson Way
 Descr2: Laguna Beach, CA 92651
 Setup/Setup Descr: slm&rta.ssa / SLM & Real-Time Analyzer
 Location: At pallet stacking area on north side of Walmart
 Note1: Approx. 10' from operational forklift
 Note2: 70F, 29.43 in Hg, 27% Humid., 4 mph wind, partly cloudy

Overall Any Data

Start Time: 18-May-2011 17:21:20
 Elapsed Time: 00:04:00.7

	A Weight	C Weight	Flat
Leq:	74.4 dBA	80.5 dBC	81.0 dBF
SEL:	98.2 dBA	104.3 dBC	104.8 dBF
Peak:	108.4 dBA	109.1 dBC	109.1 dBF
18-May-2011 17:24:51		18-May-2011 17:24:44	18-May-2011 17:24:48
Lmax (slow):	87.9 dBA	90.9 dBC	91.0 dBF
18-May-2011 17:24:49		18-May-2011 17:24:49	18-May-2011 17:24:49
Lmin (slow):	62.8 dBA	68.6 dBC	69.7 dBF
18-May-2011 17:21:34		18-May-2011 17:21:33	18-May-2011 17:21:33
Lmax (fast):	91.7 dBA	93.9 dBC	94.0 dBF
18-May-2011 17:24:48		18-May-2011 17:24:48	18-May-2011 17:24:48
Lmin (fast):	59.2 dBA	67.1 dBC	68.2 dBF
18-May-2011 17:21:28		18-May-2011 17:21:30	18-May-2011 17:21:30
Lmax (impulse):	94.3 dBA	96.2 dBC	96.3 dBF
18-May-2011 17:24:51		18-May-2011 17:24:44	18-May-2011 17:24:48
Lmin (impulse):	63.1 dBA	69.1 dBC	70.4 dBF
18-May-2011 17:23:23		18-May-2011 17:21:33	18-May-2011 17:21:33

Spectra

Date: 18-May-2011
 Time: 17:21:20
 Run Time: 00:04:00.7

Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1	Hz	Leq1/3	Leq1/1	Max1/3	Max1/1	Min1/3	Min1/1
12.5	63.2		76.2		39.0		630	67.7		84.8		45.8	
16.0	60.8	66.2	73.2	78.3	41.6	45.6	800	64.6		83.9		47.6	
20.0	59.6		67.5		41.5		1000	63.1	68.6	82.1	86.9	46.7	52.4
25.0	62.7		70.0		44.6		1250	63.6		79.1		48.4	
31.5	67.6	72.5	68.8	73.9	46.6	51.1	1600	63.8		79.9		48.8	
40.0	70.0		68.5		47.3		2000	61.7	66.9	81.9	84.9	46.3	51.4
50.0	70.4		68.1		48.0		2500	60.1		77.6		42.6	
63.0	71.6	76.2	83.2	86.2	51.8	55.4	3150	63.4		76.7		41.0	
80.0	72.1		83.1		51.2		4000	53.5	64.2	73.4	79.7	36.6	43.3
100	68.5		73.7		51.0		5000	53.5		74.0		36.4	
125	68.7	73.9	77.6	82.2	50.3	54.9	6300	49.8		69.2		32.9	
160	70.1		79.2		48.9		8000	47.2	52.2	66.0	71.2	30.3	35.3
200	68.1		77.5		51.5		10000	42.4		59.4		25.8	
250	63.4	69.9	73.7	80.0	46.3	53.3	12500	39.5		57.8		24.0	
315	60.2		73.2		45.0		16000	34.8	41.1	52.6	59.4	23.0	27.7
400	65.6		78.8		48.7		20000	30.1		48.9		21.3	
500	69.1	72.5	85.1	88.5	48.5	52.6							

Ln Start Level: 15 dB
 L1.00 0.0 dBA L50.00 0.0 dBA L95.00 0.0 dBA
 L5.00 0.0 dBA L90.00 0.0 dBA L99.00 0.0 dBA

Detector: Slow
 Weighting: A
 SPL Exceedance Level 1: 85.0 dB Exceeded: 1 times
 SPL Exceedance level 2: 120 dB Exceeded: 0 times
 Peak-1 Exceedance Level: 105 dB Exceeded: 4 times
 Peak-2 Exceedance Level: 100 dB Exceeded: 4 times
 Hysteresis: 2
 Overloaded: 0 time(s)
 Paused: 0 times for 00:00:00.0

File Translated: V:\Vista Env\2010\10022-Fresno Walmart\Noise Measurements\LD\10.slmdl
 Model/Serial Number: 824 / A3176

Current Any Data

Start Time: 18-May-2011 17:21:20
 Elapsed Time: 00:04:00.7

	A Weight	C Weight	Flat
Leq:	74.4 dBA	80.5 dBC	81.0 dBF
SEL:	98.2 dBA	104.3 dBC	104.8 dBF
Peak:	108.4 dBA	109.1 dBC	109.1 dBF
18-May-2011 17:24:51		18-May-2011 17:24:44	18-May-2011 17:24:48
Lmax (slow):	87.9 dBA	90.9 dBC	91.0 dBF
18-May-2011 17:24:49		18-May-2011 17:24:49	18-May-2011 17:24:49
Lmin (slow):	62.8 dBA	68.6 dBC	69.7 dBF
18-May-2011 17:21:34		18-May-2011 17:21:33	18-May-2011 17:21:33
Lmax (fast):	91.7 dBA	93.9 dBC	94.0 dBF
18-May-2011 17:24:48		18-May-2011 17:24:48	18-May-2011 17:24:48
Lmin (fast):	59.2 dBA	67.1 dBC	68.2 dBF
18-May-2011 17:21:28		18-May-2011 17:21:30	18-May-2011 17:21:30
Lmax (impulse):	94.3 dBA	96.2 dBC	96.3 dBF
18-May-2011 17:24:51		18-May-2011 17:24:44	18-May-2011 17:24:48
Lmin (impulse):	63.1 dBA	69.1 dBC	70.4 dBF
18-May-2011 17:23:23		18-May-2011 17:21:33	18-May-2011 17:21:33

Calibrated:	18-May-2011 13:09:02	Offset:	-48.2 dB
Checked:	19-May-2011 06:46:08	Level:	113.9 dB
Calibrator	not set	Level:	114.0 dB
Cal Records Count:	0		

Interval Records:	Disabled	Number Interval Records:	0
History Records:	Disabled	Number History Records:	0
Run/Stop Records:		Number Run/Stop Records:	2

Stationary Noise Calculations - Home East of Project Site

Stationary Noise Sources	Reference Distance	Reference Lmax	Industrial North of Project Distance	Reference Lmax	Point Source: hard=1, soft=1.5 (eq. N-2141.2 of TeNS)
Rooftop HVAC	10	67.6	90	49	1
Auto Parking Lot	5	74.6	6	73	
Truck Loading Area	10	76.4	350	46	
Forklift	10	87.9	350	57	

Combined Noise Levels - Day **73**

Stationary Noise Sources	Distance from Receptor to Wall	Distance from source to Wall	Height of Wall* (feet)	Without Wall		With Wall		Exterior Observer Height (feet)	Source Height (feet)	Source Frequency y (hz)	barrier to receiver - b (all)	source to barrier - a	source to receiver - c	path difference y = a+b-c (auto)	line of sight (slope)	Barrier Atten
				Wall Noise Level at Residence	Level at Residence	Noise Level at Residence	Noise Level at Residence									
Rooftop HVAC	10	90	40	49	49	29.3	40	5	40	800	36.401	90.000	105.948	20.452	1	58.176
Auto Parking Lot	10	6	6	73	73	59.1	1.5	5	1.5	800	10.050	7.500	16.378	1.172	1	3.332
Truck Loading Area	10	350	6	46	46	39.7	13.5	5	13.5	800	10.050	350.080	360.100	0.030	1	0.085
Forklift	10	350	6	57	57	50.5	3	5	3	800	10.050	350.013	360.006	0.057	1	0.163

* Height of wall for Rooftop HVAC based on height of parapet wall, for ground sources based on east wall height of 6 feet.

Combined Noise Levels **73.1** **59.7**

Stationary Noise Calculations - Homes North of Project Site

Stationary Noise Sources	Reference Distance	Reference Lmax	Industrial Distance	North of Project Lmax
Rooftop HVAC	10	67.6	810	29
Auto Parking Lot	5	74.6	820	30
Truck Loading Area	10	76.4	940	37
Forklift	10	87.9	940	48

Reference Industrial North of Project

1 (Line Source: hard=0, soft=.5; Point Source: hard=1, soft=1.5)
(eq. N-2141.2 of TeNS)

Combined Noise Levels - Day **49**

Stationary Noise Sources	Distance from Receptor to Wall	Distance from source to Wall	Height of Wall* (feet)	Without Wall Noise Level at		With Wall Noise Level at		Exterior Observer Height (feet)	Source Frequency (hz)	barrier to receiver - b (all)	source to barrier - a	source to receiver - c	path difference y = a+b-c (auto)	line of sight (slope)	Barrier Atten
				Residence	Level at	Residence	at								
Rooftop HVAC	10	800	40	29	10.1	29	38	5	800	36.401	810.672	25.731	1	73.191	-19.3
Auto Parking Lot	10	810	0	30	30.3	30	1.5	5	800	11.180	820.007	1.174	-1	-3.340	0
Truck Loading Area	10	930	0	37	36.9	37	13.5	5	800	11.180	940.038	1.240	-1	-3.527	0
Forklift	10	930	40	48	29.1	48	3	5	800	36.401	940.002	27.134	1	77.182	-19.35

* Height of wall for Rooftop HVAC and Forklift based on height of parapet wall

Combined Noise Levels **48.8** **38.3**