

**NOISE IMPACT ANALYSIS**

**ALESSANDRO & OLD 215 INDUSTRIAL PARK**

**PROJECT**

**CITY OF MORENO VALLEY**

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## TABLE OF CONTENTS

<b>1.0</b>	<b>Introduction .....</b>	<b>1</b>
	1.1 Purpose of Analysis and Study Objectives .....	1
	1.2 Site Location and Study Area .....	1
	1.3 Proposed Project Description .....	1
	1.4 Executive Summary.....	2
	1.5 Mitigation Measures for the Proposed Project .....	3
<b>2.0</b>	<b>Noise Fundamentals .....</b>	<b>6</b>
	2.1 Noise Descriptors .....	6
	2.2 Tone Noise .....	6
	2.3 Noise Propagation.....	6
	2.4 Ground Absorption .....	7
<b>3.0</b>	<b>Ground-Borne Vibration Fundamentals .....</b>	<b>8</b>
	3.1 Vibration Descriptors .....	8
	3.2 Vibration Perception .....	8
	3.3 Vibration Propagation.....	8
<b>4.0</b>	<b>Regulatory Setting .....</b>	<b>9</b>
	4.1 Federal Regulations .....	9
	4.2 State Regulations .....	10
	4.3 Local Regulations .....	11
<b>5.0</b>	<b>Existing Noise Conditions.....</b>	<b>15</b>
	5.1 Noise Measurement Equipment.....	15
	5.2 Noise Measurement Results .....	15
<b>6.0</b>	<b>Modeling Parameters and Assumptions.....</b>	<b>19</b>
	6.1 Construction Noise.....	19
	6.2 Operations-Related Noise.....	20
	6.3 Vibration .....	22
<b>7.0</b>	<b>Impact Analysis .....</b>	<b>25</b>
	7.1 CEQA Thresholds of Significance.....	25
	7.2 Generation of Noise Levels in Excess of Standards .....	25
	7.3 Generation of Excessive Groundborne Vibration .....	29
	7.4 Aircraft Noise .....	30
<b>8.0</b>	<b>References.....</b>	<b>31</b>

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## TABLE OF CONTENTS CONTINUED

### APPENDIX

Appendix A – Field Noise Measurements Photo Index

Appendix B – Field Noise Measurements Printouts

Appendix C – RCNM Model Construction Noise Calculations

Appendix D – FHWA Model Traffic Noise Calculations Printouts

Appendix E – Onsite Operations Reference Noise Measurements and Wall Calculations

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## LIST OF FIGURES

Figure 1 – Project Location Map .....	4
Figure 2 – Proposed Site Plan .....	5
Figure 3 – Field Noise Monitoring Locations .....	17
Figure 4 – Field Noise Measurements Graph.....	18
Figure 5 – Locations of Nearby Sensitive Receptors Analyzed .....	24

## LIST OF TABLES

Table A – Proposed Project Development Parameters .....	2
Table B – FTA Project Effects on Cumulative Noise Exposure .....	9
Table C – City of Moreno Valley Maximum Continuous Sound Levels .....	13
Table D – City of Moreno Valley Maximum Impulsive Sound Levels.....	13
Table E – City of Moreno Valley Maximum Sound Levels for Source Land Uses.....	14
Table F – Existing (Ambient) Noise Level Measurements.....	16
Table G – Construction Equipment Noise Emissions and Usage Factors.....	19
Table H – FHWA Model Roadway Parameters.....	20
Table I – Average Daily Traffic Volumes.....	21
Table J – Roadway Vehicle Mix .....	21
Table K – Vibration Source Levels for Construction Equipment .....	22
Table L – Worst-Case Construction Noise Levels at the Nearby Sensitive Receptors .....	26
Table M – Existing Conditions Project Traffic Noise Contributions .....	27
Table N – Project Completion Year 2023 Conditions Project Traffic Noise Contributions .....	27
Table O – Operational Noise Levels at the Nearby Homes.....	28

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## ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
City	City of Moreno Valley
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
I-215	Interstate 215
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
VdB	Vibration velocity level in decibels

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## 1.0 INTRODUCTION

### ***1.1 Purpose of Analysis and Study Objectives***

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Alessandro & Old 215 Industrial Park 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 impacts from the proposed project; and
- An analysis of long-term operations-related noise impacts from the proposed project.

### ***1.2 Site Location and Study Area***

The project site is located in the western portion of the City of Moreno Valley (City). The approximately 11.46 gross acre project site comprises ten parcels. Most of the project site is vacant, other than the American Legion building at 13876 Old 215 Frontage Road, P & B Tire shop at 13906 Old 215 Frontage Road, and one single-family residence. The project site is bounded by commercial uses, single-family homes and Bay Avenue to the north, single-family and multi-family homes and vacant land to the east, vacant land and Linda Court to the south, and Old 215 Frontage Road and vacant land to the west. Interstate 215 is located as near as 1,200 feet west of the project site and the runway for March Air Reserve Base is located as near as 1.5 mile southeast of the project site. The project study area is shown in Figure 1.

### ***Sensitive Receptors in Project Vicinity***

The nearest existing sensitive receptors to the project site are the homes located as near as five feet from the north side of the project site. The nearest school to the project site is Edgemont Elementary School that is located as near as 0.75 mile north of the project site.

### ***1.3 Proposed Project Description***

The proposed project would consist of demolition of the tire shop and single-family residence and development of a business park with six buildings that total 196,909 square feet of building space, with 236 parking spaces, and a trailer parking yard. The American Legion building would remain on the project site and their parking lot would be repaved as part of the project. A summary of the proposed project development parameters is shown in Table A and the proposed site plan is shown in Figure 2.

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**Table A – Proposed Project Development Parameters**

<b>Building</b>	<b>Building Area (Square Feet)</b>	<b>Parking Spaces Required</b>	<b>Dock Doors</b>
Building A	49,933	48	6
Building B	26,368	32	3
Building C	29,750	34	3
Building D	44,002	47	5
Building E	23,567	32	3
Building F	23,289	31	3
<b>Total</b>	<b>196,909</b>	<b>236 (Provided)</b>	<b>23</b>

Source: Carlile Coatsworth Architects, Inc., August 3, 2021.

## **1.4 Executive Summary**

### **Standard Noise Regulatory Conditions**

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

#### City of Moreno Valley 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 9.10.030 Temporary Construction Exemptions;
- Section 9.10.170 Vibration;
- Section 11.80.030(B)(2) Sound Level Limits.

#### 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

### **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.

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Generation of excessive groundborne vibration or groundborne noise levels?

Less than significant impact.

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.

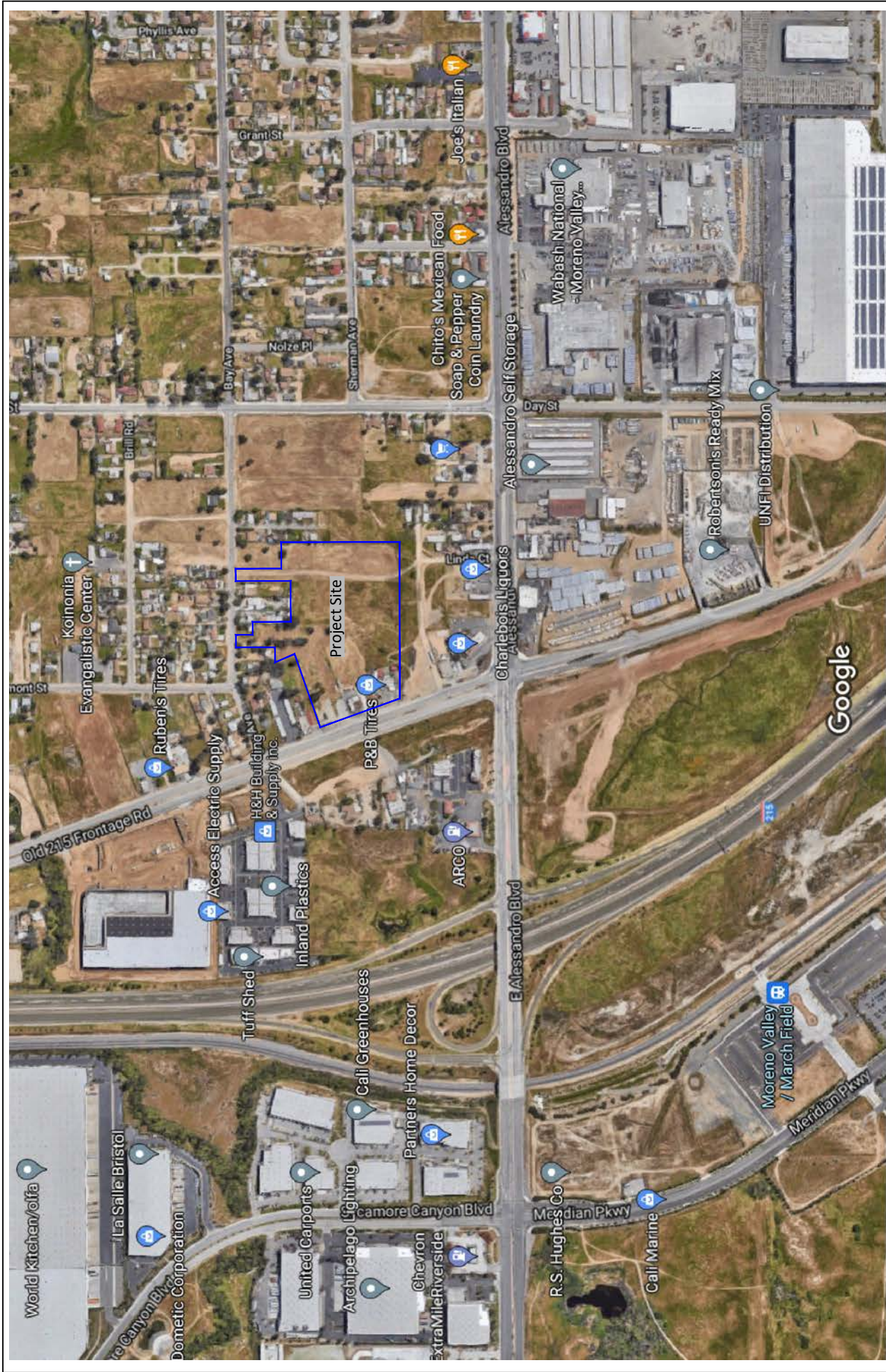
### ***1.5 Mitigation Measures for the Proposed Project***

This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above and through implementation of the following mitigation 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 20 feet of any off-site residential structure. 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 20 feet of any off-site residential structure.





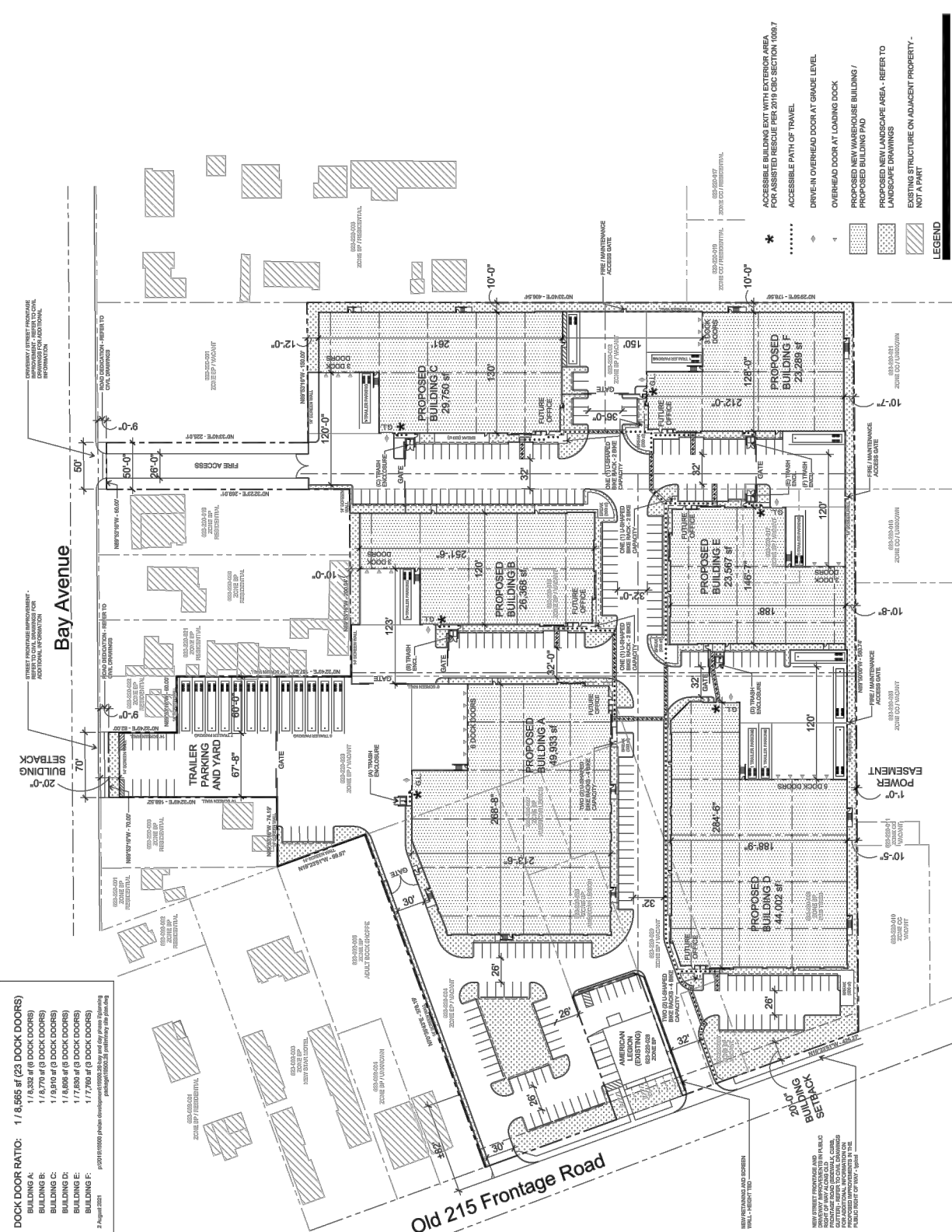
Imagery ©2021 Google, Imagery ©2021 County of San Bernardino, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2021 500 ft

SOURCE: Google Maps.



Figure 1  
Project Location Map

PRELIMINARY SITE PLAN



**DOCK DOOR RATIO: 1 / 8,655 sq ft (23 DOCK DOORS)**

BUILDING A:	1 / 8,332 sq ft (8 DOCK DOORS)
BUILDING B:	1 / 8,770 sq ft (8 DOCK DOORS)
BUILDING C:	1 / 8,910 sq ft (8 DOCK DOORS)
BUILDING D:	1 / 8,696 sq ft (8 DOCK DOORS)
BUILDING E:	1 / 7,760 sq ft (8 DOCK DOORS)
BUILDING F:	1 / 7,760 sq ft (8 DOCK DOORS)

2 August 2023  
p1001161009 Project Information  
p1001161020Zoning Information  
p1001161021Zoning Information  
p1001161022Zoning Information

APNs:	263-220-008, 263-220-027, 263-220-029, 263-220-028, 263-220-009, 263-220-017, 263-220-018, 263-220-004, 263-220-023, 263-220-002
EXISTING USE:	VACANT / COMMERCIAL INDUSTRIAL PARK
PROPOSED USE:	BP
ZONING:	
GROSS LOT AREA:	489,225 sq ft ±
NET LOT AREA:	11.48 acres
TOTAL BUILDING AREA:	196,909 sq ft
BUILDING A:	49,593 sq ft
WAREHOUSE:	46,833 sq ft
16 FLOOR OFFICE:	2,000 sq ft
OFFICE MEZZANINE:	2,000 sq ft
BUILDING B:	25,368 sq ft
WAREHOUSE:	23,889 sq ft
OFFICE:	2,000 sq ft
BUILDING C:	25,750 sq ft
WAREHOUSE:	23,289 sq ft
OFFICE:	2,000 sq ft
BUILDING D:	44,002 sq ft
WAREHOUSE:	40,002 sq ft
16 FLOOR OFFICE:	2,000 sq ft
OFFICE MEZZANINE:	2,000 sq ft
BUILDING E:	23,567 sq ft
WAREHOUSE:	21,667 sq ft
OFFICE:	2,000 sq ft
BUILDING F:	23,289 sq ft
WAREHOUSE:	20,789 sq ft
OFFICE:	2,000 sq ft
SITE COVERAGE (on net):	40.3 %
PARKING REQUIRED:	224 spaces
OFFICES:	1200 sq ft of gross floor area
WAREHOUSE:	11% of 141,206 sq ft; 16% of 2nd 20% of 14% of over 40% of 48 spaces
BUILDING A:	32 spaces
OFFICE:	18 spaces
BIKE:	3 spaces
BUILDING B:	32 spaces
OFFICE:	22 spaces
BIKE:	2 spaces
BUILDING C:	34 spaces
OFFICE:	24 spaces
BIKE:	2 spaces
BUILDING D:	47 spaces
OFFICE:	18 spaces
BIKE:	3 spaces
BUILDING E:	32 spaces
OFFICE:	22 spaces
BIKE:	2 spaces
BUILDING F:	31 spaces
OFFICE:	21 spaces
BIKE:	2 spaces
PARKING PROVIDED:	208 spaces
9 SPACES TO BE ACCESSIBLE	294 spaces
14 SPACES	42 spaces
TRAILER PARKING REQUIRED:	23 spaces
(1 SPACE PER DOCK DOOR)	
TRAILER PARKING PROVIDED:	23 spaces
LANDSCAPE PROVIDED:	10.3% of Net Lot Area, 50,402 sq ft

SOURCE: Carlie Coatsworth Architects, Inc.



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## 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. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 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 Moreno Valley relies on the CNEL dB(A) 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

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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.

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## 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 “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.

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## 4.0 REGULATORY SETTING

The project site is located in the City of Moreno Valley. 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), which regulates transit noise, 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.

Although the proposed project is not under the jurisdiction of the FTA, the *Transit Noise and Vibration Assessment Manual* (FTA Manual), prepared by the FTA, September 2018, is the only guidance document from a government agency that defines what constitutes a significant noise impact from implementing a project. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings are provided in Table B.

**Table B – FTA Project Effects on Cumulative Noise Exposure**

Existing Noise Exposure (dBA Leq or Ldn)	Allowable Noise Impact Exposure dBA Leq or Ldn		
	Project Only	Combined	Noise Exposure Increase
45	51	52	+7
50	53	55	+5
55	55	58	+3
60	57	62	+2
65	60	66	+1
70	64	71	+1
75	65	75	0

Source: Federal Transit Administration, 2018.

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As shown in Table B, the allowable cumulative noise level increase created from a project would range from 0 to 7 dBA, which is based on the existing (ambient) noise levels in the project vicinity. The justification for the sliding scale, is that people already exposed to high levels of noise should be expected to tolerate only a small increase in the amount of noise in their community. In contrast, if the existing noise levels are quite low, it is reasonable to allow a greater change in the community noise for the equivalent difference in annoyance.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the 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 regularity 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.

#### California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

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## California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

### **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.

The *Transportation and Construction Vibration Guidance Manual*, prepared by Caltrans, April 2020, 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 Moreno Valley General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

#### **City of Moreno Valley General Plan**

The following applicable goals and policies to the proposed project are from the Noise Element of the General Plan.

##### *Objective 6.3*

Provide noise compatible land use relationships by establishing noise standards utilized for design and siting purposes.

##### *Policies*

**6.3.1** The following uses shall require mitigation to reduce noise exposure where current or future exterior noise levels exceed 20 CNEL above the desired interior noise level:

**a.** Single and multiple family residential buildings shall achieve an interior noise level of 45 CNEL or less. Such buildings shall include sound-insulating windows, walls, roofs and ventilation systems. Sound barriers shall also be installed (e.g. masonry walls or walls with berms) between single-family residences and major roadways.

**6.3.2** Discourage residential uses where current or projected exterior noise due to aircraft over flights will exceed 65 CNEL.



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**6.3.5** Enforce the California Administrative Code, Title 24 noise insulation standards for new multi-family housing developments, motels and hotels.

**6.3.6** Building shall be limited in areas of sensitive receptors.

*Objective 6.4*

Review noise issues during the planning process and require noise attenuation measures to minimize acoustic impacts to existing and future surrounding land uses.

*Policies*

**6.4.1** Site, landscape and architectural design features shall be encouraged to mitigate noise impacts for new developments, with a preference for noise barriers that avoid freeway sound barrier walls.

*Objective 6.5*

Minimize noise impacts from significant noise generators such as, but not limited to, motor vehicles, trains, aircraft, commercial, industrial, construction, and other activities.

*Policies*

**6.5.2** Construction activities shall be operated in a manner that limits noise impacts on surrounding uses.

**City of Moreno Valley Municipal Code**

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

Section 9.10.010 Performance Standards - Purpose and Intent

The purpose and intent of this chapter is to explicitly describe the location, configuration, design, amenities, operation and other standards for proposed development projects that may impact the surrounding neighborhood. The performance standards set maximum tolerance limits on certain adverse effects created by any use or development of land.

Section 9.10.030 Performance Standards - Exemptions

The following uses or activities are exempt from the provisions of this chapter:

- A. Emergency equipment, vehicles, devices and activities.
- B. Temporary construction, maintenance, or demolition activities between the hours of seven a.m. and seven p.m.

Section 9.10.170 Performance Standards - Vibration

No vibration shall be permitted which can be felt at or beyond the property line.

Section 11.80.030 Prohibited Acts

A. General Prohibition. It is unlawful and a violation of this chapter to maintain, make, cause, or allow the making of any sound that causes a noise disturbance, as defined in Section 11.80.020.

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B. Sound causing permanent hearing loss.

1. Sound level limits. Based on statistics from the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health, Table 1 and Table 1-A specify sound level limits which, if exceeded, will have a high probability of producing permanent hearing loss in anyone in the area where the sound levels are being exceeded. No sound shall be permitted within the city which exceeds the parameters set for in Tables 11.80.030-1 [see Table C] and 11.80.030-1-A [see Table D] of this chapter:

**Table C – City of Moreno Valley Maximum Continuous Sound Levels**

<b>Duration per Day (Continuous Hours)</b>	<b>Sound Level [dB(A)]</b>
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
.5	110
.25	115

Source: City of Moreno Valley Municipal Code Section 11.80.030.

**Table D – City of Moreno Valley Maximum Impulsive Sound Levels**

<b>Number of Repetitions per 24-Hour Period</b>	<b>Sound Level [dB(A)]</b>
1	145
10	135
100	125

Source: City of Moreno Valley Municipal Code Section 11.80.030.

C. Nonimpulsive Sound Decibel Limits. No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimpulsive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table 11.80.030-2 [see Table E] when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property. Any source of sound in violation of this subsection shall be deemed prima facie to be a noise disturbance.

**Table E – City of Moreno Valley Maximum Sound Levels for Source Land Uses**

<b>Residential</b>		<b>Commercial</b>	
<b>Daytime<sup>1</sup></b>	<b>Nighttime<sup>2</sup></b>	<b>Daytime<sup>1</sup></b>	<b>Nighttime<sup>2</sup></b>
60	55	65	60

Notes:

<sup>1</sup> Daytime defined as 8:00 a.m. to 10:00 p.m.

<sup>2</sup> Nighttime define as 10:01 p.m. to 7:59 a.m. the following day.

Source: City of Moreno Valley Municipal Code Section 11.80.030.

D. Specific Prohibitions. In addition to the general prohibitions set out in subsection A of this section, and unless otherwise exempted by this chapter, the following specific acts, or the causing or permitting thereof, are regulated as follows:

7. Construction and Demolition. No person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of 8 p.m. and 7 a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee. This section shall not apply to the use of power tools as provided in subsection (D)(9) of this section.

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## 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 Old 215 Frontage Road and Bay Avenue as well as from aircraft noise from March Air Reserve Base where the runway is located as near as 1.5 mile south 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 three 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 or power poles in the vicinity of the project site, 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 noise levels on the project site and at the nearby sensitive receptors. Descriptions of the noise monitoring sites are provided below in Table F 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 9:47 a.m. on Friday, May 14, 2021 and 10:02 a.m. on Saturday, May 15, 2021. At the start of the noise measurements, the sky was cloudy, the temperature was 58 degrees Fahrenheit, the humidity was 64 percent, barometric pressure was 28.35 inches of mercury, and there was no wind. Overnight, the temperature dropped to 54 degrees Fahrenheit and the humidity peaked at 92 percent. At the conclusion of the noise measurements, the sky was cloudy, the temperature was 59 degrees Fahrenheit, the humidity was 52 percent, barometric pressure was 28.28 inches of mercury, and the wind was blowing around one mile per hour.

### 5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table F. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum  $L_{eq}$  averaged over 1-hour intervals. Table F 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 F – Existing (Ambient) Noise Level Measurements**

Site No.	Site Description	Average (dBA L <sub>eq</sub> )		1-hr Average (dBA L <sub>eq</sub> /Time)		Weighted-Average <sup>3</sup> (dBA CNEL)
		Daytime <sup>1</sup>	Nighttime <sup>2</sup>	Minimum	Maximum	
A	Located on the north side of the project site, on the shared fence with the home at 21773 Bay Avenue, approximately 30 feet south of Bay Avenue centerline.	61.4	53.5	47.6 2:34 a.m.	64.5 6:33 p.m.	63.0
B	Located on the western portion of project site on the north side fence for American Legion, approximately 330 feet east of the centerline for Old 215 Frontage Road.	58.6	50.7	44.6 4:30 a.m.	61.8 12:03 p.m.	60.1
C	Located near the southeast corner of the project site on a power pole, approximately 85 feet north of the centerline for Linda Court.	56.9	48.2	43.2 2:30 a.m.	61.7 12:01 p.m.	57.7

Notes:

<sup>1</sup> Daytime defined as 8:00 a.m. to 10:00 p.m. (Section 11.80.020 of the Municipal Code)

<sup>2</sup> Nighttime define as 10:01 p.m. to 7:59 a.m. (Section 11.80.020 of the Municipal Code)

<sup>3</sup> The weighted-average noise level (dBA CNEL) includes an additional 4.77 dBA noise penalty to account for the evening noise sensitive hours of 7 p.m. to 10 p.m. and an additional 10 dBA penalty to account for the nighttime noise sensitive hours of 10 p.m. to 7 a.m..

Source: Noise measurements taken between Friday, May 14, 2031 and Saturday, May 15, 2021.

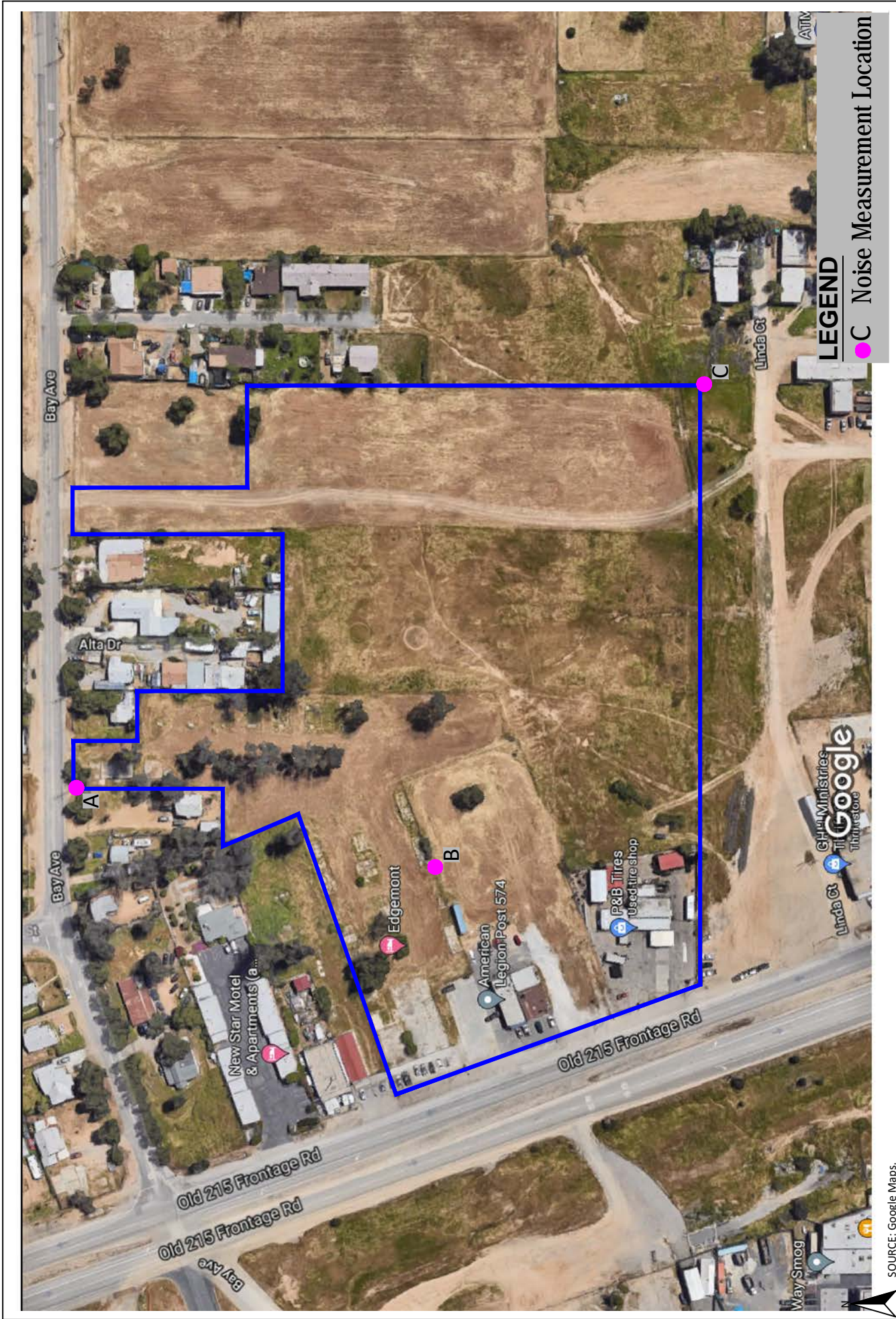
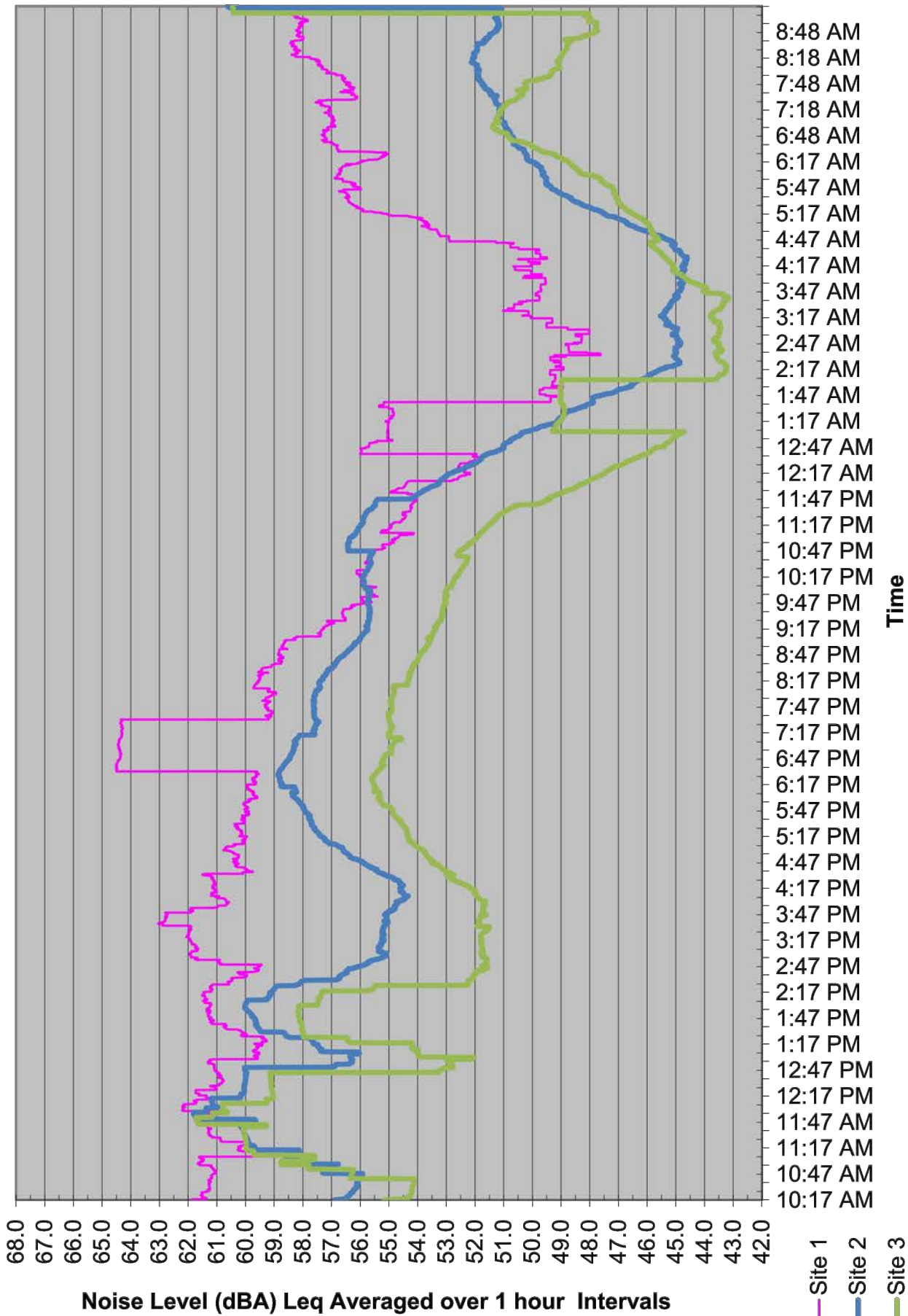


Figure 3  
Field Noise Monitoring Locations



SOURCE: Larson Davis Model LX11, 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 G below provides a list of the construction equipment anticipated to be used for each phase of construction that was obtained from the *Air Quality, Energy, and Greenhouse Gas Impact Analysis for the Alessandro & Old 215 Project* (Air Quality Analysis), prepared by EPD Solutions, Inc., August, 2021.

**Table G – Construction Equipment Noise Emissions and Usage Factors**

Equipment Description	Number of Equipment	Acoustical Use Factor <sup>1</sup> (percent)	Spec 721.560 Lmax at 50 feet <sup>2</sup> (dBA, slow <sup>3</sup> )	Actual Measured Lmax at 50 feet <sup>4</sup> (dBA, slow <sup>3</sup> )
<b>Demolition</b>				
Concrete/Industrial Saws	1	40	85	82
Excavators	3	40	85	81
Rubber Tired Dozers	2	40	85	82
<b>Site Preparation</b>				
Rubber Tired Dozer	3	40	85	83
Crawler Tractor	4	40	84	N/A
<b>Grading</b>				
Excavators	2	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Crawler Tractor	2	40	84	N/A
<b>Building Construction</b>				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	50	82	81
Tractor, Loader or Backhoe	3	40	84	N/A
Welder	1	40	73	74
<b>Paving</b>				
Paver	2	50	85	77
Paving Equipment	2	50	85	77
Rollers	2	20	85	80
<b>Architectural Coating</b>				
Air Compressor	1	40	80	78

Notes:

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

<sup>2</sup> Spec 721.560 is the equipment noise level utilized by the RCNM program.

<sup>3</sup> The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.

<sup>4</sup> 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 G 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 nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed Table G and through use of the RCNM. The construction equipment noise levels were analyzed at representative nearby homes that are shown in Figure 5.

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 FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two noisiest pieces of equipment as detailed in the FTA Manual. In order to account for Section 11.80.030(C) of the Municipal Code, each receiver was placed 200 feet back from the representative analyzed homes property lines.

## 6.2 Operations-Related Noise

### FHWA Model Methodology

The proposed project would result in increases in traffic noise to the nearby roadways as well as introduce new sensitive receptors to the project site. The project impacts to the offsite roadways were analyzed through use of the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108 (FHWA Model). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the reference energy mean emission level to account for: the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT) and the percentage of ADT which flows during the day, evening and night, the travel speed, the vehicle mix on the roadway, which is a percentage of the volume of automobiles, medium trucks and heavy trucks, the roadway grade, the angle of view of the observer exposed to the roadway and site conditions ("hard" or "soft" relates to the absorption of the ground, pavement or landscaping). The following section provides a discussion of the software and modeling input parameters used in this analysis and a discussion of the resultant existing noise model.

### FHWA Model Traffic Noise Prediction Model Inputs

The roadway parameters used for this study are presented in Table H. The roadway classifications are based on the City's General Plan Circulation Element. The roadway speeds are based on the posted speed limits. The distance to the nearest sensitive receptor was determined by measuring the distance from the roadway centerline to the nearest residence. Since the study area is located in a suburban environment and landscaping or natural vegetation exists along the sides of all analyzed roadways, soft site conditions were modeled.

**Table H – FHWA Model Roadway Parameters**

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor <sup>1</sup> (feet)
Old 215 Frontage Road	North of Cottonwood Avenue	Divided Arterial - 4 Lane	50	90
Old 215 Frontage Road	North of Bay Avenue	Divided Arterial - 4 Lane	50	95
Old 215 Frontage Road	South of Bay Avenue	Divided Arterial - 4 Lane	50	160

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor <sup>1</sup> (feet)
Cottonwood Avenue	East of Old 215 Frontage Road	Minor Arterial	40	50
Bay Avenue	East of Old 215 Frontage Road	Local	30	45
Alessandro Boulevard	East of Old 215 Frontage Road	Divided Major Arterial	45	105

Notes:

<sup>1</sup> Distance measured from nearest residential structure to centerline of roadway.

Source: Translutions, Inc., 2021; and City of Moreno Valley, 2006.

The average daily traffic (ADT) volumes were obtained from the *Old 215 Frontage Road Business Park Traffic Impact Analysis* (Traffic Impact Analysis), prepared by Translutions, Inc., August, 2021. The ADT volumes were calculated by multiplying the PM peak hour volumes by 12. The ADT volumes used in this analysis are shown in Table I and include without and with project conditions for both existing year and project completion year 2023.

**Table I – Average Daily Traffic Volumes**

Roadway	Segment	Average Daily Traffic Volumes			
		Existing	Existing + Project	Year 2023	Year 2023 +Project
Old 215 Frontage Road	North of Cottonwood Avenue	10,970	11,670	12,260	12,960
Old 215 Frontage Road	North of Bay Avenue	10,740	11,530	11,760	12,550
Old 215 Frontage Road	South of Bay Avenue	10,700	11,750	11,770	12,820
Cottonwood Avenue	East of Old 215 Frontage Road	2,080	2,170	2,150	2,240
Bay Avenue	East of Old 215 Frontage Road	1,440	1,500	1,500	1,560
Alessandro Boulevard	East of Old 215 Frontage Road	24,680	24,790	27,190	27,300

Source: Translutions, Inc., 2021.

The vehicle mix used in the FHWA-RD-77-108 Model is shown in Table J and is based on the typical vehicle mixes observed for collector and arterial roadways in Riverside County. The vehicle mix provides the hourly distribution percentages of automobiles, medium trucks, and heavy trucks for input into the FHWA model.

**Table J – Roadway Vehicle Mix**

Vehicle Type	Traffic Flow Distributions			Overall
	Day (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	
<b>Local and Minor Arterial Vehicle Mix</b>				
Automobiles	73.6%	13.6%	10.2%	97.42%
Medium Trucks	0.9%	0.9%	0.0%	1.84%
Heavy Trucks	0.4%	0.0%	0.4%	0.74%

Vehicle Type	Traffic Flow Distributions			Overall
	Day (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	
<b>Arterial Vehicle Mix</b>				
Automobiles	69.5%	12.9%	9.6%	92.0%
Medium Trucks	1.4%	0.1%	1.5%	3.0%
Heavy Trucks	2.4%	0.1%	2.5%	5.0%

Source: Riverside County General Plan, 2008.

### FHWA Model Source Assumptions

To assess the roadway noise generation in a uniform manner, all vehicles are analyzed at the single lane equivalent acoustic center of the roadway being analyzed. In order to determine the height above the road grade where the noise is being emitted from, each type of vehicle has been analyzed independently with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

### **6.3 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 construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to damage at the highest levels. Table K gives approximate vibration levels for particular construction activities. The data in Table K provides a reasonable estimate for a wide range of soil conditions.

**Table K – Vibration Source Levels for Construction Equipment**

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L <sub>v</sub> ) at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
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, May 2018.

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

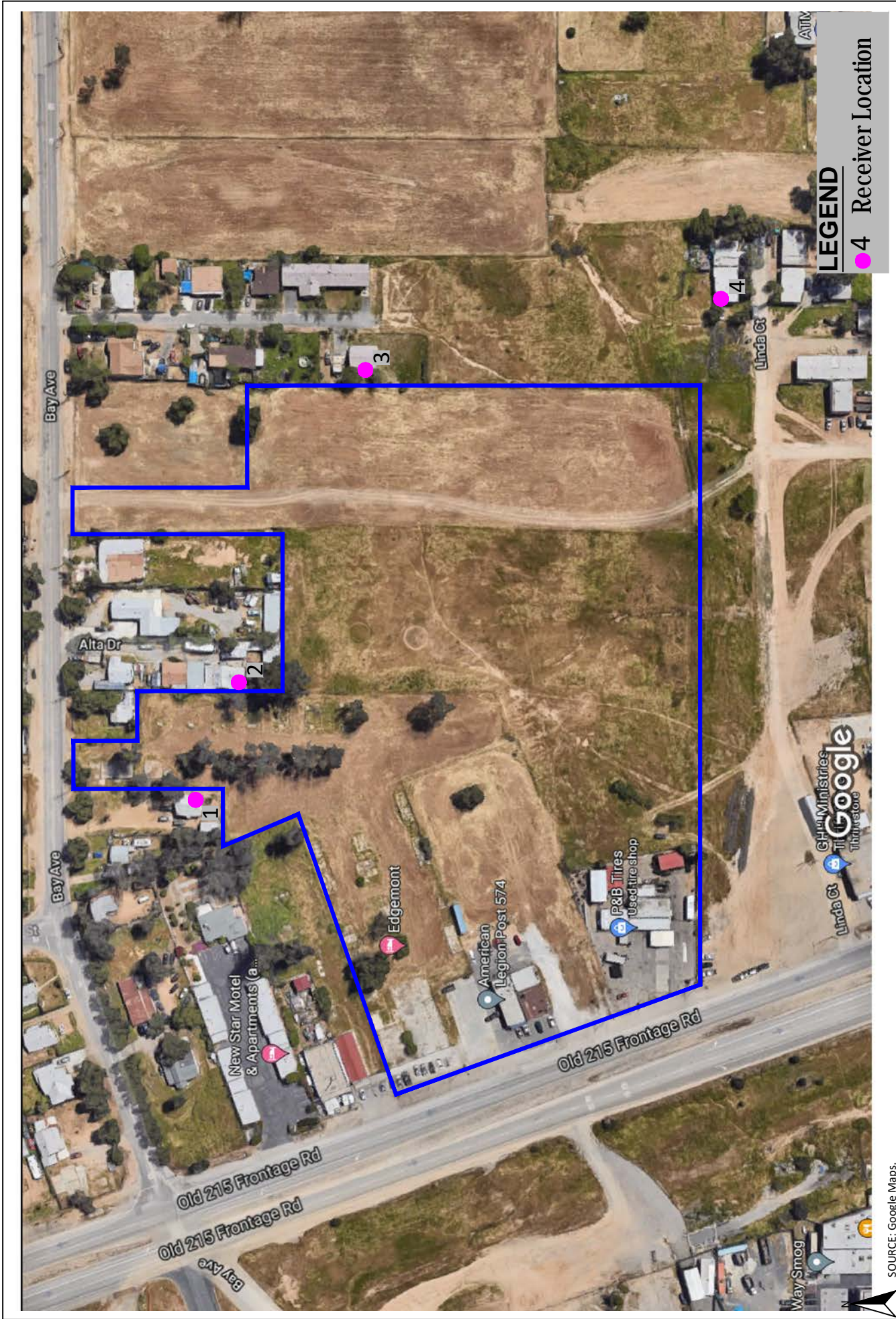


Figure 5  
Locations of Nearby Sensitive Receptors Analyzed

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## 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 tire shop and single-family residence, site preparation and grading of the 11.46 gross acre project site, building construction of the business park, paving of the onsite roads, truck loading and trailer storage areas 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 receptors to the project site are the homes located as near as five feet from the north side of the project site.

Section 11.80.030(C) of the City's Municipal Code limits all noise sources, including construction noise to 60 dBA at the nearby residential uses. Section 11.80.030(D)(7) of the City's Municipal Code provides additional prohibitions on construction activities by restricting construction activities from occurring between the hours of 8:00 p.m. and 7:00 a.m..

Construction noise impacts to the representative nearby sensitive receptors shown above in Figure 5 have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table G – Construction Equipment Noise Emissions and Usage Factors. The results are shown below in Table L and the RCNM printouts are provided in Appendix C.

**Table L – Worst-Case Construction Noise Levels at the Nearby Sensitive Receptors**

Construction Phase	Construction Noise Level <sup>1</sup> (dBA Leq) at:			
	1 – Northwest	2 – North	3 – East	4 – Southeast
Demolition	58	59	57	55
Site Preparation	59	60	58	56
Grading	58	59	57	56
Building Construction	58	60	57	56
Paving	53	54	52	50
Painting	45	46	44	42
<b>City’s Noise Threshold<sup>2</sup></b>	<b>60</b>	<b>60</b>	<b>60</b>	<b>60</b>
Exceed Thresholds?	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Notes:

<sup>1</sup> The construction noise levels were calculated at a minimum of 200 feet from the project’s property line pursuant to Section 11.80.030(C) of the Municipal Code. In order to account for the homes, outbuildings and fences that are located within 200 feet of the analyzed property lines, 10 dB of shielding was added to the RCNM Model. The locations of Receptors 1 – 4 are shown above in Figure 5

<sup>2</sup> City Noise Threshold obtained from Section 11.80.030(C) of the Municipal Code.

Source: RCNM, Federal Highway Administration, 2006

Table L shows that the greatest noise impacts would occur during the site preparation and building construction phases, with a noise level as high as 60 dBA Leq at 200 feet from the property line at Receiver 2, which is located on the north side of the project site. All calculated construction noise levels are within the City’s residential noise threshold of 60 dBA. Through adherence to the limitation of allowable construction times provided in Section 9.10.030(B) of the City’s Municipal Code, the construction-related noise levels would not exceed any standards. Therefore, impacts would be less than significant.

### Operational-Related Noise

The proposed project would consist of the development of a business park with six buildings that total 196,909 square feet of building space, with 236 parking spaces, and a trailer parking yard. 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 project does not propose any uses that would require a substantial number of truck trips and 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.

Objective 6.5 of the City’s General Plan Noise Element, requires the City to minimize noise impacts from significant noise generators including roadway noise impacts. However neither the General Plan nor the CEQA Guidelines define what constitutes a “substantial permanent increase to ambient noise levels”, as such, this impact analysis has utilized guidance from the Federal Transit Administration for a moderate impact that has been detailed above in Table A that shows that the project contribution to the noise environment can range between 0 and 7 dB, which is dependent on the existing noise levels.

The potential offsite traffic noise impacts created by the on-going operations of the proposed project have been analyzed through utilization of the FHWA model and parameters described above in Section 6.2 and the FHWA model traffic noise calculation spreadsheets are provided in Appendix D. The proposed project's potential offsite traffic noise impacts have been analyzed for both existing year and project completion year 2023 conditions that are discussed separately below.

#### *Existing Year Conditions*

The proposed project's offsite traffic noise impacts have been calculated through a comparison of the existing year scenario to the existing year with project scenario. The results of this comparison are shown in Table M.

**Table M – Existing Conditions Project Traffic Noise Contributions**

Roadway	Segment	dBA CNEL at Nearest Receptor <sup>1</sup>			Increase Threshold <sup>2</sup>
		Existing	Existing Plus Project	Project Contribution	
Old 215 Frontage Road	North of Cottonwood Avenue	64.2	64.5	0.3	+2 dBA
Old 215 Frontage Road	North of Bay Avenue	63.7	64.0	0.3	+2 dBA
Old 215 Frontage Road	South of Bay Avenue	59.9	60.3	0.4	+2 dBA
Cottonwood Avenue	East of Old 215 Frontage Road	57.9	58.1	0.2	+3 dBA
Bay Avenue	East of Old 215 Frontage Road	53.0	53.2	0.2	+5 dBA
Alessandro Boulevard	East of Old 215 Frontage Road	65.5	65.6	0.1	+1 dBA

Notes:

<sup>1</sup> Distance to nearest residential use shown in Table H, does not take into account existing noise barriers.

<sup>2</sup> Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table B..

Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table M shows that the proposed project's permanent noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the traffic noise increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the existing conditions. Impacts would be less than significant.

#### *Project Completion Year 2023 Conditions*

The proposed project's offsite traffic noise impacts have been calculated through a comparison of the project completion year 2023 scenario to the project completion year 2023 with project scenario. The results of this comparison are shown in Table N.

**Table N – Project Completion Year 2023 Conditions Project Traffic Noise Contributions**

Roadway	Segment	dBA CNEL at Nearest Receptor <sup>1</sup>			Increase Threshold <sup>2</sup>
		Year 2023	Year 2023 Plus Project	Project Contribution	
Old 215 Frontage Road	North of Cottonwood Avenue	64.7	64.9	0.2	+1 dBA
Old 215 Frontage Road	North of Bay Avenue	64.1	64.4	0.3	+2 dBA
Old 215 Frontage Road	South of Bay Avenue	60.3	60.7	0.4	+2 dBA
Cottonwood Avenue	East of Old 215 Frontage Road	58.0	58.2	0.2	+3 dBA
Bay Avenue	East of Old 215 Frontage Road	53.2	53.4	0.2	+5 dBA
Alessandro Boulevard	East of Old 215 Frontage Road	66.0	66.0	0.0	+1 dBA

Notes:

<sup>1</sup> Distance to nearest residential use shown in Table H, does not take into account existing noise barriers.



<sup>2</sup> Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table B..  
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table N shows that the proposed project's permanent noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the traffic noise increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the project completion year 2023 conditions. Impacts would be less than significant.

### Onsite Noise Sources

The operation of the proposed project may create an increase in onsite noise levels from truck operations, including truck loading/unloading activities, rooftop mechanical equipment, forklift activities, and automobile parking lot activities. Section 11.80.030(C) of the City's Municipal Code limits noise levels at the nearby residential properties to 60 dBA between 8:00 a.m. and 10:00 p.m. and 55 dBA between 10:01 p.m. and 7:59 a.m. the following day.

In order to determine the noise impacts from the operation of rooftop mechanical equipment, automobile parking lots, forklifts, and truck loading/unloading activities, reference noise measurements were taken of each noise source and the reference noise measurements output files are provided in Appendix E. In order to account for the noise reduction provided by the proposed 14-foot high sound wall on the north, east, and south property lines, the wall attenuation equations from the *Technical Noise Supplement to the Traffic Noise Analysis Protocol (TeNS)*, prepared by Caltrans, September 2013, were utilized and the noise calculation spreadsheet along with the reference noise measurements are provided in Appendix E. Representative receivers to the north and west of the project site were analyzed and the results are shown in Table O and the locations of the representative receivers are shown above in Figure 5.

**Table O – Operational Noise Levels at the Nearby Homes**

Noise Source	Operational Noise Level <sup>1</sup> (dBA Leq)			
	1 – Northwest	2 – North	3 – East	4 – Southeast
Rooftop Equipment <sup>2</sup>	26	30	39	27
Auto Parking Lot <sup>3</sup>	28	18	18	17
Onsite Truck Operations <sup>4</sup>	40	44	23	28
Forklift <sup>5</sup>	51	39	34	34
<b>Combined Noise Level</b>	<b>52</b>	<b>45</b>	<b>41</b>	<b>36</b>
<b>City Noise Standards<sup>6</sup> (day/night)</b>	<b>60/55</b>	<b>60/55</b>	<b>60/55</b>	<b>60/55</b>
<b>Exceed City Noise Standards?</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>	<b>No/No</b>

Notes:

<sup>1</sup> The calculated noise levels account for the noise reduction provided by the proposed 12 foot high wall on the north, east and south sides of the project site. The locations of Receptors 1 – 4 are shown above in Figure 5.

<sup>2</sup> Rooftop equipment is based on a reference noise measurement of 65.1 dBA at 6 feet.

<sup>3</sup> Parking lot is based on a reference noise measurement of 63.1 dBA at 5 feet.

<sup>4</sup> Onsite truck operations is based on a reference noise measurement of 63.3 dBA at 10 feet.

<sup>5</sup> Forklift activities is based on a reference noise measurement of 74.4 dBA at 10 feet.

<sup>6</sup> The City noise standards are from Table 11.80.030-2 of the Municipal Code

Source: Noise calculation methodology from Caltrans, 2013 (see Appendix E).

Table O 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 52 dBA at Receptor 1, which is located northwest of the project site. The worst-case operational noise level of 52 dBA would be within the City's

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residential noise standards of 60 dBA between 8:00 a.m. and 10:00 p.m. and 55 dBA between 10:01 p.m. and 7:59 a.m. the following day. Therefore, the onsite operational 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 tire shop, site preparation and grading of the 11.46 gross acre project site, building construction of the business park, paving of the onsite roads, truck loading and trailer storage areas 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 vibration sensitive receptors to the project site are the homes located as near as five feet from the north side of the project site.

Chapter 9.10 of the Municipal Code includes performance standards for proposed development projects that may impact the surrounding neighborhood and Section 9.10.030(B), which is part of this Chapter, exempts temporary construction activities from Section 9.10.170 that restricts the creation of vibration that can be felt at the property line, provided that construction activities occur between the hours of 7 a.m. and 7 p.m.. Since the City's Municipal does not provide a quantifiable vibration level for construction activities, Caltrans guidance that is detailed above in Section 4.2 has been utilized, which defines the threshold of perception from transient sources at 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table K above a large bulldozer would create a vibration level of 0.089 inch-per-second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest offsite residential structure (5 feet away) would be 0.52 inch per second PPV. The vibration level at the nearest offsite home would exceed the 0.25 inch per second PPV threshold detailed above. This would be considered a significant impact.

Mitigation Measure 1 is provided that would require that the applicant to restrict the use of a large dozer within 100 feet of any offsite home. For all grading activities that occur within 20 feet of any offsite home, the applicant shall require the use of a small dozer or other type of equipment that is less than 150 horsepower. From Table K above a small bulldozer would create a vibration level of 0.003 inch-per-second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest home (5 feet away) would be 0.018 inch per second PPV, which would be below the 0.25 inch per second PPV threshold detailed above. Therefore, with implementation of Mitigation Measure 1, a less than significant vibration impact is anticipated from construction of the proposed project.

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Therefore, 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 business park with six buildings that total 196,909 square feet of building space, with 236 parking spaces, and a trailer parking yard. The nearby homes are located as near as 10 feet north from where trucks would operate on the project site.

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 at 15 feet from the center of the nearest lane, with the worst combinations of heavy trucks. As detailed above, truck activities would occur onsite as near as 10 feet from the homes to the north. Based on typical propagation rates, the vibration level at the nearest proposed homes would be 0.12 inch per second PPV. Therefore, vibration created from operation of the proposed project would be within the 0.25 inch per second PPV threshold of 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 20 feet of any off-site residential structure. 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 20 feet of any off-site residential structure.

### **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 March Air Reserve Base, where the runway is located approximately 1.5 miles southeast of the project site. According to Figure 5.4-1 of the *Moreno Valley General Plan Final Program EIR*, July 2006, the project site is located within the 65 dBA CNEL noise contours of March Air Reserve Base. Business park land uses are an allowed use within the 65 dBA CNEL noise contours of an airport. As such, the proposed project would be exposed to a less than significant impact from aircraft noise.

### **Level of Significance**

Less than significant impact.

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## 8.0 REFERENCES

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.

City of Moreno Valley, *City of Moreno Valley General Plan*, July 11, 2006.

City of Moreno Valley, *Moreno Valley General Plan Final Program EIR*, July 2006.

City of Moreno Valley, *City of Moreno Valley Municipal Code*, May 2014.

County of Riverside, *Comprehensive Update to the General Plan*, December 2008.

EPD Solutions, Inc., *Air Quality, Energy, and Greenhouse Gas Impact Analysis for the Alessandro & Old 215 Project*, August, 2021.

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

Translutions, Inc., *Old 215 Frontage Road Business Park Traffic Impact Analysis*, August 2021.

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

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**APPENDIX A**

Field Noise Measurements Photo Index



Noise Measurement Site A - looking north



Noise Measurement Site A - looking northeast



Noise Measurement Site A - looking east



Noise Measurement Site A - looking southeast



Noise Measurement Site A - looking south



Noise Measurement Site A - looking southwest



Noise Measurement Site A - looking west



Noise Measurement Site A - looking northwest



Noise Measurement Site B - looking north



Noise Measurement Site B - looking northeast



Noise Measurement Site B - looking east



Noise Measurement Site B - looking southeast



Noise Measurement Site B - looking south



Noise Measurement Site B - looking southwest



Noise Measurement Site B - looking west



Noise Measurement Site B - looking northwest



Noise Measurement Site C - looking north



Noise Measurement Site C - looking northeast



Noise Measurement Site C - looking east



Noise Measurement Site C - looking southeast



Noise Measurement Site C - looking south



Noise Measurement Site C - looking southwest



Noise Measurement Site C - looking west



Noise Measurement Site C - looking northwest



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**APPENDIX B**

Field Noise Measurements Printouts

Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave

May 14, 2021 9:47:19 AM Leq Daytime = 61.4
Sampling Time = 1 sec Freq Weighting=A Leq Nighttime = 53.5
Record Num = 86402 CNEL(24hr)= 63.0
Leq = 59.0 Ldn(24hr)= 62.2
Min = 36.1 Min Leq hr at 2:34 AM 47.6
Max = 94.0 Max Leq hr at 6:33 PM 64.5

Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 975 rows of noise data for Site 1.

Site 2 - On West Area of Project. On fence behind American Legior

May 14, 2021 9:56:18 AM Leq Daytime = 58.6
Sampling Time = 1 sec Freq Weighting=A Leq Nighttime = 50.7
Record Num = 86402 CNEL(24hr)= 60.1
Leq = 56.2 Ldn(24hr)= 59.6
Min = 36.0 Min Leq hr at 4:30 AM 44.6
Max = 87.4 Max Leq hr at 12:03 PM 61.8

Site 2 - On West Area of Project. On fence behind American Legior

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 975 rows of noise data for Site 2.

Site 3 - Near SE Corner of Project on power pole

May 14, 2021 10:02:16 AM Leq Daytime = 56.9
Sampling Time = 1 sec Freq Weighting=A Leq Nighttime = 48.2
Record Num = 86402 CNEL(24hr)= 57.7
Leq = 54.4 Ldn(24hr)= 57.2
Min = 36.7 Min Leq hr at 2:30 AM 43.2
Max = 87.5 Max Leq hr at 12:01 PM 61.7

Site 3 - Near SE Corner of Project on power pole

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), Ldn CNEL. Contains 975 rows of noise data for Site 3.



Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave Site 2 - On West Area of Project. On fence behind American Legion Site 3 - Near SE Corner of Project on power pole

Table with columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL for Site 1; SPL, Time, Leq (1 hour Avg), Ldn CNEL for Site 2; SPL, Time, Leq (1 hour Avg), Ldn CNEL for Site 3. The table contains multiple rows of numerical data for each site, representing different time points and noise levels.

Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave

Site 2 - On West Area of Project. On fence behind American Legion

Site 3 - Near SE Corner of Project on power pole

Table with 4 columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL. The table contains three main sections of data corresponding to Site 1, Site 2, and Site 3, each with multiple rows of noise level measurements.

Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave

Site 2 - On West Area of Project. On fence behind American Legion

Site 3 - Near SE Corner of Project on power pole

Table with 5 columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL for Site 1; SPL, Time, Leq (1 hour Avg), Ldn CNEL for Site 2; SPL, Time, Leq (1 hour Avg), Ldn CNEL for Site 3. The table contains a dense grid of numerical data points for each time and location combination.

Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave Site 2 - On West Area of Project. On fence behind American Legior

Site 3 - Near SE Corner of Project on power pole

Table with 12 columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL, SPL, Time, Leq (1 hour Avg), Ldn CNEL, SPL, Time, Leq (1 hour Avg), Ldn CNEL. It contains a dense grid of numerical data points representing sound level measurements across various time intervals and locations.

Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave Site 2 - On West Area of Project. On fence behind American Legion

Site 3 - Near SE Corner of Project on power pole

Table with 14 columns: SPL, Time, Leq (1 hour Avg), Ldn CNEL, SPL, Time, Leq (1 hour Avg), Ldn CNEL, SPL, Time, Leq (1 hour Avg), Ldn CNEL. It contains a dense grid of numerical data points for each parameter across multiple rows.





Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave Site 2 - On West Area of Project. On fence behind American Legion Site 3 - Near SE Corner of Project on power pole

Table with 4 columns: SPL, Time, Leq (1 hour Avg.), and Ldn CNEL. The table is organized into three vertical sections corresponding to the site descriptions in the header. Each section contains a series of rows with numerical values for each parameter over time.



Site 1 - On North Side of Project. On shared fence at 21773 Bay Ave

Site 2 - On West Area of Project. On fence behind American Legior

Site 3 - Near SE Corner of Project on power pole

Table with 4 columns: SPL, Time, Leq (1 hour Avg), and Ldn CNEL. It contains three sets of data corresponding to Site 1, Site 2, and Site 3, with values ranging from 48.2 to 64.8 and times from 10:16:17 to 18:51.

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**APPENDIX C**

RCNM Model Construction Noise Calculation Printouts

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
SFH Northwest of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	550	8
Excavator	No	40		80.7	550	8
Excavator	No	40		80.7	550	8
Excavator	No	40		80.7	550	8
Dozer	No	40		81.7	550	8
Dozer	No	40		81.7	550	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Concrete Saw	60.8	53.8	N/A	N/A	N/A	N/A
Excavator	51.9	47.9	N/A	N/A	N/A	N/A
Excavator	51.9	47.9	N/A	N/A	N/A	N/A
Excavator	51.9	47.9	N/A	N/A	N/A	N/A
Dozer	52.8	48.9	N/A	N/A	N/A	N/A
Dozer	52.8	48.9	N/A	N/A	N/A	N/A
<b>Total</b>	<b>61</b>	<b>58</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Demolition

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH North of Project Site	Residential	61	61	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	470	8
Excavator	No	40		80.7	470	8
Excavator	No	40		80.7	470	8
Excavator	No	40		80.7	470	8
Dozer	No	40		81.7	470	8
Dozer	No	40		81.7	470	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day Lmax	Day Leq	Evening Lmax	Evening Leq
Concrete Saw	62.1	55.1	N/A	N/A	N/A	N/A
Excavator	53.2	49.3	N/A	N/A	N/A	N/A
Excavator	53.2	49.3	N/A	N/A	N/A	N/A
Excavator	53.2	49.3	N/A	N/A	N/A	N/A
Dozer	54.2	50.2	N/A	N/A	N/A	N/A
Dozer	54.2	50.2	N/A	N/A	N/A	N/A
<b>Total</b>	<b>62</b>	<b>59</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Demolition

### ---- Receptor #3 ----

Description	Baselines (dBA)		
	Land Use	Daytime	Evening
SFH East of Project Site	Residential	56.9	56.9

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	600	8
Excavator	No	40		80.7	600	8
Excavator	No	40		80.7	600	8
Excavator	No	40		80.7	600	8
Dozer	No	40		81.7	600	8
Dozer	No	40		81.7	600	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Noise Limits (dBA)			
			Day Lmax	Leq	Evening Lmax	Leq
Concrete Saw	60.0	53.0	N/A	N/A	N/A	N/A
Excavator	51.1	47.1	N/A	N/A	N/A	N/A
Excavator	51.1	47.1	N/A	N/A	N/A	N/A
Excavator	51.1	47.1	N/A	N/A	N/A	N/A
Dozer	52.1	48.1	N/A	N/A	N/A	N/A
Dozer	52.1	48.1	N/A	N/A	N/A	N/A
<b>Total</b>	<b>60</b>	<b>57</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.



**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Demolition

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH Southeast of Project Site	Residential	56.9	56.9	48.2

Description	Impact	Device	Usage(%)	Equipment	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
				Spec Lmax (dBA)			
Concrete Saw	No	No	20		89.6	730	8
Excavator	No	No	40		80.7	730	8
Excavator	No	No	40		80.7	730	8
Excavator	No	No	40		80.7	730	8
Dozer	No	No	40		81.7	730	8
Dozer	No	No	40		81.7	730	8

Equipment	Calculated (dBA)			Results			
	*Lmax	Leq	Day Lmax	Noise Limits (dBA)			Leq
				Leq	Lmax	Evening	
Concrete Saw	58.3	51.3	N/A	N/A	N/A	N/A	N/A
Excavator	49.4	45.4	N/A	N/A	N/A	N/A	N/A
Excavator	49.4	45.4	N/A	N/A	N/A	N/A	N/A
Excavator	49.4	45.4	N/A	N/A	N/A	N/A	N/A
Dozer	50.4	46.4	N/A	N/A	N/A	N/A	N/A
Dozer	50.4	46.4	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>58</b>	<b>55</b>	N/A	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Site Preparation

### ---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
SFH Northwest of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	550	8
Dozer	No	40		81.7	550	8
Dozer	No	40		81.7	550	8
Tractor	No	40	84		550	8
Tractor	No	40	84		550	8
Tractor	No	40	84		550	8
Tractor	No	40	84		550	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Dozer	52.8	48.9	N/A	N/A	N/A	N/A
Dozer	52.8	48.9	N/A	N/A	N/A	N/A
Dozer	52.8	48.9	N/A	N/A	N/A	N/A
Tractor	55.2	51.2	N/A	N/A	N/A	N/A
Tractor	55.2	51.2	N/A	N/A	N/A	N/A
Tractor	55.2	51.2	N/A	N/A	N/A	N/A
Tractor	55.2	51.2	N/A	N/A	N/A	N/A
<b>Total</b>	<b>55</b>	<b>59</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Site Preparation

### ---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH North of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	470	8
Dozer	No	40		81.7	470	8
Dozer	No	40		81.7	470	8
Tractor	No	40	84		470	8
Tractor	No	40	84		470	8
Tractor	No	40	84		470	8
Tractor	No	40	84		470	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Dozer	54.2	50.2	N/A	N/A	N/A	N/A
Dozer	54.2	50.2	N/A	N/A	N/A	N/A
Dozer	54.2	50.2	N/A	N/A	N/A	N/A
Tractor	56.5	52.6	N/A	N/A	N/A	N/A
Tractor	56.5	52.6	N/A	N/A	N/A	N/A
Tractor	56.5	52.6	N/A	N/A	N/A	N/A
Tractor	56.5	52.6	N/A	N/A	N/A	N/A
<b>Total</b>	<b>57</b>	<b>60</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Site Preparation

### ---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
SFH East of Project Site	Residential	56.9	56.9	48.2

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	600	8
Dozer	No	40		81.7	600	8
Dozer	No	40		81.7	600	8
Tractor	No	40	84		600	8
Tractor	No	40	84		600	8
Tractor	No	40	84		600	8
Tractor	No	40	84		600	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Dozer	52.1	48.1	N/A	N/A	N/A	N/A
Dozer	52.1	48.1	N/A	N/A	N/A	N/A
Dozer	52.1	48.1	N/A	N/A	N/A	N/A
Tractor	54.4	50.4	N/A	N/A	N/A	N/A
Tractor	54.4	50.4	N/A	N/A	N/A	N/A
Tractor	54.4	50.4	N/A	N/A	N/A	N/A
Tractor	54.4	50.4	N/A	N/A	N/A	N/A
<b>Total</b>	<b>54</b>	<b>58</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM),Version 1.1**

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Site Preparation

---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH Southeast of Project Site	Residential	56.9	56.9	48.2

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	730	8
Dozer	No	40		81.7	730	8
Dozer	No	40		81.7	730	8
Tractor	No	40	84		730	8
Tractor	No	40	84		730	8
Tractor	No	40	84		730	8
Tractor	No	40	84		730	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Dozer	50.4	46.4	N/A	N/A	N/A	N/A
Dozer	50.4	46.4	N/A	N/A	N/A	N/A
Dozer	50.4	46.4	N/A	N/A	N/A	N/A
Tractor	52.7	48.7	N/A	N/A	N/A	N/A
Tractor	52.7	48.7	N/A	N/A	N/A	N/A
Tractor	52.7	48.7	N/A	N/A	N/A	N/A
Tractor	52.7	48.7	N/A	N/A	N/A	N/A
<b>Total</b>	<b>53</b>	<b>56</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Grading

### ---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
SFH Northwest of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	550	8
Excavator	No	40		80.7	550	8
Grader	No	40	85		550	8
Dozer	No	40		81.7	550	8
Tractor	No	40	84		550	8
Tractor	No	40	84		550	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Excavator	51.9	47.9	N/A	N/A	N/A	N/A
Excavator	51.9	47.9	N/A	N/A	N/A	N/A
Grader	56.2	52.2	N/A	N/A	N/A	N/A
Dozer	52.8	48.9	N/A	N/A	N/A	N/A
Tractor	55.2	51.2	N/A	N/A	N/A	N/A
Tractor	55.2	51.2	N/A	N/A	N/A	N/A
<b>Total</b>	<b>56</b>	<b>58</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Grading

### ---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		Night
		Daytime	Evening	
MFH North of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	470	8
Excavator	No	40		80.7	470	8
Grader	No	40	85		470	8
Dozer	No	40		81.7	470	8
Tractor	No	40	84		470	8
Tractor	No	40	84		470	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Noise Limits (dBA)	
			Lmax	Leq	Lmax	Leq
Excavator	53.2	49.3	N/A	N/A	N/A	N/A
Excavator	53.2	49.3	N/A	N/A	N/A	N/A
Grader	57.5	53.6	N/A	N/A	N/A	N/A
Dozer	54.2	50.2	N/A	N/A	N/A	N/A
Tractor	56.5	52.6	N/A	N/A	N/A	N/A
Tractor	56.5	52.6	N/A	N/A	N/A	N/A
<b>Total</b>	<b>58</b>	<b>59</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Grading

### ---- Receptor #3 ----

Description	Land Use	Baselines (dBA)			Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
		Daytime	Evening	Night				
SFH East of Project Site	Residential	56.9	56.9	48.2				

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	600	8
Grader	No	40	85		600	8
Dozer	No	40		81.7	600	8
Tractor	No	40	84		600	8
Tractor	No	40	84		600	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Excavator	51.1	47.1	N/A	N/A	N/A	N/A
Excavator	51.1	47.1	N/A	N/A	N/A	N/A
Grader	55.4	51.4	N/A	N/A	N/A	N/A
Dozer	52.1	48.1	N/A	N/A	N/A	N/A
Tractor	54.4	50.4	N/A	N/A	N/A	N/A
Tractor	54.4	50.4	N/A	N/A	N/A	N/A
<b>Total</b>	<b>55</b>	<b>57</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.



## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Grading

### ---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH Southeast of Project Site	Residential	56.9	56.9	48.2

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	730	8
Excavator	No	40		80.7	730	8
Grader	No	40	85		730	8
Dozer	No	40		81.7	730	8
Tractor	No	40	84		730	8
Tractor	No	40	84		730	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Evening	
			Lmax	Leq	Lmax	Leq
Excavator	49.4	45.4	N/A	N/A	N/A	N/A
Excavator	49.4	45.4	N/A	N/A	N/A	N/A
Grader	53.7	49.7	N/A	N/A	N/A	N/A
Dozer	50.4	46.4	N/A	N/A	N/A	N/A
Tractor	52.7	48.7	N/A	N/A	N/A	N/A
Tractor	52.7	48.7	N/A	N/A	N/A	N/A
<b>Total</b>	<b>54</b>	<b>56</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Building Construction

### ---- Receptor #1 ----

Description	Land Use	Baselines (dBA)			Equipment			
		Daytime	Evening	Night	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
SFH Northwest of Project Site	Residential	61.4	61.4	53.5				
Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)		
Crane	No	16		80.6	550	8		
Gradall	No	40		83.4	550	8		
Gradall	No	40		83.4	550	8		
Gradall	No	40		83.4	550	8		
Generator	No	50		80.6	550	8		
Tractor	No	40	84		550	8		
Front End Loader	No	40		79.1	550	8		
Backhoe	No	40		77.6	550	8		
Welder / Torch	No	40		74	550	8		

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Crane	51.7	43.8	N/A	N/A	N/A	N/A
Gradall	54.6	50.6	N/A	N/A	N/A	N/A
Gradall	54.6	50.6	N/A	N/A	N/A	N/A
Gradall	54.6	50.6	N/A	N/A	N/A	N/A
Generator	51.8	48.8	N/A	N/A	N/A	N/A
Tractor	55.2	51.2	N/A	N/A	N/A	N/A
Front End Loader	50.3	46.3	N/A	N/A	N/A	N/A
Backhoe	48.7	44.8	N/A	N/A	N/A	N/A
Welder / Torch	45.2	41.2	N/A	N/A	N/A	N/A
<b>Total</b>	<b>55</b>	<b>58</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Building Construction

### ---- Receptor #2 ----

Description	Land Use	Baselines (dBA)			Equipment			
		Daytime	Evening	Night	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
MFH North of Project Site	Residential	61.4	61.4	53.5				
Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)		
Crane	No	16		80.6	470	8		
Gradall	No	40		83.4	470	8		
Gradall	No	40		83.4	470	8		
Gradall	No	40		83.4	470	8		
Generator	No	50		80.6	470	8		
Tractor	No	40	84		470	8		
Front End Loader	No	40		79.1	470	8		
Backhoe	No	40		77.6	470	8		
Welder / Torch	No	40		74	470	8		

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Crane	53.1	45.1	N/A	N/A	N/A	N/A
Gradall	55.9	52.0	N/A	N/A	N/A	N/A
Gradall	55.9	52.0	N/A	N/A	N/A	N/A
Gradall	55.9	52.0	N/A	N/A	N/A	N/A
Generator	53.2	50.2	N/A	N/A	N/A	N/A
Tractor	56.5	52.6	N/A	N/A	N/A	N/A
Front End Loader	51.6	47.7	N/A	N/A	N/A	N/A
Backhoe	50.1	46.1	N/A	N/A	N/A	N/A
Welder / Torch	46.5	42.6	N/A	N/A	N/A	N/A
<b>Total</b>	<b>57</b>	<b>60</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Building Construction

### ---- Receptor #3 ----

Description	Land Use	Baselines (dBA)			Equipment			
		Daytime	Evening	Night	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
SFH East of Project Site	Residential	56.9	56.9	48.2				
Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)		
Crane	No	16		80.6	600	8		
Gradall	No	40		83.4	600	8		
Gradall	No	40		83.4	600	8		
Gradall	No	40		83.4	600	8		
Generator	No	50		80.6	600	8		
Tractor	No	40	84		600	8		
Front End Loader	No	40		79.1	600	8		
Backhoe	No	40		77.6	600	8		
Welder / Torch	No	40		74	600	8		

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Crane	51.0	43.0	N/A	N/A	N/A	N/A
Gradall	53.8	49.8	N/A	N/A	N/A	N/A
Gradall	53.8	49.8	N/A	N/A	N/A	N/A
Gradall	53.8	49.8	N/A	N/A	N/A	N/A
Generator	51.0	48.0	N/A	N/A	N/A	N/A
Tractor	54.4	50.4	N/A	N/A	N/A	N/A
Front End Loader	49.5	45.5	N/A	N/A	N/A	N/A
Backhoe	48.0	44.0	N/A	N/A	N/A	N/A
Welder / Torch	44.4	40.4	N/A	N/A	N/A	N/A
<b>Total</b>	<b>54</b>	<b>57</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Building Construction

### ---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH Southeast of Project Site	Residential	56.9	56.9	48.2

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Crane	No	16		80.6	730	8
Gradall	No	40		83.4	730	8
Gradall	No	40		83.4	730	8
Gradall	No	40		83.4	730	8
Generator	No	50		80.6	730	8
Tractor	No	40	84		730	8
Front End Loader	No	40		79.1	730	8
Backhoe	No	40		77.6	730	8
Welder / Torch	No	40		74	730	8

Equipment	Calculated (dBA)			Results			
	*Lmax	Leq	Lmax	Noise Limits (dBA)			
				Day	Leq	Evening	
Crane	49.3	41.3	N/A	N/A	N/A	N/A	N/A
Gradall	52.1	48.1	N/A	N/A	N/A	N/A	N/A
Gradall	52.1	48.1	N/A	N/A	N/A	N/A	N/A
Gradall	52.1	48.1	N/A	N/A	N/A	N/A	N/A
Generator	49.3	46.3	N/A	N/A	N/A	N/A	N/A
Tractor	52.7	48.7	N/A	N/A	N/A	N/A	N/A
Front End Loader	47.8	43.8	N/A	N/A	N/A	N/A	N/A
Backhoe	46.3	42.3	N/A	N/A	N/A	N/A	N/A
Welder / Torch	42.7	38.7	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>53</b>	<b>56</b>	N/A	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Paving

### ---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
SFH Northwest of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	550	8
Paver	No	50		77.2	550	8
Paver	No	50		77.2	550	8
Paver	No	50		77.2	550	8
Roller	No	20		80.0	550	8
Roller	No	20		80.0	550	8

Equipment	Calculated (dBA)		Results				
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA)		
					Evening Lmax	Leq	
Paver	48.4	45.4	N/A	N/A	N/A	N/A	N/A
Paver	48.4	45.4	N/A	N/A	N/A	N/A	N/A
Paver	48.4	45.4	N/A	N/A	N/A	N/A	N/A
Paver	48.4	45.4	N/A	N/A	N/A	N/A	N/A
Roller	51.2	44.2	N/A	N/A	N/A	N/A	N/A
Roller	51.2	44.2	N/A	N/A	N/A	N/A	N/A
<b>Total</b>	<b>51</b>	<b>53</b>	N/A	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Paving

### ---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH North of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment Spec	Actual	Receptor	Estimated
			Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Paver	No	50		77.2	470	8
Paver	No	50		77.2	470	8
Paver	No	50		77.2	470	8
Paver	No	50		77.2	470	8
Roller	No	20		80.0	470	8
Roller	No	20		80.0	470	8

### Results

Equipment	Calculated (dBA)		Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Paver	49.8	46.7	N/A	N/A	N/A	N/A
Paver	49.8	46.7	N/A	N/A	N/A	N/A
Paver	49.8	46.7	N/A	N/A	N/A	N/A
Paver	49.8	46.7	N/A	N/A	N/A	N/A
Roller	52.5	45.5	N/A	N/A	N/A	N/A
Roller	52.5	45.5	N/A	N/A	N/A	N/A
<b>Total</b>	<b>53</b>	<b>54</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Paving

### ---- Receptor #3 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
SFH East of Project Site	Residential	56.9	56.9	48.2

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Paver	No	50	77.2	77.2	600	8
Paver	No	50	77.2	77.2	600	8
Paver	No	50	77.2	77.2	600	8
Paver	No	50	77.2	77.2	600	8
Roller	No	20	80	80	600	8
Roller	No	20	80	80	600	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day		Noise Limits (dBA)	
			Lmax	Leq	Lmax	Leq
Paver	47.6	44.6	N/A	N/A	N/A	N/A
Paver	47.6	44.6	N/A	N/A	N/A	N/A
Paver	47.6	44.6	N/A	N/A	N/A	N/A
Paver	47.6	44.6	N/A	N/A	N/A	N/A
Roller	50.4	43.4	N/A	N/A	N/A	N/A
Roller	50.4	43.4	N/A	N/A	N/A	N/A
<b>Total</b>	<b>50</b>	<b>52</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.



## Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Paving

### ---- Receptor #4 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH Southeast of Project Site	Residential	56.9	56.9	48.2

Description	Impact Device	Usage(%)	Equipment		Receptor Distance (feet)	Estimated Shielding (dBA)
			Spec Lmax (dBA)	Actual Lmax (dBA)		
Paver	No	50	77.2	77.2	730	8
Paver	No	50	77.2	77.2	730	8
Paver	No	50	77.2	77.2	730	8
Paver	No	50	77.2	77.2	730	8
Roller	No	20	80	80	730	8
Roller	No	20	80	80	730	8

Equipment	Calculated (dBA)		Results			
	*Lmax	Leq	Day Lmax	Leq	Noise Limits (dBA)	
					Evening Lmax	Evening Leq
Paver	45.9	42.9	N/A	N/A	N/A	N/A
Paver	45.9	42.9	N/A	N/A	N/A	N/A
Paver	45.9	42.9	N/A	N/A	N/A	N/A
Paver	45.9	42.9	N/A	N/A	N/A	N/A
Roller	48.7	41.7	N/A	N/A	N/A	N/A
Roller	48.7	41.7	N/A	N/A	N/A	N/A
<b>Total</b>	<b>49</b>	<b>50</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM), Version 1.1**

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Painting

---- Receptor #1 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
SFH Northwest of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	550	8

Equipment	Total	Calculated (dBA)		Results			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Compressor (air)		48.8	44.9	N/A	N/A	N/A	N/A
	<b>Total</b>	<b>49</b>	<b>45</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA)		
		Daytime	Evening	Night
MFH North of Project Site	Residential	61.4	61.4	53.5

Description	Impact Device	Usage(%)	Equipment			
			Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	470	8

Equipment	Total	Calculated (dBA)		Results			
		*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq
Compressor (air)		50.2	46.2	N/A	N/A	N/A	N/A
	<b>Total</b>	<b>50</b>	<b>46</b>	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**Roadway Construction Noise Model (RCNM), Version 1.1**

Report date: 8/4/2021  
 Case Description: Alessandro & Old 215 - Painting

**---- Receptor #3 ----**

Description	Land Use	Baselines (dBA)			Equipment			
		Daytime	Evening	Night	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
SFH East of Project Site	Residential	56.9	56.9	48.2				
		Impact Device	Usage(%)					
Compressor (air)		No	40		78	600	8	
		Calculated (dBA)			Results			
					Noise Limits (dBA)			
					Day		Evening	
		*Lmax	Leq		Lmax	Leq	Lmax	Leq
Compressor (air)		48.1	44.1		N/A	N/A	N/A	N/A
	<b>Total</b>	<b>48</b>	<b>44</b>		N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

**---- Receptor #4 ----**

Description	Land Use	Baselines (dBA)			Equipment			
		Daytime	Evening	Night	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
MFH Southeast of Project Site	Residential	56.9	56.9	48.2				
		Impact Device	Usage(%)					
Compressor (air)		No	40		77.7	730	8	
		Calculated (dBA)			Results			
					Noise Limits (dBA)			
					Day		Evening	
		*Lmax	Leq		Lmax	Leq	Lmax	Leq
Compressor (air)		46.4	42.4		N/A	N/A	N/A	N/A
	<b>Total</b>	<b>46</b>	<b>42</b>		N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

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**APPENDIX D**

FHWA Model Traffic Noise Calculation Printouts

## FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

**Scenario: EXISTING CONDITIONS**

**Project: Alessandro & Old 215 Industrial  
Site Conditions: Soft**

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (SR-60)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	69.50%	12.90%	9.60%	61.95%	12.70%	14.85%
Medium Trucks	0.90%	0.90%	0.04%	1.44%	0.06%	1.50%	2.68%	0.48%	1.35%
Heavy Trucks	0.35%	0.04%	0.35%	2.40%	0.10%	2.50%	3.28%	0.31%	2.39%
			0.74%			5.00%			5.99%

**Road Name: Old 215 Frontage Road      Segment: North of Cottonwood Avenue**

Average Daily Traffic: 10970 Vehicles		Vehicle Speed: 50 MPH		Vehicle Mix: 2		Roadway Classification: Divided Arterial - 4 Lane					
NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 82.27 ft)											
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to				
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Leq Night	Ldn	CNEL	
Automobiles	71.12	-2.26	-3.35	-1.20	64.32	61.95	60.65	54.60	63.03	63.66	
Medium Trucks	78.79	-17.12	-3.35	-1.20	57.12	37.92	30.13	39.34	45.50	45.53	
Heavy Trucks	83.02	-14.90	-3.35	-1.20	63.57	46.58	38.80	48.01	54.16	54.19	
<b>Total:</b>				<b>67.40</b>	<b>62.09</b>	<b>60.68</b>	<b>55.56</b>	<b>63.63</b>	<b>64.19</b>	<b>64.19</b>	<b>338</b>

**Road Name: Old 215 Frontage Road      Segment: North of Bay Avenue**

Average Daily Traffic: 10740 Vehicles		Vehicle Speed: 50 MPH		Vehicle Mix: 2		Roadway Classification: Divided Arterial - 4 Lane					
NOISE PARAMETERS AT 95 FEET FROM CENTERLINE (Equiv. Lane Dist: 87.71 ft)											
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to				
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Leq Night	Ldn	CNEL	
Automobiles	71.12	-2.35	-3.76	-1.20	63.81	61.44	60.14	54.09	62.52	63.15	
Medium Trucks	78.79	-17.21	-3.76	-1.20	56.62	37.41	29.63	38.83	44.99	45.02	
Heavy Trucks	83.02	-15.00	-3.76	-1.20	63.06	46.07	38.29	47.50	53.65	53.69	
<b>Total:</b>				<b>66.89</b>	<b>61.58</b>	<b>60.18</b>	<b>55.05</b>	<b>63.12</b>	<b>63.68</b>	<b>63.68</b>	<b>330</b>

**Road Name: Old 215 Frontage Road      Segment: South of Bay Avenue**

Average Daily Traffic: 10700 Vehicles		Vehicle Speed: 50 MPH		Vehicle Mix: 2		Roadway Classification: Divided Arterial - 4 Lane					
NOISE PARAMETERS AT 160 FEET FROM CENTERLINE (Equiv. Lane Dist: 155.78 ft)											
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to				
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Leq Night	Ldn	CNEL	
Automobiles	71.12	-2.36	-7.51	-1.20	60.05	57.68	56.38	50.33	58.76	59.39	
Medium Trucks	78.79	-17.23	-7.51	-1.20	52.86	33.65	25.87	35.08	41.23	41.26	
Heavy Trucks	83.02	-15.01	-7.51	-1.20	59.30	42.31	34.53	43.74	49.89	49.93	
<b>Total:</b>				<b>63.13</b>	<b>57.82</b>	<b>56.42</b>	<b>51.30</b>	<b>59.36</b>	<b>59.92</b>	<b>59.92</b>	<b>312</b>

## FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

**Scenario: EXISTING CONDITIONS**

Project: Alessandro & Old 215 Industrial  
Site Conditions: Soft

Road Name: Cottonwood Avenue		Segment: East of Old 215 Frontage Road		Roadway Classification: Minor Arterial															
Average Daily Traffic: 2080 Vehicles		Vehicle Speed: 40 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.65 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	67.36	-8.26	0.35	-1.20	58.25	56.13	54.81	48.80	57.22	57.85	70 dBA:	7	8						
Medium Trucks	76.31	-25.50	0.35	-1.20	49.96	28.71	34.74	16.44	29.59	32.34	65 dBA:	15	17						
Heavy Trucks	81.16	-29.45	0.35	-1.20	50.86	25.50	22.10	26.75	32.95	33.05	60 dBA:	33	36						
Total:											59.49	56.14	54.86	48.83	57.25	57.87	55 dBA:	71	78

Road Name: Bay Avenue		Segment: East of Old 215 Frontage Road		Roadway Classification: Local															
Average Daily Traffic: 1440 Vehicles		Vehicle Speed: 30 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-8.61	0.66	-1.20	53.37	51.25	49.93	43.92	52.34	52.97	70 dBA:	3	3						
Medium Trucks	73.11	-25.84	0.66	-1.20	46.73	25.48	31.50	13.21	26.35	29.11	65 dBA:	6	7						
Heavy Trucks	80.26	-29.80	0.66	-1.20	49.92	24.57	21.17	25.82	32.02	32.12	60 dBA:	14	15						
Total:											55.59	51.27	50.00	43.99	52.39	53.02	55 dBA:	30	33

Road Name: Alessandro Boulevard		Segment: East of Old 215 Frontage Road		Roadway Classification: Divided Major Arterial															
Average Daily Traffic: 24680 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2															
NOISE PARAMETERS AT 105 FEET FROM CENTERLINE (Equiv. Lane Dist: 95.34 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	1.72	-4.31	-1.20	65.56	63.19	61.90	55.84	64.27	64.90	70 dBA:	49	53						
Medium Trucks	77.62	-13.14	-4.31	-1.20	58.97	39.76	31.98	41.19	47.34	47.38	65 dBA:	105	114						
Heavy Trucks	82.14	-10.92	-4.31	-1.20	65.71	48.72	40.94	50.15	56.30	56.33	60 dBA:	226	246						
Total:											69.09	63.36	61.93	56.99	64.99	65.54	55 dBA:	487	529

## FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

### Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Alessandro & Old 215 Industrial  
Site Conditions: Soft

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (SR-60)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	69.50%	12.90%	9.60%	61.95%	12.70%	14.85%
Medium Trucks	0.90%	0.90%	0.04%	1.44%	0.06%	1.50%	2.68%	0.48%	1.35%
Heavy Trucks	0.35%	0.04%	0.35%	2.40%	0.10%	2.50%	3.28%	0.31%	2.39%
			0.74%			5.00%			4.52%
									5.99%

#### Road Name: Old 215 Frontage Road

Segment: North of Cottonwood Avenue

Average Daily Traffic: 11670 Vehicles    Vehicle Speed: 50 MPH    Vehicle Mix: 2    Roadway Classification: Divided Arterial - 4 Lane

Vehicle Type	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 82.27 ft)						Centerline Distance to Noise Contour (in feet)			
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	
Automobiles	71.12	-1.99	-3.35	-1.20	64.59	62.21	60.92	54.87	63.30	63.93
Medium Trucks	78.79	-16.85	-3.35	-1.20	57.39	38.19	30.40	39.61	45.77	45.80
Heavy Trucks	83.02	-14.63	-3.35	-1.20	63.84	46.85	39.07	48.28	54.43	54.46
Total:					<b>67.67</b>	<b>62.36</b>	<b>60.95</b>	<b>55.83</b>	<b>63.90</b>	<b>64.45</b>

#### Road Name: Old 215 Frontage Road

Segment: North of Bay Avenue

Average Daily Traffic: 11530 Vehicles    Vehicle Speed: 50 MPH    Vehicle Mix: 2    Roadway Classification: Divided Arterial - 4 Lane

Vehicle Type	NOISE PARAMETERS AT 95 FEET FROM CENTERLINE (Equiv. Lane Dist: 87.71 ft)						Centerline Distance to Noise Contour (in feet)			
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	
Automobiles	71.12	-2.04	-3.76	-1.20	64.12	61.74	60.45	54.40	62.83	63.46
Medium Trucks	78.79	-16.91	-3.76	-1.20	56.92	37.72	29.93	39.14	45.30	45.33
Heavy Trucks	83.02	-14.69	-3.76	-1.20	63.37	46.38	38.60	47.81	53.96	53.99
Total:					<b>67.20</b>	<b>61.89</b>	<b>60.48</b>	<b>55.36</b>	<b>63.43</b>	<b>63.98</b>

#### Road Name: Old 215 Frontage Road

Segment: South of Bay Avenue

Average Daily Traffic: 11750 Vehicles    Vehicle Speed: 50 MPH    Vehicle Mix: 2    Roadway Classification: Divided Arterial - 4 Lane

Vehicle Type	NOISE PARAMETERS AT 160 FEET FROM CENTERLINE (Equiv. Lane Dist: 155.78 ft)						Centerline Distance to Noise Contour (in feet)			
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	
Automobiles	71.12	-1.96	-7.51	-1.20	60.46	58.08	56.79	50.74	59.17	59.80
Medium Trucks	78.79	-16.82	-7.51	-1.20	53.26	34.06	26.27	35.48	41.64	41.67
Heavy Trucks	83.02	-14.60	-7.51	-1.20	59.71	42.72	34.94	44.15	50.30	50.33
Total:					<b>63.54</b>	<b>58.23</b>	<b>56.82</b>	<b>51.70</b>	<b>59.77</b>	<b>60.32</b>

## FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

### Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Alessandro & Old 215 Industrial  
Site Conditions: Soft

Road Name: Cottonwood Avenue		Segment: East of Old 215 Frontage Road		Roadway Classification: Minor Arterial															
Average Daily Traffic: 2170 Vehicles		Vehicle Speed: 40 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.65 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	67.36	-8.07	0.35	-1.20	58.43	56.31	55.00	48.99	57.41	58.03	70 dBA:	7	8						
Medium Trucks	76.31	-25.31	0.35	-1.20	50.15	28.90	34.92	16.63	29.77	32.52	65 dBA:	16	17						
Heavy Trucks	81.16	-29.27	0.35	-1.20	51.04	25.69	22.29	26.94	33.14	33.23	60 dBA:	34	37						
Total:											59.67	56.32	55.04	49.02	57.43	58.06	55 dBA:	73	80

Road Name: Bay Avenue		Segment: East of Old 215 Frontage Road		Roadway Classification: Local															
Average Daily Traffic: 1500 Vehicles		Vehicle Speed: 30 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-8.43	0.66	-1.20	53.55	51.42	50.11	44.10	52.52	53.14	70 dBA:	3	3						
Medium Trucks	73.11	-25.67	0.66	-1.20	46.91	25.66	31.68	13.39	26.53	29.28	65 dBA:	7	7						
Heavy Trucks	80.26	-29.62	0.66	-1.20	50.10	24.75	21.35	26.00	32.20	32.29	60 dBA:	14	16						
Total:											55.77	51.44	50.18	44.17	52.57	53.20	55 dBA:	31	34

Road Name: Alessandro Boulevard		Segment: East of Old 215 Frontage Road		Roadway Classification: Divided Major Arterial															
Average Daily Traffic: 24790 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2															
NOISE PARAMETERS AT 105 FEET FROM CENTERLINE (Equiv. Lane Dist: 95.34 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	1.74	-4.31	-1.20	65.58	63.21	61.91	55.86	64.29	64.92	70 dBA:	49	53						
Medium Trucks	77.62	-13.12	-4.31	-1.20	58.99	39.78	32.00	41.21	47.36	47.40	65 dBA:	105	114						
Heavy Trucks	82.14	-10.91	-4.31	-1.20	65.73	48.74	40.96	50.17	56.32	56.35	60 dBA:	227	246						
Total:											69.11	63.38	61.95	57.01	65.01	65.56	55 dBA:	488	531



## FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

**Scenario: PROJECT COMPLETION YEAR 2023 WITHOUT PROJECT CONDITIONS**

**Project: Alessandro & Old 215 Industrial  
Site Conditions: Soft**

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (SR-60)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	69.50%	12.90%	9.60%	61.95%	12.70%	14.85%
Medium Trucks	0.90%	0.90%	0.04%	1.44%	0.06%	1.50%	2.68%	0.48%	1.35%
Heavy Trucks	0.35%	0.04%	0.35%	2.40%	0.10%	2.50%	3.28%	0.31%	2.39%
			0.74%			5.00%			5.99%

**Road Name: Old 215 Frontage Road**

**Segment: North of Cottonwood Avenue**

Average Daily Traffic: 12260 Vehicles      Vehicle Speed: 50 MPH      Vehicle Mix: 2      Roadway Classification: Divided Arterial - 4 Lane

Vehicle Type	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 82.27 ft)						Centerline Distance to			
	Noise Adjustments			Unmitigated Noise Levels			Noise Contour (in feet)			
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	
Automobiles	71.12	-1.77	-3.35	-1.20	64.80	62.43	61.14	55.08	63.51	64.14
Medium Trucks	78.79	-16.64	-3.35	-1.20	57.61	38.40	30.62	39.83	45.98	46.01
Heavy Trucks	83.02	-14.42	-3.35	-1.20	64.05	47.06	39.28	48.49	54.64	54.68
	Total:				<b>67.88</b>	<b>62.57</b>	<b>61.17</b>	<b>56.05</b>	<b>64.11</b>	<b>64.67</b>

**Road Name: Old 215 Frontage Road**

**Segment: North of Bay Avenue**

Average Daily Traffic: 11760 Vehicles      Vehicle Speed: 50 MPH      Vehicle Mix: 2      Roadway Classification: Divided Arterial - 4 Lane

Vehicle Type	NOISE PARAMETERS AT 95 FEET FROM CENTERLINE (Equiv. Lane Dist: 87.71 ft)						Centerline Distance to			
	Noise Adjustments			Unmitigated Noise Levels			Noise Contour (in feet)			
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	
Automobiles	71.12	-1.95	-3.76	-1.20	64.20	61.83	60.54	54.48	62.91	63.55
Medium Trucks	78.79	-16.82	-3.76	-1.20	57.01	37.80	30.02	39.23	45.38	45.42
Heavy Trucks	83.02	-14.60	-3.76	-1.20	63.45	46.46	38.68	47.89	54.05	54.08
	Total:				<b>67.28</b>	<b>61.97</b>	<b>60.57</b>	<b>55.45</b>	<b>63.51</b>	<b>64.07</b>

**Road Name: Old 215 Frontage Road**

**Segment: South of Bay Avenue**

Average Daily Traffic: 11770 Vehicles      Vehicle Speed: 50 MPH      Vehicle Mix: 2      Roadway Classification: Divided Arterial - 4 Lane

Vehicle Type	NOISE PARAMETERS AT 160 FEET FROM CENTERLINE (Equiv. Lane Dist: 155.78 ft)						Centerline Distance to			
	Noise Adjustments			Unmitigated Noise Levels			Noise Contour (in feet)			
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	
Automobiles	71.12	-1.95	-7.51	-1.20	60.46	58.09	56.80	50.74	59.18	59.81
Medium Trucks	78.79	-16.82	-7.51	-1.20	53.27	34.06	26.28	35.49	41.64	41.68
Heavy Trucks	83.02	-14.60	-7.51	-1.20	59.72	42.73	34.94	44.15	50.31	50.34
	Total:				<b>63.54</b>	<b>58.23</b>	<b>56.83</b>	<b>51.71</b>	<b>59.77</b>	<b>60.33</b>

## FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

**Scenario: PROJECT COMPLETION YEAR 2023 WITHOUT PROJECT CONDITIONS**

**Project: Alessandro & Old 215 Industrial  
Site Conditions: Soft**

Road Name: Cottonwood Avenue		Segment: East of Old 215 Frontage Road		Roadway Classification: Minor Arterial															
Average Daily Traffic: 2150 Vehicles		Vehicle Speed: 40 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.65 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	67.36	-8.12	0.35	-1.20	58.39	56.27	54.96	48.95	57.37	57.99	70 dBA:	7	8						
Medium Trucks	76.31	-25.35	0.35	-1.20	50.11	28.86	34.88	16.59	29.73	32.48	65 dBA:	16	17						
Heavy Trucks	81.16	-29.31	0.35	-1.20	51.00	25.65	22.25	26.90	33.10	33.19	60 dBA:	33	37						
Total:											59.63	56.28	55.00	48.98	57.39	58.02	55 dBA:	72	79

Road Name: Bay Avenue		Segment: East of Old 215 Frontage Road		Roadway Classification: Local															
Average Daily Traffic: 1500 Vehicles		Vehicle Speed: 30 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-8.43	0.66	-1.20	53.55	51.42	50.11	44.10	52.52	53.14	70 dBA:	3	3						
Medium Trucks	73.11	-25.67	0.66	-1.20	46.91	25.66	31.68	13.39	26.53	29.28	65 dBA:	7	7						
Heavy Trucks	80.26	-29.62	0.66	-1.20	50.10	24.75	21.35	26.00	32.20	32.29	60 dBA:	14	16						
Total:											55.77	51.44	50.18	44.17	52.57	53.20	55 dBA:	31	34

Road Name: Alessandro Boulevard		Segment: East of Old 215 Frontage Road		Roadway Classification: Divided Major Arterial															
Average Daily Traffic: 27190 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2															
NOISE PARAMETERS AT 105 FEET FROM CENTERLINE (Equiv. Lane Dist: 95.34 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to Noise Contour (in feet)												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.14	-4.31	-1.20	65.98	63.61	62.32	56.26	64.69	65.32	70 dBA:	52	56						
Medium Trucks	77.62	-12.72	-4.31	-1.20	59.39	40.18	32.40	41.61	47.77	47.80	65 dBA:	112	122						
Heavy Trucks	82.14	-10.50	-4.31	-1.20	66.13	49.14	41.36	50.57	56.72	56.76	60 dBA:	241	262						
Total:											69.51	63.78	62.36	57.41	65.41	65.96	55 dBA:	519	564

## FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

**Scenario: PROJECT COMPLETION YEAR 2023 WITH PROJECT CONDITIONS**

**Project: Alessandro & Old 215 Industrial  
Site Conditions: Soft**

Vehicle Type	Vehicle Mix 1 (Local)			Vehicle Mix 2 (Arterial)			Vehicle Mix 3 (SR-60)		
	Day	Evening	Night	Day	Evening	Night	Day	Evening	Night
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	12.70%	14.85%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	0.48%	1.35%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	0.31%	2.39%
									5.99%

**Road Name: Old 215 Frontage Road**

**Segment: North of Cottonwood Avenue**

Average Daily Traffic: 12960 Vehicles      Vehicle Speed: 50 MPH      Vehicle Mix: 2      Roadway Classification: Divided Arterial - 4 Lane

NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 82.27 ft)											
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels						Noise Contour (in feet)	
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Ldn	CNEL
Automobiles	71.12	-1.53	-3.35	-1.20	65.04	62.67	61.38	55.32	63.75	64.38	70 dBA: 38
Medium Trucks	78.79	-16.40	-3.35	-1.20	57.85	38.64	30.86	40.07	46.22	46.26	65 dBA: 81
Heavy Trucks	83.02	-14.18	-3.35	-1.20	64.29	47.30	39.52	48.73	54.88	54.92	60 dBA: 176
<b>Total: 68.12    62.81    61.41    56.29    64.35    64.91</b>											

**Road Name: Old 215 Frontage Road**

**Segment: North of Bay Avenue**

Average Daily Traffic: 12550 Vehicles      Vehicle Speed: 50 MPH      Vehicle Mix: 2      Roadway Classification: Divided Arterial - 4 Lane

NOISE PARAMETERS AT 95 FEET FROM CENTERLINE (Equiv. Lane Dist: 87.71 ft)											
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels						Noise Contour (in feet)	
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Ldn	CNEL
Automobiles	71.12	-1.67	-3.76	-1.20	64.48	62.11	60.82	54.77	63.20	63.83	70 dBA: 37
Medium Trucks	78.79	-16.54	-3.76	-1.20	57.29	38.08	30.30	39.51	45.66	45.70	65 dBA: 79
Heavy Trucks	83.02	-14.32	-3.76	-1.20	63.74	46.75	38.97	48.17	54.33	54.36	60 dBA: 170
<b>Total: 67.57    62.25    60.85    55.73    63.79    64.35</b>											

**Road Name: Old 215 Frontage Road**

**Segment: South of Bay Avenue**

Average Daily Traffic: 12820 Vehicles      Vehicle Speed: 50 MPH      Vehicle Mix: 2      Roadway Classification: Divided Arterial - 4 Lane

NOISE PARAMETERS AT 160 FEET FROM CENTERLINE (Equiv. Lane Dist: 155.78 ft)											
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels						Noise Contour (in feet)	
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL	Ldn	CNEL
Automobiles	71.12	-1.58	-7.51	-1.20	60.84	58.46	57.17	51.12	59.55	60.18	70 dBA: 35
Medium Trucks	78.79	-16.44	-7.51	-1.20	53.64	34.43	26.65	35.86	42.01	42.05	65 dBA: 76
Heavy Trucks	83.02	-14.23	-7.51	-1.20	60.09	43.10	35.32	44.52	50.68	50.71	60 dBA: 164
<b>Total: 63.92    58.60    57.20    52.08    60.14    60.70</b>											

## FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

**Scenario: PROJECT COMPLETION YEAR 2023 WITH PROJECT CONDITIONS**

**Project: Alessandro & Old 215 Industrial  
Site Conditions: Soft**

Road Name: Cottonwood Avenue		Segment: East of Old 215 Frontage Road		Roadway Classification: Minor Arterial															
Average Daily Traffic: 2240 Vehicles		Vehicle Speed: 40 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 46.65 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	67.36	-7.94	0.35	-1.20	58.57	56.45	55.14	49.12	57.54	58.17	70 dBA:	7	8						
Medium Trucks	76.31	-25.18	0.35	-1.20	50.29	29.04	35.06	16.76	29.91	32.66	65 dBA:	16	18						
Heavy Trucks	81.16	-29.13	0.35	-1.20	51.18	25.83	22.43	27.08	33.27	33.37	60 dBA:	34	38						
Total:											59.81	56.46	55.18	49.15	57.57	58.20	55 dBA:	74	82

Road Name: Bay Avenue		Segment: East of Old 215 Frontage Road		Roadway Classification: Local															
Average Daily Traffic: 1560 Vehicles		Vehicle Speed: 30 MPH		Vehicle Mix: 1															
NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	62.51	-8.26	0.66	-1.20	53.72	51.59	50.28	44.27	52.69	53.31	70 dBA:	3	4						
Medium Trucks	73.11	-25.50	0.66	-1.20	47.08	25.83	31.85	13.56	26.70	29.45	65 dBA:	7	8						
Heavy Trucks	80.26	-29.45	0.66	-1.20	50.27	24.92	21.52	26.17	32.37	32.46	60 dBA:	15	16						
Total:											55.94	51.61	50.35	44.34	52.74	53.37	55 dBA:	32	35

Road Name: Alessandro Boulevard		Segment: East of Old 215 Frontage Road		Roadway Classification: Divided Major Arterial															
Average Daily Traffic: 27300 Vehicles		Vehicle Speed: 45 MPH		Vehicle Mix: 2															
NOISE PARAMETERS AT 105 FEET FROM CENTERLINE (Equiv. Lane Dist: 95.34 ft)																			
Vehicle Type	Noise Adjustments			Unmitigated Noise Levels			Centerline Distance to												
	REMEL Traffic Adj.	Dist Adj.	Finite Adj.	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL										
Automobiles	69.34	2.16	-4.31	-1.20	66.00	63.63	62.33	56.28	64.71	65.34	70 dBA:	52	57						
Medium Trucks	77.62	-12.70	-4.31	-1.20	59.41	40.20	32.42	41.63	47.78	47.82	65 dBA:	112	122						
Heavy Trucks	82.14	-10.49	-4.31	-1.20	66.15	49.16	41.38	50.58	56.74	56.77	60 dBA:	242	263						
Total:											69.53	63.80	62.37	57.43	65.43	65.97	55 dBA:	521	566

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**APPENDIX E**

Onsite Operations Reference Noise Measurements and Wall Calculations

**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

### General Information

Serial Number	02509
Model	831
Firmware Version	2.112
Filename	831_Data.002
User	GT
Job Description	Northwest Fresno Walmart Relocation
Location	Northwest Fresno Walmart
Measurement Description	
Start Time	Saturday, 2013 July 27 15:49:15
Stop Time	Saturday, 2013 July 27 16:09:15
Duration	00:20:00.6
Run Time	00:20:00.6
Pause	00:00:00.0
Pre Calibration	Saturday, 2013 July 27 13:36:08
Post Calibration	None
Calibration Deviation	---

### Note

Located at the eastern portion of the southern parking lot and approx 140 feet south of the front door  
96 F, 35% Humidity, 29.48 in Hg, 3 mph wind, partly cloudy

### Overall Data

LAeq		63.1	dB
LASmax	2013 Jul 27 15:59:44	79.2	dB
LApeak (max)	2013 Jul 27 16:06:25	102.2	dB
LASmin	2013 Jul 27 15:50:20	49.6	dB
LCeq		74.0	dB
LAeq		63.1	dB
LCeq - LAeq		10.9	dB
LAIeq		67.4	dB
LAeq		63.1	dB
LAIeq - LAeq		4.3	dB
Ldn		63.1	dB
LDay 07:00-23:00		63.1	dB
LNight 23:00-07:00		---	dB
Lden		63.1	dB
LDay 07:00-19:00		63.1	dB
LEvening 19:00-23:00		---	dB
LNight 23:00-07:00		---	dB
LAE		93.9	dB
# Overloads		0	
Overload Duration		0.0	s
# OBA Overloads		0	
OBA Overload Duration		0.0	s

### Statistics

LAS5.00	66.7	dBA
LAS10.00	66.3	dBA
LAS33.30	62.8	dBA
LAS50.00	61.7	dBA
LAS66.60	57.7	dBA
LAS90.00	52.8	dBA
LAS > 65.0 dB (Exceedence Counts / Duration)	17 / 347.8	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	26.1 dB
Under Range Peak	75.6 dB
Noise Floor	17.0 dB
Overload	143.1 dB

### 1/1 Spectra

Freq. (Hz):	8.0	16.0	31.5	63.0	125	250	500	1k	2k	4k	8k	16k
LZeq	66.7	66.1	71.1	71.6	64.9	59.5	59.6	58.3	56.2	51.8	46.8	44.6
LZSmax	82.6	84.9	82.2	89.3	77.1	67.1	72.4	76.6	76.6	69.0	67.7	63.1
LZSmin	46.5	55.4	53.6	59.0	55.2	49.9	45.5	43.6	40.9	37.7	39.6	42.8



### 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	63.6	61.5	59.8	58.7	60.7	63.4	67.2	66.6	65.3	65.7	67.5	67.2
LZSmax	80.9	76.9	73.6	75.5	79.8	83.7	80.9	76.8	78.9	83.8	87.4	88.8
LZSmin	37.3	40.3	43.7	45.3	48.2	51.5	55.9	60.4	54.9	53.2	57.5	47.0
Freq. (Hz):	100	125	160	200	250	315	400	500	630	800	1k	1.25k
LZeq	61.7	61.0	54.9	52.9	57.0	53.2	57.3	54.1	52.1	54.5	53.3	52.7
LZSmax	76.0	71.0	69.8	65.8	64.6	65.6	67.0	71.0	67.1	65.9	72.9	73.0
LZSmin	52.1	48.8	46.7	42.4	46.2	44.6	43.2	38.5	38.6	39.0	39.4	38.2
Freq. (Hz):	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	12.5k	16k	20k
LZeq	52.5	50.9	50.7	49.0	46.4	44.5	43.0	41.7	41.1	40.0	39.6	40.0
LZSmax	75.9	69.6	63.7	63.8	64.4	64.7	63.3	62.7	62.7	60.8	57.9	52.5
LZSmin	37.2	35.4	34.6	33.1	32.6	32.8	33.6	34.7	35.9	36.7	37.7	39.4

### Calibration History

Preamp	Date	dB re. 1V/Pa
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

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&rta.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



Truck Loading/Unloading Noise Measurement



Truck Loading/Unloading Noise Measurement



Forklift Operations Noise Measurement



Forklift Operations Noise Measurement



Parking Lot Noise Measurement



Parking Lot Noise Measurement



Rooftop Mechanical Equipment Noise Measurement



Rooftop Mechanical Equipment Noise Measurement

# Stationary Noise Calculations - Receptor 1 - Northwest of Project Site

Stationary Noise Sources	Reference Distance	Reference Leq	Home Adjacent to Project Site Distance	Home Adjacent to Project Site Leq
Rooftop HVAC	10	66.6	180	41.5
Auto Parking Lot	5	63.1	30	47.5
Onsite Truck Operations	10	63.3	15	59.8
Forklift	10	74.4	15	70.9

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

Stationary Noise Sources	Distance from Receptor to Wall	Height of Wall* (feet)	without wall		with wall		Exterior Observer Height (feet)	Source Height (feet)	Source Frequency (hz)	barrier to receiver - b (all)	path difference			line of sight (slope)	Barrier Atten
			Wall Level at Residence	Wall Noise Level at Residence	Noise Level at Residence	Source Height (feet)					Height (feet)	source to barrier - a	source to receiver - c		
Rooftop HVAC	120	39	41	26	38	5	5	800	124.724	60.008	183.000	1.732	1	4.927	-15.244
Auto Parking Lot	120	14	48	28	3	5	5	800	120.337	90.670	30.067	180.940	1	514.674	-19.4
Onsite Truck Operat	120	14	60	40	13.5	5	5	800	120.337	105.001	17.241	208.097	1	591.921	-19.4
Forklift	120	14	71	51	3	5	5	800	120.337	105.575	15.133	210.779	1	599.549	-19.4

\* Height of wall for Rooftop HVAC based on height of parapet wall, for ground level sources based on wall height of 14 feet.

Combined Noise Levels      71      52

## Stationary Noise Calculations - Receptor 2 - North of Project Site

Stationary Noise Sources	Reference Distance	Reference Leq	Home Adjacent to Project Site Distance	Home Adjacent to Project Site Leq
Rooftop HVAC	10	66.6	145	43.4
Auto Parking Lot	5	63.1	160	33.0
Onsite Truck Operations	10	63.3	10	63.3
Forklift	10	74.4	65	58.1

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

Stationary Noise Sources	Distance from Receptor to Wall	Height of Wall* (feet)	without wall		with wall		Exterior Observer Height (feet)	Source Height (feet)	Source Frequency (hz)	barrier to receiver - b (all)	path difference			Barrier Atten
			Wall Level at Residence	Wall Noise Level at Residence	Noise Level at Residence	at Residence					source to barrier - a	source to receiver - c	y = a+b-c (auto)	
Rooftop HVAC	120	39	43	30	38	5	800	124.724	25.020	148.708	1.036	1	2.947	-13.522
Auto Parking Lot	120	14	33	18	3	5	800	120.337	41.485	160.012	1.809	1	5.147	-15.384
Onsite Truck Oper	120	14	63	44	13.5	5	800	120.337	110.001	13.124	217.214	1	617.852	-19.4
Forklift	120	14	58	39	3	5	800	120.337	56.089	65.031	111.395	1	316.858	-19.4

\* Height of wall for Rooftop HVAC based on height of parapet wall, for ground level sources based on wall height of 14 feet.

**Combined Noise Levels      64      45**



## Stationary Noise Calculations - Receptor 3 - East of Project Site

Stationary Noise Sources	Reference Distance	Reference Leq	Home Adjacent to Project Site Leq
Rooftop HVAC	10	66.6	58.6
Auto Parking Lot	5	63.1	32.7
Onsite Truck Operations	10	63.3	42.5
Forklift	10	74.4	53.6

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

Stationary Noise Sources	Distance from Receptor to Wall	Height of Wall* (feet)	without wall		with wall		Source Height (feet)	Observer Height (feet)	Source Frequency (hz)	barrier to receiver - b (all)	path difference		line of sight (slope)	Barrier Atten
			Wall Level at Residence	Wall Noise Level at Residence	Noise Level at Residence	Noise Level at Residence					source to barrier - a	source to receiver - c		
Rooftop HVAC	120	39	59	39	38	5	800	124.724	95.005	41.400	178.328	1	507.245	-19.4
Auto Parking Lot	120	14	33	18	3	5	800	120.337	46.325	165.012	1.650	1	4.693	-15.083
Onsite Truck Oper	120	14	42	23	13.5	5	800	120.337	10.012	110.328	20.022	1	56.950	-19.2
Forklift	120	14	54	34	3	5	800	120.337	14.866	110.018	25.185	1	71.637	-19.3

\* Height of wall for Rooftop HVAC based on height of parapet wall, for ground level sources based on wall height of 14 feet.

**Combined Noise Levels      60                      41**

# Stationary Noise Calculations - Receptor 4 - Southeast of Project Site

Stationary Noise Sources	Reference Distance	Reference Leq	Home Adjacent to Project Site Distance	Home Adjacent to Project Site Leq
Rooftop HVAC	10	66.6	100	46.6
Auto Parking Lot	5	63.1	235	29.7
Onsite Truck Operations	10	63.3	225	36.3
Forklift	10	74.4	225	47.4

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

Stationary Noise Sources	Distance from Receptor to Wall	Height of Wall* (feet)	without wall		with wall		Exterior Observer Height (feet)	Source Height (feet)	Source Frequency (hz)	barrier to receiver - b (all)	path difference		line of sight (slope)	Barrier Atten
			Wall Level at Residence	Wall Noise Level at Residence	Noise Level at Residence	Noise Level at Residence					source to barrier - a	source to receiver - c		
Rooftop HVAC	120	39	47	27	38	5	800	124.724	20.025	105.304	39.444	1	112.197	-19.4
Auto Parking Lot	120	14	30	17	3	5	800	120.337	115.525	235.009	0.853	1	2.427	-12.846
Onsite Truck Oper	120	14	36	28	13.5	5	800	120.337	105.001	225.160	0.178	1	0.506	-8.5
Forklift	120	14	47	34	3	5	800	120.337	105.575	225.009	0.903	1	2.568	-13.028

\* Height of wall for Rooftop HVAC based on height of parapet wall, for ground level sources based on wall height of 14 feet.

Combined Noise Levels      50      36