Noise & Vibration Study
First Industrial Warehouse at Wilson Avenue
City of Perris

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1.0 INTRODUCTION

First Industrial Warehouse at Wilson Avenue (project) is being proposed within the Perris Valley Commerce Center (PVCC) Specific Plan in the City of Perris. The project has the potential to generate changes in the existing noise environment. Under the California Environmental Quality Act (CEQA), projects of this type are required to undergo environmental review to assess potential impacts. The following noise analysis has been prepared to support the Mitigated Negative Declaration (MND) for the project and to demonstrate consistency with all applicable federal, state and local noise regulations.

The following noise study describes the project, provides information regarding noise fundamentals, describes the applicable federal, state and local noise guidelines, characterizes the existing noise environment, provides the study methods and procedures used to perform the traffic noise analysis and evaluates off-site traffic noise impacts, presents stationary-related noise impacts from loading and unloading activities and construction noise impacts near sensitive residential communities. The project is required to incorporate the recommended noise mitigation measures presented in the Perris Valley Commerce Center Specific Plan Environmental Impact Report (PVCC SP EIR, July 2011).

1.1 Project Location and Site Description

The project site is located on an undeveloped parcel south of Rider Street on Wilson Avenue in the City of Perris, Riverside County, California. **Figure 1** depicts the project area in a regional context, while **Figure 2** presents the project site. The site is accessed via Wilson Avenue and is currently vacant. No buildings or structures currently exist at the site. **Figure 3** provides the proposed site plan of the proposed warehouse.

1.2 Project Description

The project proposes development of an approximate 303,228 square foot (sf) high-cube, non-refrigerated warehouse building that includes 8,000 sf office and 4,000 sf mezzanine, on approximately 15.60 gross acres south of Rider Street on Wilson Avenue, in the City of Perris, California. The project is located within the Perris Valley Commerce Center Specific Plan (PVCC SP) adopted in 2012. The Project sewer lines will connect to existing sewer lines along the frontage of the Project within Wilson Avenue; no improvements are proposed. The Project will construct off-site potable and recycled water lines in Wilson Avenue. The potable water line will be constructed along Wilson Avenue from the southern Project's frontage to Rider Street; the recycled water line will be constructed along the Project's frontage on Wilson Avenue stretching approximately 600 feet. It is also anticipated that Wilson Avenue will be repaved from the Project's southern frontage to Rider Street (approximately 1,650 SF). The total off-site disturbance is approximately 1.67 acres.

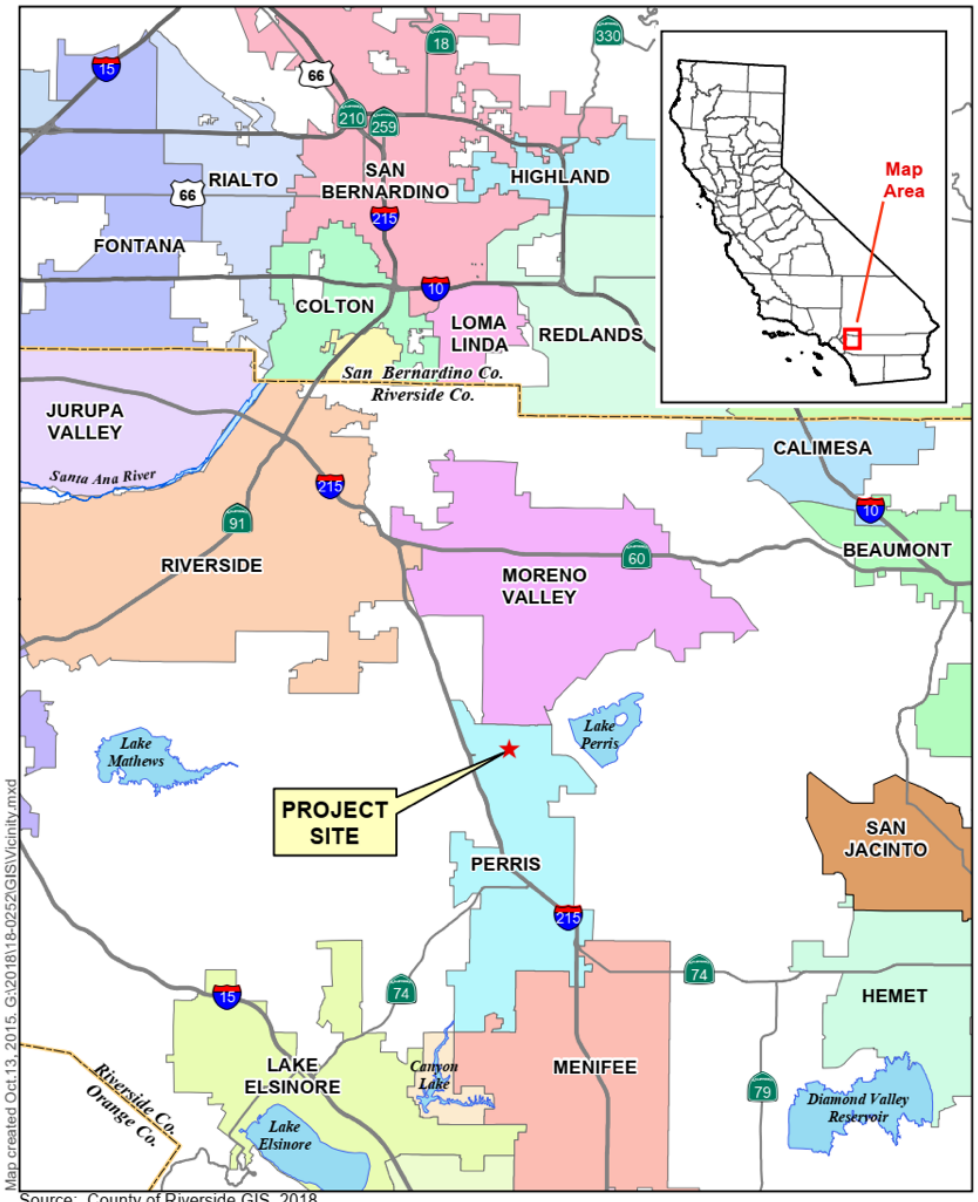

Figure 1 – Vicinity Map

First Industrial Warehouse at Wilson Ave.

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Sources: Riverside Co. GIS, 2019;
USDA NAIP, 2016.

Figure 2 - Aerial Map

First Industrial Warehouse at Wilson Ave.

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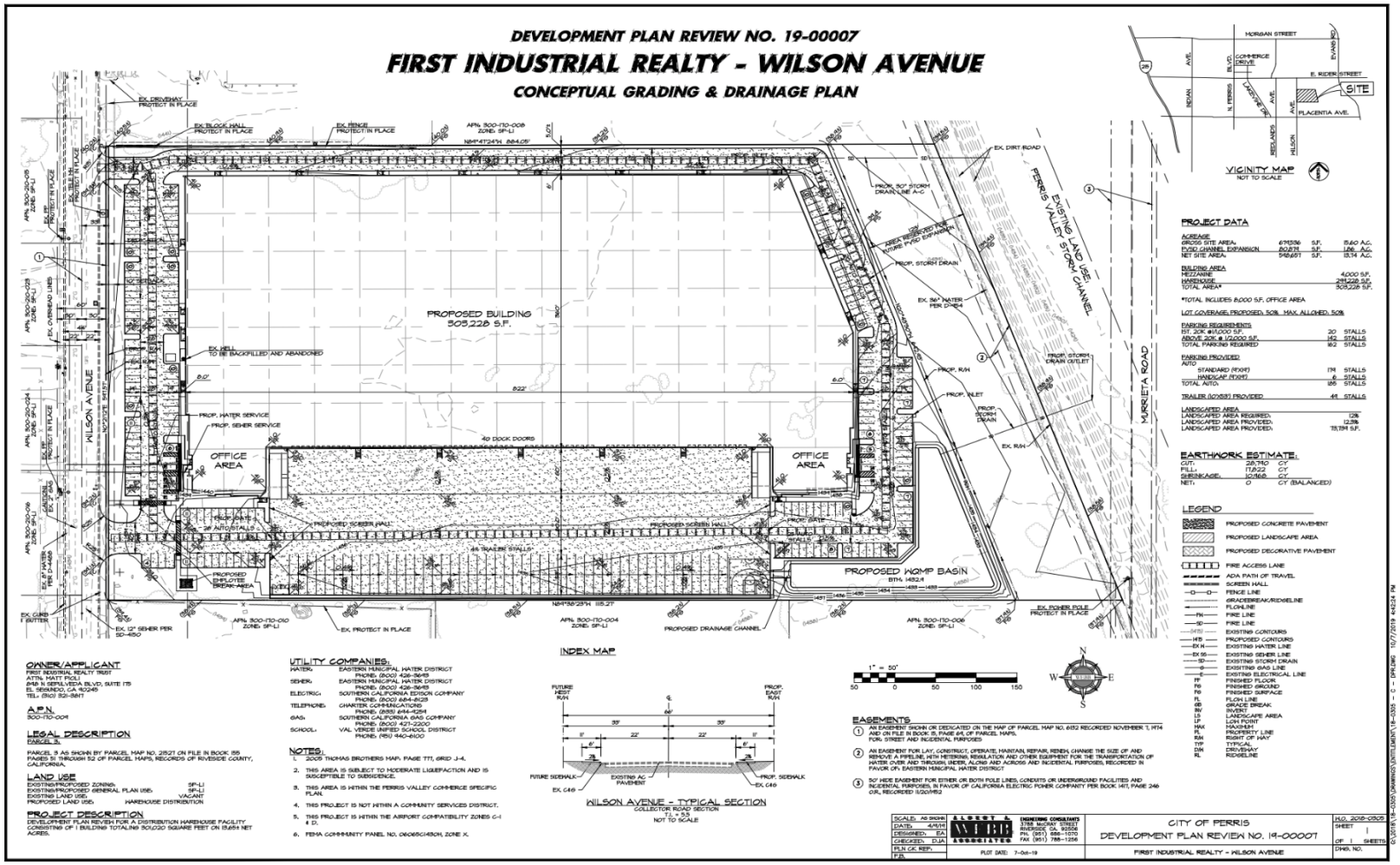

Figure 3. Site Plan

2.0 FUNDAMENTALS OF SOUND

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted or excessive sound, which can vary in intensity by over one million times within the range of human hearing; therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. As such, background noise level changes throughout a typical day, corresponding with the addition and subtraction of distant noise sources such as traffic, and single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

Because the noise environment is continually changing, average noise over a period of time is generally used to describe the community noise environment, which requires the measurement of noise over a period of time to accurately characterize a community noise environment. This time-varying characteristic of environmental noise is described using various noise descriptors, which are defined below:

L_{eq}: The L_{eq}, or equivalent sound level, is used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_x: The noise level exceeded a percentage of a specified time period. The "x" represents the percentage of time a noise level is exceeded. For instance, L_{50} and L_{90} represents the noise levels that are exceeded 50 percent and 90 percent of the time, respectively.

L_{dn}: Also termed the day-night average noise level (DNL), the L_{dn} is the average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dBA to measured noise levels between the hours of 10:00 pm to 7:00 am to account nighttime noise sensitivity.

CNEL: CNEL, or Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after an addition of 5 dBA to measured noise levels between the hours of 7:00 pm to 10:00 pm and after an addition of 10 dBA to noise levels between the hours of 10:00 pm to 7:00 am to account for noise sensitivity in the evening and nighttime, respectively.

In addition, sound is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) is used. On this

scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA. **Table 2-1** includes examples of A-weighted noise levels from common indoor and outdoor activities.

Table 2-1. Typical A-Weighted Noise Levels

Common Outdoor Noise	Noise Level (dBA)	Common Indoor Noise
	— 110 —	Rock band (noise to some, music to others)
Jet fly-over at 1000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in neighboring room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing
SOURCE: Caltrans 1998.		

Using the decibel scale, sound levels from two or more sources cannot be directly added together to determine the overall sound level. Rather, the combination of two sounds at the same level yields an increase of 3 dBA. The smallest recognizable change in sound levels is approximately 1 dBA. A 3-dBA increase is generally considered perceptible, whereas a 5-dBA increase is readily perceptible. A 10-dBA increase is judged by most people as an approximate doubling of the sound loudness.

Two of the primary factors that reduce levels of environmental sounds are increasing the distance between the sound source to the receiver and having intervening obstacles such as walls, buildings, or terrain features between the sound source and the receiver. Factors that act to increase the loudness of environmental sounds include moving the sound source closer to the receiver, sound enhancements caused by reflections, and focusing caused by various meteorological conditions.

2.1. Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance)
- Interference effects (e.g., communication, sleep, and learning interference)
- Physiological effects (e.g., startle response)
- Physical effects (e.g., hearing loss)

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects refer to interruption of daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep. With regard to the subjective effects, the responses of individuals to similar noise events are diverse and are influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Overall, a wide variation of tolerance to noise exists, based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- Outside of the laboratory, a 3 dBA change in noise levels is considered to be a barely perceivable difference.
- A change in noise levels of 5 dBA is considered to be a readily perceivable difference.
- A change in noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion, hence the decibel scale was developed.

Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

2.2. Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Noise from line sources (such as traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans 2013).

Physical barriers between the noise source and the receiving property are also effective in reducing noise levels. Effective noise barriers can lower noise levels by 10 to 15dBA. A noise barrier is more effective when it's placed closest to the noise source or receiver depending upon site geometry. However, there are limitation on the effectiveness a noise barrier. Noise barriers must block the line of site between the receiving property and the noise source. When this occurs a noise barrier can achieve a 5-dBA noise level reduction. This may require the noise barrier to be sufficiently long and high enough to block the view of a road to reduce traffic noise.

2.3. Fundamentals of Vibration

Vibration is energy transmitted in waves through the ground or man-made structures. These energy waves generally dissipate with distance from the vibration source. Common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment. As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA 2006), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA 2006). The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source

of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV (FTA 2006).

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (FTA 2006).

3.0 REGULATORY FRAMEWORK

The governing regulatory framework for the project within the City of Perris includes federal, state, and local noise and vibration standards. These standards are summarized below.

3.1 Federal Regulations and Standards

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the project. With regard to noise exposure and workers, the Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise. Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters (approximately 50 feet) from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

3.2 Federal Transit Authority Vibration Standards

The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by the FTA are shown in **Table 3-1**.

Table 3-1. Construction Vibration Damage Criteria

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12
SOURCE: FTA, 2006.	

The FTA has also adopted the following standards for groundborne vibration impacts related to human annoyance: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations, such as vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and research operations. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have

vibration-sensitive equipment, but still have the potential for activity interference. The vibration thresholds associated with human annoyance for these three land-use categories are shown in **Table 3-2**. No thresholds have been adopted or recommended for industrial, commercial and office uses.

Table 3-2. Groundborne Vibration Impact Criteria for General Assessment

Land Use Category	Frequent Events [a]	Occasional Events [b]	Infrequent Events [c]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

[a] Frequent Events" is defined as more than 70 vibration events of the same source per day.

[b] Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

[c] Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.

[d] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

SOURCE: FTA, 2006

3.2 State Regulations and Standards

Noise Standards

The California Department of Health Services has established guidelines for land use and noise exposure compatibility that are listed in **Table 3-3**. In addition, the California Government Code (Section 65302(g)) requires a noise element to be included in general plans and requires that the noise element: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

Table 3-3. California Community Noise Exposure (Ldn or CNEL)

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-family, Duplex, Mobile Homes	50 - 60	55 – 70	70 - 75	above 75
Multi-Family Homes	50 - 65	60 – 70	70 - 75	above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 – 70	70 - 80	above 80
Transient Lodging – Motels, Hotels	50 - 65	60 – 70	70 - 80	above 75
Auditoriums, Concert Halls, Amphitheaters	---	50 – 70	---	above 70
Sports Arena, Outdoor Spectator Sports	---	50 – 75	---	above 75
Playgrounds, Neighborhood Parks	50 - 70	---	67 - 75	above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 75	---	70 - 80	above 80
Office Buildings, Business and Professional Commercial	50 - 70	67 – 77	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 – 80	above 75	---

a Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

b Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

c Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

d Clearly Unacceptable: New construction or development should generally not be undertaken.

SOURCE: FTA, 2006.

The State of California has noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dBA. The state pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters (50 feet) from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

3.3 Local Regulations and Standards

City of Perris Municipal Code

The City of Perris Municipal Code, Chapter 19.44 (Industrial Zones) Section 19.44.070 b(1) and b(2), outlines performance standards for Industrial uses as follows;

- Noise generated on-site shall be controlled for compatibility with surrounding land uses. Any proposed use that may generate noise during evening hours (7:00 p.m. to 7:00 a.m.) must submit a detailed noise assessment and plan addressing and mitigating potential noise impacts.
- Vibrations generated on-site shall not be detectable off-site. Any proposed use that may generate vibrations detectable off-site must submit a detailed vibration assessment and plan addressing and mitigating potential impacts.

The City of Perris Municipal Code, under Chapter 7.34 (Noise Control), provides the local government ordinance relative to community noise level exposure, guidelines, and regulations.

The City of Perris Municipal Code, Chapter 7.34 *Noise Control*, Section 7.34.040, establishes the following permissible noise levels that may intrude into a neighbor's property from the use of sound amplifying equipment. The maximum permissible noise level shall not exceed 60 dBA during the hours of 10:01pm to 7:00am and 80 dBA between the house or 7:01am to 10:00pm.

The Municipal Code exterior noise level criteria for residential properties affected by operational noise sources is included in Section 7.34.050 *General Prohibition*, which states that the Section 7.34.040 sound amplifying equipment noise standards shall apply.

Construction Noise Levels Pursuant to Section 7.34.060 (Construction Noise), the construction, demolition, excavation, alteration, or repair of any building or structure in such a manner as to create disturbing, excessive, or offensive noise is prohibited between the hours of 7:00 PM and 7:00 AM, on Sundays, and on a legal holiday. Construction activity shall not exceed 80 dBA in residential zones within the city.

City of Perris General Plan

The City of Perris General Plan Noise Element includes Land Use/Noise Compatibility Guidelines, as shown on **Figure 4** (on page 17), which establishes normally acceptable exterior noise levels for specified land uses.

The City of Perris General Plan states under Policy V.A that new large scale commercial or industrial facilities located within 160 feet of sensitive land uses shall mitigate noise impacts to attain an acceptable level as required by the State of California Noise/Land Use Compatibility Criteria. Under this policy, the City of Perris General Plan Noise Element lists Implementation Measure V.A.1. This implementation measure requires an acoustical impact analysis to be prepared for new industrial and

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

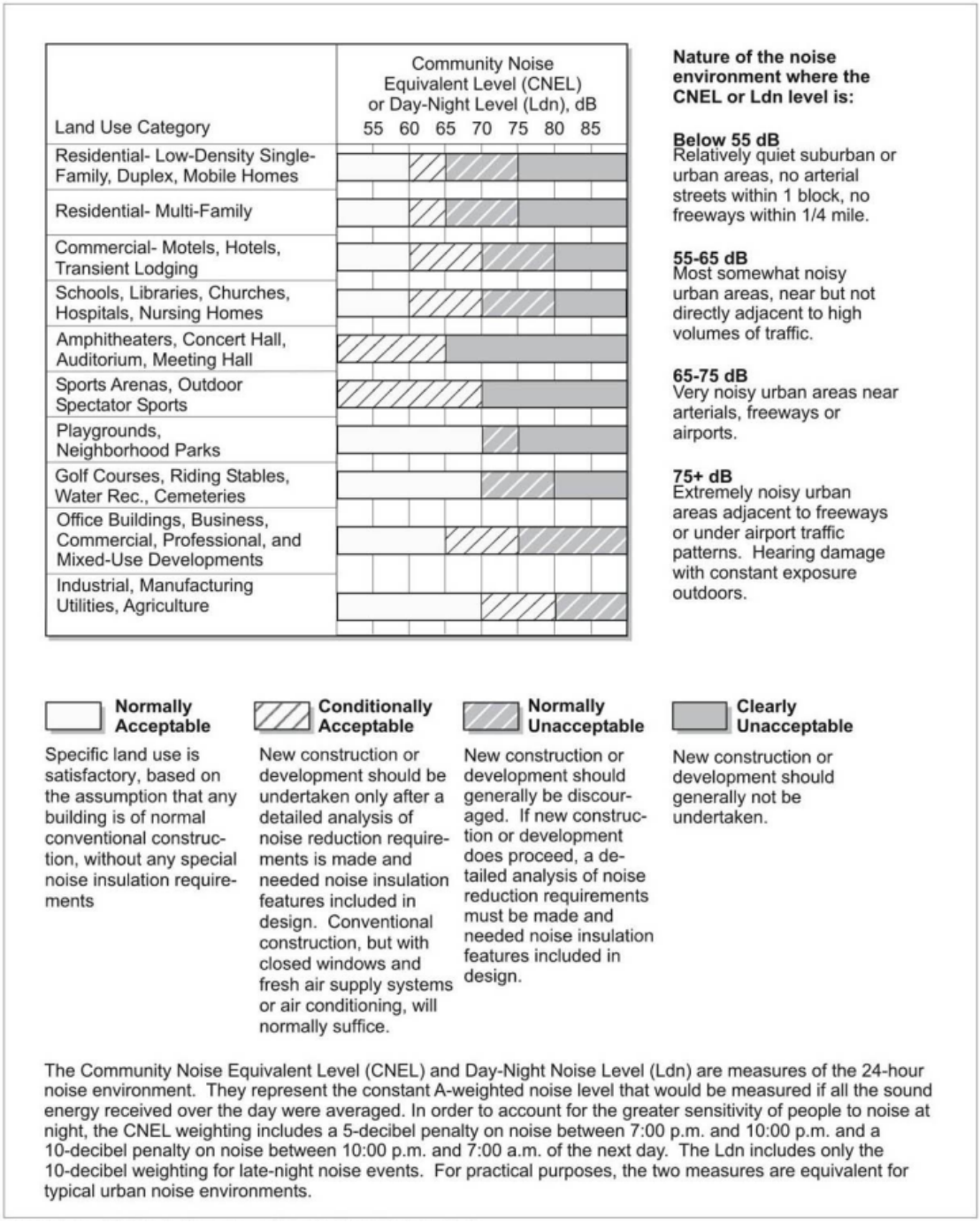

Figure 4. City of Perris Land Use Compatibility Guidelines

4.0 THRESHOLDS OF SIGNIFICANCE

Appendix G of the 2019 California Environmental Quality Act (CEQA) Guidelines states that a project could have a noise impact if any of the following would occur:

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

b) Generation of excessive groundborne vibration or groundborne noise levels?

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

4.1. Perris Valley Commerce Center Specific Plan Thresholds

While the CEQA Guidelines and the City of Perris General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type, CEQA thresholds are not defined for the levels at which increases are considered substantial. However, according to the PVCC SP Environmental Impact Report (EIR), *there is no official "industry standard" of determining significance of noise impacts. However, typically, a jurisdiction will identify either 3 dBA or 5 dBA increase as being the threshold because these levels represent varying levels of perceived noise increases* (page 4.9-20, PVCC SP EIR, July 2011).

The PVCC SP EIR indicates that a 5-dBA noise level increase is considered *discernable to most people in an exterior environment* when the existing noise levels are below 60 dBA. Further, it identifies a 3-dBA increase threshold when the existing ambient noise levels already exceed 60 dBA (page 4.9-20, PVCC SP EIR, July 2011).

4.2. Operational and Construction Thresholds

Noise levels exceed CEQA thresholds if any of the following occur as a direct result of the proposed development.

OFF-SITE TRAFFIC NOISE

Traffic noise impacts exceed the CEQA thresholds when the resulting noise levels at noise-sensitive land uses (e.g. residential, etc.):

- are less than 60 dBA CNEL and the project creates a 5 dBA CNEL or greater project related noise level increase (PVCC SP EIR, Page 4.9-20); or
- exceed 60 dBA CNEL and the project creates a 3 dBA CNEL or greater project-related noise level increase (PVCC SP EIR, Page 4.9-20).

OPERATIONAL NOISE AND VIBRATION

The noise CEQA threshold is exceeded, if project-related operational noise levels resulting from stationary sources, such as on-site noise such as idling trucks, delivery truck activities, backup alarms, loading and unloading, air conditioning units and parking lot vehicle movements, exceed the 80 dBA Leq daytime or 60 dBA Leq nighttime noise level standards at the nearby sensitive receiver locations in the City of Perris (City of Perris Municipal Code, Section 7.34.040); or

If the resulting ambient noise levels at the nearby noise-sensitive receivers near the Project site:

- are less than 60 dBA L_{eq} and the project creates a 5 dBA L_{eq} or greater project-related noise level increase (PVCC SP EIR, Page 4.9-20); or
- exceed 60 dBA L_{eq} and the project creates a 3 dBA Leq or greater project-related noise level increase (PVCC SP EIR, Page 4.9-20).

Although the City of Perris does not have any specified thresholds for vibration, the FTA vibration criteria, as referenced in the PVCC SP EIR pages 4.9-27 and 4.9-28, will be utilized to evaluate vibration impacts. If long-term project generated operational source vibration levels exceed the FTA maximum acceptable vibration standard of 80 vibration decibels (VdB) at noise-sensitive receiver locations, a noise levels will exceed the vibration CEQA threshold.

CONSTRUCTION NOISE AND VIBRATION

If project-related construction activities create noise levels at sensitive receiver locations in the City of Perris which exceed the construction noise level limit of 80 dBA L_{eq} (City of Perris Municipal Code7.34.060).

Although the City of Perris does not have any specified thresholds for vibration, the FTA vibration criteria, as referenced PVCC SP EIR pages 4.9-27 and .9-28, will be utilized to evaluate vibration impacts. If short-term project generated construction source vibration levels exceed the FTA maximum acceptable vibration standard of 80 vibration decibels (VdB) at noise-sensitive receiver locations, a noise levels will exceed the vibration CEQA threshold.

AIRPORT NOISE

The nearest airport, which is approximately 6.6 miles northwest of to the project site is March Air Reserve Base/Inland Port Airport. The Riverside County Airport Land Use Commission adopted the March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan. This Plan provides noise contours for this airport to assist in setting policies for establishing new land uses and appropriate mitigation for properties that will continue to be exposed to higher noise levels. As shown in **Figure 5**, the project is located within the March Air Reserve Base land use Compatibility Zones C1 an D. For these zones, the noise contours range from being with or near 60 CNEL and 55 CNEL respectively. The project is consistent with the type of land use for this compatibility zone. Standard building construction is for the project is presumed to provide adequate sound attenuation where the difference between the exterior noise exposure and the interior standard is 20 dB or less. Compliance with the land use type for this compatibility zone meets the CEQA threshold for airport noise.

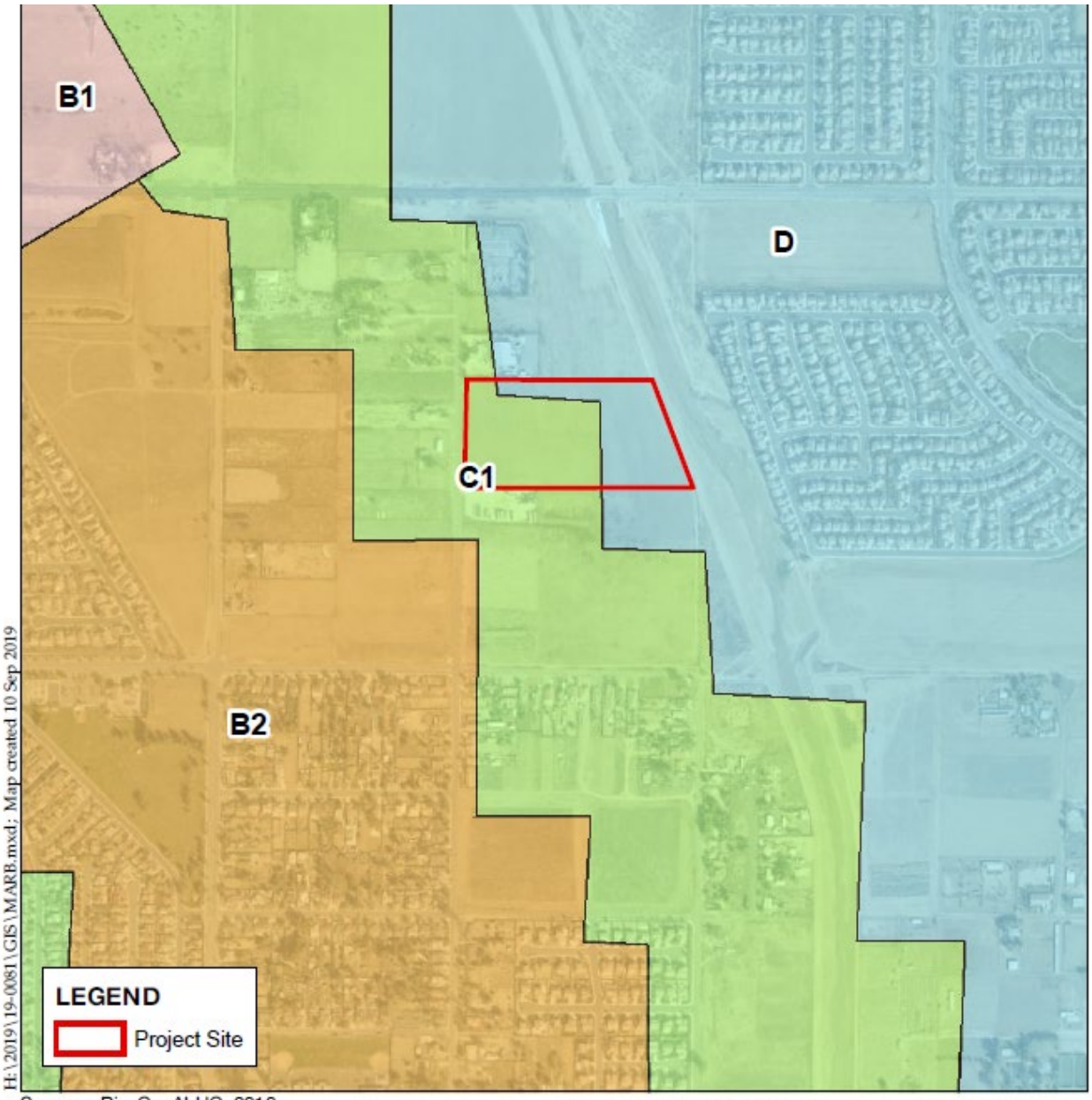

Figure 5 - MARB Compatibility Zones
First Industrial Warehouse at Wilson Ave.

5.0 EXISTING NOISE MEASUREMENTS

The existing noise environment was characterized by collecting field noise measurements at sensitive residential properties within the project area. A total of two (2) long-term 24-hour measurements were taken at the project site on November 22 and November 25, 2019. **Table 5-1** presents the CNEL values and hourly day and night noise levels for the project site for the sensitive receivers identified in **Figure 5**. Appendix A includes the field monitoring data for each monitoring location.

5.1 Measurement Procedure and Criteria

Hourly noise levels were measured during typical weekday conditions over a 24-hour period to describe the existing noise environment and to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The 24-hour measurements provide the hourly noise levels to calculate the CNEL for the project area. Long term noise measurements were taken using a Larson Davis Type 1 precision sound level meter. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphone were mounted, five feet above the ground and equipped with a windscreen during all measurements. The Larson Davis sound level meter was calibrated before the monitoring using a CAL200 calibrator. All noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

5.2 Noise Measurement Locations

The project site is a vacant parcel. The noise monitoring locations were selected based on the proximity to nearby residential properties and local roadways. Noise measurement locations at Site 1 and Site 2, as shown in **Figure 6,** were monitored for a period of 24 hours. Site 1 is located near 3715 Wilson Avenue, approximately 600 feet northwest of the project site. Site 2 is located at the property of 2940 Wilson Avenue, approximately 200 feet southwest of the project site. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial roadway network (i.e., Rider Street and Wilson Avenue). This includes the auto and heavy truck activities near the noise level measurement locations. **Table 5-1** identifies the hourly daytime (7:01 a.m. to 10:00 p.m.) and nighttime (10:01 p.m. to 7:00 a.m.) noise levels at each noise level measurement location consistent with the City of Perris Municipal Code. Appendix A provides a summary of the existing hourly ambient noise levels as described below:

Site 1 represents the noise levels adjacent to the northern portion of the Project site boundary near Rider Street. The noise level measurements collected show an overall 24-hour exterior noise level of 66.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.1 dBA L_{eq} with an average nighttime noise level of 52.4 dBA L_{eq}.

Site 2 represents the noise levels adjacent to the southern portion of the Project site boundary near Rider Street. The noise level measurements collected show an overall 24-hour exterior noise level of 66.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 55.5 dBA L_{eq} with an average nighttime noise level of 55.9 dBA L_{eq}.

Table 5-1. Existing (Ambient) Long-Term (24-hour) Noise Level Measurements[1]								
Noise Monitoring Location ID[2,3]	Description	Hourly Noise Levels (1hr-L_{eq})						24-hour Noise Levels (CNEL)
		Daytime Minimum	Daytime Maximum	Average Daytime	Nighttime Minimum	Nighttime Maximum	Average Nighttime	
Site 1	3715 Wilson Avenue (near northwest corner of the project site)	52.5	62.7	60.1	49.5	69.7	52.4	66.4
Site 2	2940 Wilson Avenue (southwest west corner of the project site)	51.6	62.3	55.5	56	63.1	55.9	66.5

[1] Noise measurement taken on November 22,2019 and November 25, 2019. See Appendix A for monitoring data.

[2] See Figure 5 for the location of the monitoring sites.

[3] Taken with Larson Davis Type 1 noise meter

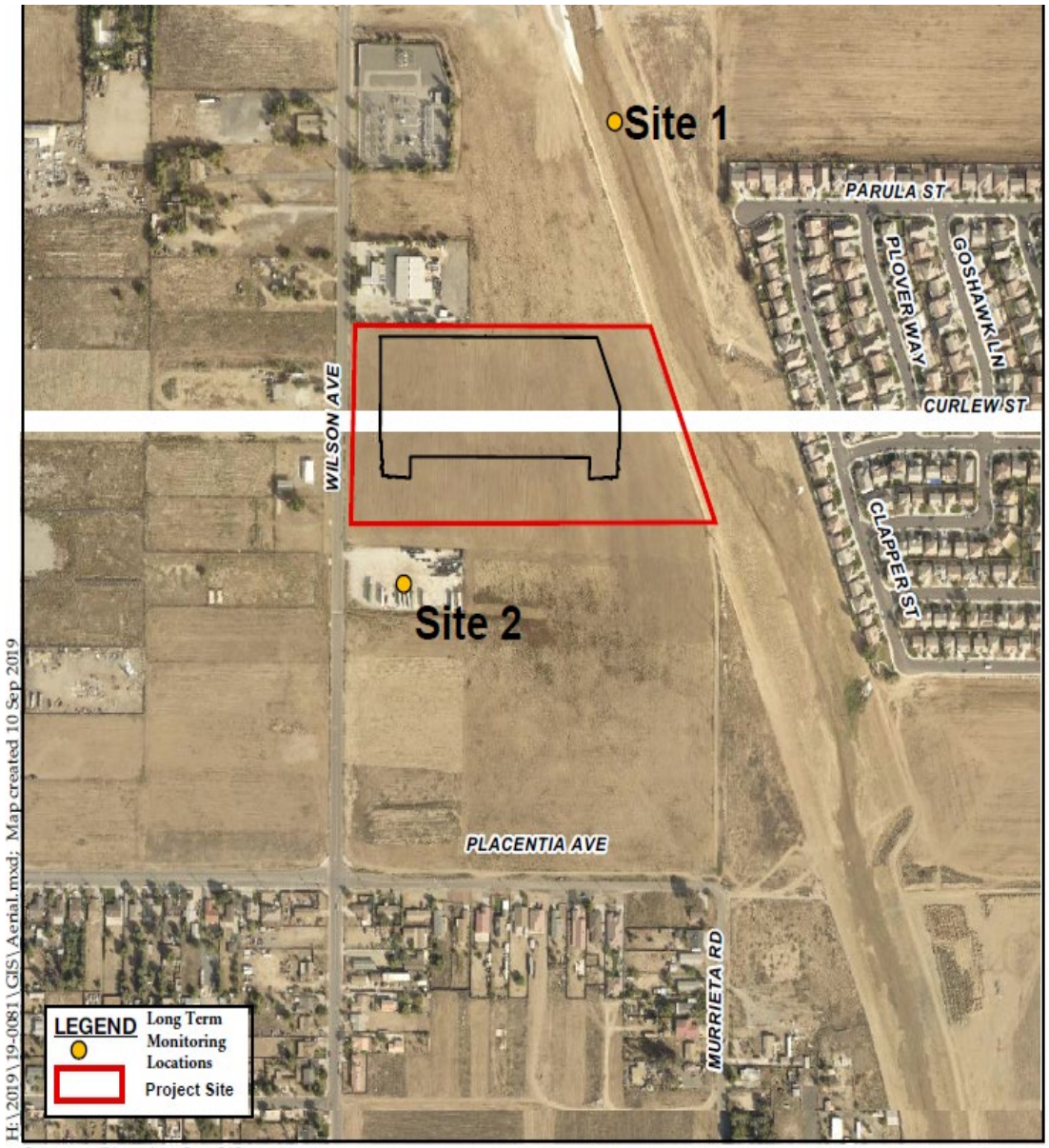

Figure 6 - Long Term Measurement Locations

First Industrial Warehouse at Wilson Ave.

ALBERT A. WEBB ASSOCIATES

6.0 ANALYSIS METHODS AND PROCEDURES

The following section outlines the analysis methods utilized to predict future noise and vibration levels from the construction and operation of the project.

6.1 Construction

6.1.1 Noise Analysis Methods

The assessment of the construction noise impacts must be relatively general at this phase of the project because many of the decisions affecting noise will be at the discretion of the contractor. However, an assessment based on the type of equipment expected to be used by the contractor can provide a reasonable estimate of potential noise impacts and the need for noise mitigation. A worst-case construction noise scenario was developed to estimate the loudest activities that would be occurring at the project site. Pile driving and blasting activities are not anticipated, therefore the loudest construction activities are centered around movement of heavy construction equipment during excavation, grading operations and the erection of buildings. Noise levels were estimated based on a worst-case scenario which assumed all pieces of equipment would be operating simultaneously during each construction phase. The calculated noise level was then compared to the respective local noise regulation to determine if construction would exceed the City of Perris exterior noise standard of 80 dBA at nearby residential land uses. Construction of the project is expected to occur over a nine-month period. Receiver distance to the construction activity along with the construction equipment operating at maximum load will have the greatest influence on construction noise levels experienced at residential land uses.

6.1.2 Vibration Analysis Methods

Groundborne vibration levels resulting from construction activities within the project area were estimated using the data published by the FTA in its Transit Noise and Vibration Impact Assessment Manual (FTA, 2006). Predicted construction vibration levels were identified at the nearest off-site residential land use and compared to the FTA damage criteria and the human annoyance criteria as shown previously in **Table 3-1** and **Table 3-2**, respectively.

6.2 Operational Noise & Vibration Analysis

6.2.1 Operational Traffic Noise Analysis Methods

The project roadway noise impacts from vehicular traffic were predicted using the FHWA-TNM 2.5 Model. The FHWA TNM 2.5 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 REMEL to account for: roadway classifications (e.g. collector, secondary, major or arterial), roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), traffic volumes, travel speed, percentages of automobiles, medium trucks, and heavy trucks, roadway grade, angle of view (e.g. whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the adsorption of the ground, pavement, or landscaping).

6.2.2 Operational Traffic Noise Analysis Inputs

Roadway parameters, peak hour traffic volumes and traffic flow distributions (vehicle mix) used in this analysis were obtained from traffic data provided by Webb Associates (2019) as shown in Appendix B (TNM Traffic

Inputs). The vehicle mix provides the distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model. Traffic volumes from AM and PM peak periods were compared, and the higher volume condition was selected to develop worst-case traffic noise levels. For this project, AM traffic volumes were higher than PM volumes.

Soft site conditions were used to develop the noise contours to analyze the traffic noise impacts to the study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation.

6.2.3 Operational Traffic Vibration Analysis

As a conservative measure, vibration vs. distance curve obtained from the Caltrans Transportation and Construction Vibration Guidance Manual will be used to represent worst-case vibration levels from truck traffic at the nearest receiver locations along Rider Street and Wilson Avenue. This curve provides empirical data that collected from several freeways and local roadways to determine vibration levels from auto and truck traffic. This curve will be utilized to make a qualitative assessment on anticipated vibration levels at residential land uses along local roadways near the project site. These vibration levels will be compared to the Caltrans and FTA vibration criteria as shown previously in **Table 3-1 and Table 3-2**. These criteria will be utilized to evaluate the vibration effects from continuous auto and truck traffic.

6.2.4 Stationary Noise Analysis Method

The primary non-transportation noise sources associated with the project are HVAC equipment, on-site parking lot circulation and the 40-bay loading dock. In order to evaluate these noise sources at the nearest residential noise-sensitive receptors, existing short-term measurements were taken to obtain a reference noise level of similar operational activities. These reference noise levels were used to describe the anticipated operational noise levels that would be generated from idling trucks, delivery truck activities, backup alarms, loading and unloading, air conditioning units and parking lot vehicle movements. **Table 6.1** provides the reference noise level measurements that were collected from similar existing operational noise sources. The reference noise levels were obtained at a Costco Distribution Center located at 26610 Ynez Rd, Temecula, CA 92591. Measurements were taken at this location of similar stationary source activity of a typical warehouse.

Table 6.1 Reference Noise Levels

Noise source[1]	Duration of measurement	Reference Distance from the source (ft)	Noise source height (ft)	L_{eq}	
				@ Reference distance	@ 50 feet
unloading/loading[2]	15min	10	8	69.6 dBA	55.6 dBA
Parking lot circulation[3]	30min	12	5	71.3 dBA	58.9 dBA
Air conditioning units [4]	30min	5	25	68.6 dBA	48.6dBA

[1] Noise measurements taken at the Temecula Costco Distribution Center on 12/13/2019.
[2] Activities included in this measurement-Backup alarms, unloading a docked truck container.
[3] Activities included in this measurement-cars pulling in and out of spaces, exiting and entering parking lot.
[4] Activities included in this measurement- mechanical roof-top air conditioning unit on the roof .

7.0 OFF-SITE TRANSPORTATION NOISE IMPACTS

Roadway Noise

The primary off-site noise related effects are attributable to increases in traffic. The Traffic Noise Model (TNM 2.5) was utilized to assess noise impacts at sensitive residential receiver locations. The project, along with future regional growth and other projects to be developed within the Project vicinity, would result in the addition of vehicle trips that would increase traffic noise. The roadway noise analysis focused on segments that experienced the greatest increase in truck traffic near sensitive residential receiver locations. Sensitive residential receivers R1- R10 were identified within the project area along on Wilson Avenue west of the project site, E Rider street, Redlands Avenue, and Placentia Avenue as shown in **Figure 7**.

A potential noise impact when the resulting noise levels at noise-sensitive land uses (e.g. residential, etc.):

- are less than 60 dBA CNEL and the project creates a 5 dBA CNEL or greater project related noise level increase (PVCC SP EIR, Page 4.9-20); or
- exceed 60 dBA CNEL and the project creates a 3 dBA CNEL or greater project-related noise level increase (PVCC SP EIR, Page 4.9-20).

The TNM modeling was performed for the following scenarios: existing; existing plus project; existing plus ambient plus project; and existing plus ambient plus cumulative plus project (Webb Associates, 2019). The TNM model takes into account the posted vehicle speed, AM peak hour traffic volumes, the estimated vehicle mixes and sound-attenuating effects of intervening structures, barriers, vegetation, or topography. The model assumed "pavement" site propagation conditions. **Table 7-1** presents the Existing and Future Roadway Traffic Noise Levels (dBA L_{eq} CNEL).

As shown in **Table 7-1**, the project noise levels do not have noticeable increases above existing noise levels. A majority of the noise levels are above 60 dBA CNEL, except at receivers R4 and R8. These two receivers are the only receivers that have current noise levels below 60 dBA CNEL. However, the project does not have a noticeable increase above 3 dBA at any receiver locations. Therefore, these increases will not exceed the CEQA threshold.

Figure 7. Residential Receiver Locations

Table 7-1. Traffic Noise Levels Near Sensitive Receiver Locations (dBA, CNEL)[1]							
Receiver	Existing	Existing Plus Project Opening Year (2021) Traffic	Increase over Existing	Existing Plus Ambient Growth Plus Project (2021)	Increase over Existing	Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (2021)	Increase over Existing
R1	66.4	67.2	0.8	67.9	1.5	68.3	1.9
R2	63.8	64.5	0.7	65.3	1.5	65.5	1.7
R3	63	63.7	0.7	64.5	1.5	64.5	1.5
R4	58	58.7	0.7	59.3	1.3	59.4	1.4
R5	61.4	62.3	0.9	63.1	1.7	63.1	1.7
R6	60	61.1	1.1	61.8	1.8	61.8	1.8
R7	58.9	59.9	1.0	60.6	1.7	60.7	1.8
R8	54.2	55.0	0.8	55.8	1.6	55.8	1.6
R9	64.1	64.5	0.4	65.1	1.0	65.0	0.9
R10	67.8	68.3	0.5	69.2	1.4	69.0	1.2

[1] Traffic noise levels are based on AM Peak hour traffic volumes. The AM peak hour had greater traffic volumes than PM peak hour, therefore, traffic noise levels were modeled with AM Peak hour traffic volumes as a worst-case scenario. The 1-hour TNM L_{eq} dBA results for each receiver location were then converted to dBA CNEL for each receiver location.

8.0 STATIONARY-RELATED NOISE IMPACTS

The project was evaluated for stationary noise impacts. The City of Perris Municipal Code, Section 7.34.040 requires operational noise levels not to exceed the 80 dBA L_{eq} daytime or 60 dBA L_{eq} nighttime noise level standards at the nearby sensitive receiver locations in the City of Perris. Stationary-related noise impacts were evaluated utilizing the maximum noise levels assumptions outlined in section 6.2.4 for the HVAC equipment, on-site parking lot circulation and the proposed 40-bay loading dock (including backup beeps and air brake releases).

Table 8-1 provides a listing of the sensitive residential receiver locations near the project site. Distances from the sensitive receiver location to the project site were from receivers R1 through R10. No sensitive receivers were identified to be within 160 feet of the proposed site, however noise levels at these locations must meet the City of Municipal Code, Section 7.34.040 noise standards as discussed above.

The reference noise levels for various operational noise sources provided in **Table 6.1** were utilized to calculate the predicted operational source noise levels at residential receiving properties, R-1 through R-10. The noise propagation attenuation formula was used to account for distance attenuation due to geometric spreading when sound from a localized stationary source propagates. Sound attenuates at a rate of 6 dB for each doubling of distance from a point source. This attenuation factor was applied to each reference noise level to obtain the predicted operational noise level. The predicted operational noise levels for each operational source type were combined to obtain the total project-only operational noise level at each nearby sensitive residential receiver location. The combined project operational noise levels at receivers R1 through R10 range from 24.6 to 47.8 dBA L_{eq}. Therefore, operational noise levels associated with the project will satisfy the City of Perris Municipal Code exterior noise level standards of 80 dBA L_{eq} daytime and 60 dBA L_{eq} nighttime.

Table 8-1. Project Only Operational Noise levels (dBA L_{eq})

Receiver Location[1]	Distance	Noise Sources (dBA L_{eq})[2]			Combined Project Only Operational Noise Level (dBA L_{eq})[3]
		Unloading /loading	Parking lot Circulation	Air Conditioning units	
R1	3,257	19.3	22.6	12.3	24.6
R2	2,264	22.5	25.8	15.5	27.7
R3	1,297	27.3	30.6	20.3	32.5
R4	1,477	26.2	29.5	19.2	31.5
R5	800	31.5	34.8	24.5	36.7
R6	380	38	41.3	31	43.2
R7	225	42.6	45.8	35.5	47.8
R8	1,212	27.9	31.2	20.9	33.1
R9	1,464	26.3	29.6	19.3	31.5
R10	1,901	24	27.3	17	29.2

[1] Figure 6 shows the receiver locations.
[2] Calculated by taking the reference noise levels provided in Table 6-1 and applying the 6dBA doubling of distance propagation attenuation noise formula.
[3] Calculated logarithmically by adding the reference noise levels for each operating source type together to obtain a total noise level.

As shown in **Tables 8-2 and 8-3,** the combined project only operational noise levels provided in **Table 8.1** were added to the average measured ambient noise level to determine the total combined operational noise level and the increase over existing ambient noise levels.

The project will contribute a daytime operational noise level increase of up to 0.7 dBA L_{eq} and a nighttime operational noise level increase of up to 0.6 dBA L_{eq} at the sensitive residential receiver locations. The project-related operational noise level contributions would not exceed the CEQA threshold of 5-dBA L_{eq} when the without project noise levels are below 60 dBA or a 3-dBA increase when the project noise levels are above 60 dBA as discussed in Section 4. Therefore, the increases at the sensitive residential receiver locations will not exceed the CEQA threshold.

Table 8-2. Operational Daytime Operational Noise levels (dBA L_{eq})

Receiver Location[1]	Combined Operational Noise Level (dBA L_{eq}) [2]	Measurement Location[3]	Average Measured Ambient Noise Level (dBA L_{eq})[3]	Combined Noise level (dBA L_{eq})[4]	Project Increase
R1	24.6	Site 1	60.1	60.1	0.0
R2	27.7	Site 1	60.1	60.1	0.0
R3	32.5	Site 1	60.1	60.1	0.0
R4	31.5	Site 1	60.1	60.1	0.0
R5	36.7	Site 1	60.1	60.1	0.0
R6	43.2	Site 1	60.1	60.1	0.0
R7	47.8	Site 2	55.5	56.2	0.7
R8	33.1	Site 2	55.5	55.5	0.0
R9	31.5	Site 2	55.5	55.5	0.0
R10	29.2	Site 1	60.1	60.1	0.0

[1] **Figure 6 shows the receiver locations.**

[2] **Combined Noise Level from Table 8-1.**

[3] Site 1 average measured daytime noise level was used for receivers closest to Rider St. Site 2 average measured daytime noise level was used for receivers closest to Wilson Avenue.

[4] Calculated logarithmically by adding the average measured daytime ambient noise level listed in Table 5.1 for the nearest respective monitoring site to the combine operational noise level.

Table 8-3. Operational Nighttime Operational Noise levels (dBA L_{eq})					
Receiver Location[1]	**Combined Operational Noise Level (dBA L_{eq})[2]**	**Measurement Location[3]**	**Measured Ambient Noise Level (dBA L_{eq})[3]**	**Combined Noise level (dBA L_{eq})[4]**	**Project Increase**
R1	24.6	Site 1	52.4	52.4	0.0
R2	27.7	Site 1	52.4	52.4	0.0
R3	32.5	Site 1	52.4	52.4	0.0
R4	31.5	Site 1	52.4	52.4	0.0
R5	36.7	Site 1	52.4	52.4	0.0
R6	43.2	Site 1	52.4	53.0	0.6
R7	47.8	Site 2	55.9	56.5	0.6
R8	33.1	Site 2	55.9	56.0	0.1
R9	31.5	Site 2	55.9	56.0	0.1
R10	29.2	Site 1	52.4	52.4	0.0

[1] Figure 6 shows the receiver locations.
[2] Combined Noise Level from Table 8-1.
[3] Site 1 average measured nighttime noise level was used for receivers closest to Rider St. Site 2 average measured nighttime noise level was used for receivers closest to Wilson Avenue.
[4] Calculated logarithmically by adding the average measured nighttime ambient noise level listed in Table 5.1 for the nearest respective monitoring site to the combine operational noise level.

9.0 OPERATIONAL VIBRATION ANALYSIS

The operation of the project will increase auto and truck traffic within the project area. Per the Caltrans Transportation Noise and Vibration Manual traffic, auto and heavy trucks traveling on roadways rarely generates vibration amplitudes high enough to cause structural or cosmetic damage. However, a qualitative analysis was provided in this study to evaluate the likelihood of vibration impacts from the project utilizing the empirical vibration curve developed by Caltrans.

The Caltrans Noise and Vibration Manual provides a collection of measured vibration data for truck passbys. This data demonstrates that truck passbys can be characterized by a peak in vibration that is considerably higher than those generated by automobiles for a few seconds. Vibration from these trucks drop off dramatically with distance. As truck volumes increases, more peaks will occur but not necessarily higher peaks. Vibration wave fronts emanating from several trucks closely together may either cancel or partially cancel (destructive interference) or reinforce or partially reinforce (constructive interference) each other, depending on their phases and frequencies. Since traffic vibrations can be considered random, the probabilities of total destructive or constructive interference are extremely small. Coupled with the fact that two trucks cannot occupy the same space, and the rapid drop-off rates, it is understandable that two or more trucks normally do not contribute significantly to each other's peaks.

In order to predict the maximum truck traffic vibrations from the project, the Caltrans empirical curve, as shown in **Figure 8** was obtained from the Caltrans Noise and Vibration Manual (Caltrans, 2013). This curve was used to predict operational vibration impacts. **Figure 8** is a graph of measured vibration data collected from truck traffic travelling on freeways and local roadways plotted by truck traffic vibrations vs. distance from the centerline of the nearest travel lane. The graph indicates that the highest traffic generated vibrations measured on freeway shoulders (5 m from center line of nearest lane) have never exceeded 2.0 mm/s or (0.08 in/sec) with the worst combinations of heavy trucks. This amplitude coincides with the maximum recommended "safe amplitude" for historical buildings. The graph illustrates the rapid attenuation of vibration amplitudes, which dips below the threshold of perception for most people at about 45 m (150 ft). Caltrans states that for sensitive receivers adjacent to local roadways, within 15 m(50 feet) of the centerline of the nearest travel lane, similar to receivers R1 through R10, will have maximum worse-case vibration levels near 0.08 mm/s or (0.0032 in/sec or 70 VdB).

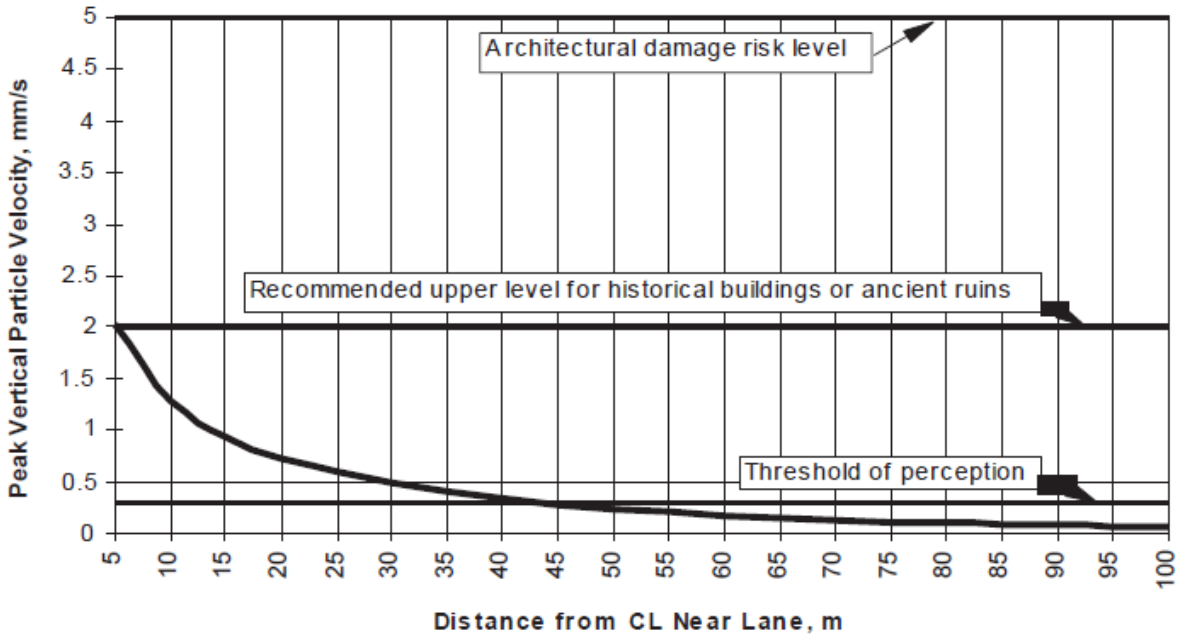

Figure 8. Maximum Truck Traffic Vibration Levels vs. Distance

Caltrans and FTA provide a range of perceptible annoyance levels and this predicted vibration level falls well below the distinctly perceptible level of 0.08 PPV (in/sec) , below the FTA damage criteria of 0.3 PPV (in/sec) and the human annoyance level of 80 VdB. Further this worst-case vibration level from truck traffic would not exceed the Caltrans threshold of 0.2 PPV (in/sec). It is expected that actual vibration levels within the project area from truck traffic will be lower than this worst-case level when soil type and pavement conditions are considered. On this basis, the potential for the Project to result in exposure of persons to, or generation of, excessive ground-borne vibration is determined to be below the 80 VdB FTA vibration threshold.

10.0 SHORT-TERM CONSTRUCTION NOISE & VIBRATION IMPACTS

Construction noise represents a temporary impact on the ambient noise levels. Construction noise is primarily caused by diesel engines (trucks, dozers, backhoes), impacts (jackhammers, pile drivers, hoe rams); and backup alarms. Construction equipment can be stationary or mobile. Stationary equipment operates in one location for hours or days in a constant mode (generators, compressors) or generates variable noise operation (pile drivers, jackhammers) producing constant noise for a period of time. Mobile equipment moves around the site and is characterized by variations in power and location, resulting in significant variations in noise levels over time. Grading activities and rock blasting typically generate the greatest noise impacts during construction. This section assesses the potential noise impacts to the existing sensitive residential land uses during construction.

10.1 Noise Sensitive Uses and Construction Noise Standards

Pursuant to the City of Perris Municipal Code Section 7.34.060 (Construction Noise), the following construction activities such as demolition, excavation, alteration, or repair of any building or structure in such a manner as to create disturbing, excessive, or offensive noise are prohibited between the hours of 7:00 PM and 7:00 AM, on Sundays, and on a legal holiday. Construction activities within the City of Perris shall not exceed 80 dBA in residential zones within the city.

10.2 Construction Schedule

The construction schedule for the project is described below.

As shown in **Table 10-1**, the estimated construction period for the project is approximately nine months. Construction is anticipated to begin with grading in June 2020 and end with architectural coatings (painting) in April 2021 as show in **Table 10-1**.

Table 10-1. Construction Schedule

Construction Activity	Start Date	End Date	Total Working Days
Grading	June 01, 2020	July 15, 2020	33 Days
Building Construction	July 16, 2020	April 16, 2021	197 Days
Paving	March 16, 2021	April 16, 2021	24 Days
Architectural Coatings	March 16, 2021	April 16, 2021	24 Days

Table 10-2 presents the equipment to be used for each construction activity based on engineering estimates and the Applicant.

Table 10-2. Equipment by Construction Activity

Construction Activity	Off-Road Equipment	Unit Amount
Grading	Excavators	2
	Grader	1
	Rubber Tired Dozer	1
	Scraper	2
	Tractors/Loaders/Backhoes	2
Building Construction	Crane	1
	Forklifts	3
	Generator Set	1
	Tractor/Loader/Backhoe	3
	Welder	1
Paving	Crushing/Proc. Equipment	1
	Paver	1
	Paving Equipment	1
	Rollers	1
Architectural Coatings	Air Compressors	1
[1]Percentage of the time in use during an 8-hour day		

10.3 Construction Noise Levels

The RCNM model was used to determine which phase of activity for the project would generate the greatest construction noise level. It was assumed that each construction activity would occur within a distance of 225 feet of the nearest residential receiver, R7. **Table 10-3** presents the hourly noise levels in L_{eq} for each construction phase. As shown in **Table 10-3,** the highest noise level that would be experienced at R7 is 71.9 dBA L_{eq}. This noise level occurs during the paving phase of the project. This noise level is less than the City of Perris noise standard of 80 dBA within residential zones.

Table 10-3. Construction Noise Levels by Construction Phase	
Construction Phases	**Construction Hourly dBA, L_{eq}[1]**
Grading	69.0
Building	65.1
Paving	71.9
Painting	64.6
[1]Worst-case construction noise levels evaluated at receiver R7, the closest receiver to the project site.	

10.4 Construction Vibration

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the FTA. Construction activities that would occur within the Project site include grading, building construction, paving and painting. These activities have the potential to generate low levels of ground-borne vibration.

Using the vibration source level of construction equipment provided in Table 7-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the project vibration impacts. **Table 10-4** presents the expected Project related vibration levels at 100 feet along Wilson Avenue.

Table 10-4. Construction Equipment Vibration Levels				
Noise Receiver	**Distance to Property Line[1]**	**Large Bulldozer Reference Vibration Level PPV_{ref} (VdB) at 25ft**	**Peak Vibration PPV (VdB) at 225 ft**	**Exceed Threshold (Below 80 VdB)**
R7	225 feet	87VdB	58VdB	No
[1] Reference noise level obtain from the FTA Noise and Vibration Manual, Table 7-4. (FTA, 2018)				

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference level of 87 VdB at a distance of 25 feet. At 225 feet, construction vibration levels are expected to approach 58VdB. Using the construction vibration assessment annoyance criteria provided by the FTA for infrequent events, as shown in **Table 3-2**, the construction of the project site will not result in a perceptible human response (annoyance). Impacts at the site of the closest sensitive receptor are unlikely to be sustained during the entire construction period. Moreover, construction at the Project site will be restricted to daytime hours, thereby eliminating potential vibration impact during the sensitive nighttime hours. Further, the predicted construction noise level is below the PVCC SP vibration threshold of 80 VdB.

10.5 Construction Mitigation Measures

Although the project's construction noise and vibration impacts will be below City standards and CEQA thresholds, the project is required to incorporate the following mitigation measures from the PVCC Specific Plan Environmental Impact Report:

- **PVCCSP EIR MM Noise 1**: During all Project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with the manufacturers' standards. The construction contractors shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors (residences) nearest the Project site.

- **PVCCSP EIR MM Noise 4:** The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes shall not pass sensitive land uses or residential dwellings.

11.0 REFERENCES

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March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan Mead Hunt, November 13, 2014

Perris Valley Commerce Center Specific Plan Draft Environmental Impact Report (PVCC SP EIR), July, 2011. http://www.cityofperris.org/city-hall/specific-plans/PVCC/PVCC-DEIR%2007-20-11.pdf

Webb Associates (2019) Traffic Impact Analysis Report for First Industrial Warehouse at Wilson Avenue in the City of Perris, CA.

Appendix A Noise Monitoring Data

Site 1 - CNEL Values, November 22, 2019					
Background Leq and Hour Averaging DNL					
Hour	Background L_{eq}	Penalty	L_{eq} DNL (L_{eq} + 10)		L_{eq} DNL (10^(D/10))
0	54.3	10	64.3	DNL	2691534.804
1	53	10	63	DNL	1995262.315
2	49.5	10	59.5	DNL	891250.9381
3	51.6	10	61.6	DNL	1445439.771
4	54.3	10	64.3	DNL	2691534.804
5	55.1	10	65.1	DNL	3235936.569
6	62.5	10	72.5	DNL	17782794.1
7	59.2		59.2		831763.7711
8	53		53		199526.2315
9	55.5		55.5		354813.3892
10	54.5		54.5		281838.2931
11	52.5		52.5		177827.941
12	54.4		54.4		275422.8703
13	54.2		54.2		263026.7992
14	55.5		55.5		354813.3892
15	59.4		59.4		870963.59
16	59.5		59.5		891250.9381
17	57.4		57.4		549540.8739
18	62.7		62.7		1862087.137
19	69.7	5	74.7	CNEL	29512092.27
20	67.3	5	72.3	CNEL	16982436.52
21	65.2	5	70.2	CNEL	10471285.48
22	58.6	10	68.6	DNL	7244359.601
23	55.5	10	65.5	DNL	3548133.892
(Hour 23 is 23:00 to 23:59)				Average=	4391872.345
	10LOG10 of (Average=)				**66.42649708**

Site 2 (Site B) - CNEL Values, November 25, 2019					
Background Leq and Hour Averaging DNL					
Hour	Background L_{eq}	Penalty	L_{eq} DNL (L_{eq} + 10)		L_{eq} DNL (10^(D/10))
0	59.4	10	69.4	DNL	8709635.9
1	56.4	10	66.4	DNL	4365158.322
2	57.8	10	67.8	DNL	6025595.861
3	59.6	10	69.6	DNL	9120108.394
4	57.9	10	67.9	DNL	6165950.019
5	63.1	10	73.1	DNL	20417379.45
6	59.6	10	69.6	DNL	9120108.394
7	58.5		58.5		707945.7844
8	54.2		54.2		263026.7992
9	55.9		55.9		389045.145
10	52.6		52.6		181970.0859
11	51.6		51.6		144543.9771
12	53.9		53.9		245470.8916
13	55		55		316227.766
14	62.3		62.3		1698243.652
15	62.2		62.2		1659586.907
16	56.9		56.9		489778.8194
17	58.7		58.7		741310.2413
18	56.7		56.7		467735.1413
19	56	5	61	CNEL	1258925.412
20	56.6	5	61.6	CNEL	1445439.771
21	57.2	5	62.2	CNEL	1659586.907
22	63	10	73	DNL	19952623.15
23	60.2	10	70.2	DNL	10471285.48
(Hour 23 is 23:00 to 23:59)				Average=	4417361.761
	10LOG10 of (Average=)				**66.45162967**

Appendix B-TNM Files

Traffic Input Data for TNM Modeling

Existing					
		Total Volume	Vehicle Type	Volume	Speed
EB Rider – Perris to Redlands		289	Cars	280	40
			M. Trucks	3	40
			H. Trucks	6	40
			Buses	0	40
WB Rider – Redlands to Perris		646	Cars	627	40
			M. Trucks	6	40
			H. Trucks	13	40
			Buses	0	40
EB Rider – Redlands to Wilson		459	Cars	445	40
			M. Trucks	5	40
			H. Trucks	9	40
			Buses	0	40
WB Rider – Wilson to Redlands		630	Cars	611	40
			M. Trucks	6	40
			H. Trucks	13	40
			Buses	0	40
EB Rider – Wilson to Evans		585	Cars	567	40
			M. Trucks	6	40
			H. Trucks	12	40
			Buses	0	40
WB Rider – Evans to Wilson		912	Cars	885	40
			M. Trucks	9	40
			H. Trucks	18	40
			Buses	0	40
NB Redlands – Placentia to Ride		191	Cars	185	40
			M. Trucks	2	40
			H. Trucks	4	40
			Buses	0	40
SB Redlands – Rider to Placentia		22	Cars	21	40
			M. Trucks	0	40
			H. Trucks	0	40
			Buses	0	40
NB Wilson – Placentia to S Site		168	Cars	163	40
			M. Trucks	2	40
			H. Trucks	3	40
			Buses	0	40
SB Wilson – S Site to Placentia		333	Cars	323	40
			M. Trucks	3	40
			H. Trucks	7	40
			Buses	0	40
NB Wilson – S Site to N Site		168	Cars	163	40
			M. Trucks	2	40
			H. Trucks	3	40
			Buses	0	40
SB Wilson – N Site to S Site		298	Cars	289	40
			M. Trucks	3	40
			H. Trucks	6	40
			Buses	0	40
NB Wilson – N Site to Rider		168	Cars	163	40
			M. Trucks	2	40
			H. Trucks	3	40
			Buses	0	40
SB Wilson – Rider to N Site		298	Cars	289	40
			M. Trucks	3	40
			H. Trucks	6	40
			Buses	0	40
EB Placentia – Redlands to Wilso		137	Cars	133	40
			M. Trucks	1	40
			H. Trucks	3	40
			Buses	0	40
WB Placentia – Wilson to Redlan		290	Cars	281	40
			M. Trucks	3	40
			H. Trucks	6	40
					40

Percentage Distribution	
cars	97 %
medium trucks	1 %
heavy trucks	2 %

Existing Plus Project Opening Year (2021)					
	Total				
EB Rider – Perris to Redlands	331		Cars	317	40
			M. Trucks	5	40
			H. Trucks	9	40
			Buses	0	40
WB Rider – Redlands to Perris	660		Cars	632	40
			M. Trucks	10	40
			H. Trucks	18	40
			Buses	0	40
EB Rider – Redlands to Wilson	501		Cars	480	40
			M. Trucks	7	40
			H. Trucks	14	40
			Buses	0	40
WB Rider – Wilson to Redlands	644		Cars	617	40
			M. Trucks	10	40
			H. Trucks	18	40
			Buses	0	40
EB Rider – Wilson to Evans	587		Cars	562	40
			M. Trucks	9	40
			H. Trucks	16	40
			Buses	0	40
WB Rider – Evans to Wilson	920		Cars	881	40
			M. Trucks	14	40
			H. Trucks	25	40
			Buses	0	40
NB Redlands – Placentia to Rider	191		Cars	183	40
			M. Trucks	3	40
			H. Trucks	5	40
			Buses	0	40
SB Redlands – Rider to Placentia	22		Cars	21	40
			M. Trucks	0	40
			H. Trucks	1	40
			Buses	0	40
NB Wilson – Placentia to S Site	176		Cars	169	40
			M. Trucks	3	40
			H. Trucks	5	40
			Buses	0	40
SB Wilson – S Site to Placentia	335		Cars	321	40
			M. Trucks	5	40
			H. Trucks	9	40
			Buses	0	40
NB Wilson – S Site to N Site	186		Cars	178	40
			M. Trucks	3	40
			H. Trucks	5	40
			Buses	0	40
SB Wilson – N Site to S Site	331		Cars	317	40
			M. Trucks	5	40
			H. Trucks	9	40
			Buses	0	40
NB Wilson – N Site to Rider	184		Cars	176	40
			M. Trucks	3	40
			H. Trucks	5	40
			Buses	0	40
SB Wilson – Rider to N Site	348		Cars	333	40
			M. Trucks	5	40
			H. Trucks	10	40
			Buses	0	40
EB Placentia – Redlands to Wilso	137		Cars	131	40
			M. Trucks	2	40
			H. Trucks	4	40
			Buses	0	40
WB Placentia – Wilson to Redlan	290		Cars	278	40
			M. Trucks	4	40
			H. Trucks	8	40
					40

Percentage Distribution	
cars	95.76 %
medium trucks	1.49 %
heavy trucks	2.76 %

Existing Plus Ambient Growth Plus Project (2021)				
	Total Volume	Vehicle Type	Volume	Speed
EB Rider – Perris to Redlands	348	Cars	328	40
		M. Trucks	7	40
		H. Trucks	13	40
		Buses	0	40
WB Rider – Redlands to Perris	699	Cars	659	40
		M. Trucks	14	40
		H. Trucks	25	40
		Buses	0	40
EB Rider – Redlands to Wilson	529	Cars	499	40
		M. Trucks	11	40
		H. Trucks	19	40
		Buses	0	40
WB Rider – Wilson to Redlands	682	Cars	643	40
		M. Trucks	14	40
		H. Trucks	25	40
		Buses	0	40
EB Rider – Wilson to Evans	623	Cars	587	40
		M. Trucks	13	40
		H. Trucks	23	40
		Buses	0	40
WB Rider – Evans to Wilson	975	Cars	919	40
		M. Trucks	20	40
		H. Trucks	36	40
		Buses	0	40
NB Redlands – Placentia to Ric	203	Cars	191	40
		M. Trucks	4	40
		H. Trucks	7	40
		Buses	0	40
SB Redlands – Rider to Placen	23	Cars	22	40
		M. Trucks	0	40
		H. Trucks	1	40
		Buses	0	40
NB Wilson – Placentia to S Site	186	Cars	175	40
		M. Trucks	4	40
		H. Trucks	7	40
		Buses	0	40
SB Wilson – S Site to Placentia	356	Cars	336	40
		M. Trucks	7	40
		H. Trucks	13	40
		Buses	0	40
NB Wilson – S Site to N Site	196	Cars	185	40
		M. Trucks	4	40
		H. Trucks	7	40
		Buses	0	40
SB Wilson – N Site to S Site	349	Cars	329	40
		M. Trucks	7	40
		H. Trucks	13	40
		Buses	0	40
NB Wilson – N Site to Rider	195	Cars	184	40
		M. Trucks	4	40
		H. Trucks	7	40
		Buses	0	40
SB Wilson – Rider to N Site	366	Cars	345	40
		M. Trucks	8	40
		H. Trucks	13	40
		Buses	0	40
EB Placentia – Redlands to Wil	145	Cars	137	40
		M. Trucks	3	40
		H. Trucks	5	40
		Buses	0	40
WB Placentia – Wilson to Redla	308	Cars	290	40
		M. Trucks	6	40
		H. Trucks	11	40
				40

Percentage Distribution	
car	94.29 %
medium trucks	2.06 %
heavy trucks	3.64 %

Existing Plus Ambient Growth Plus Cumulative Projects Plus Project (2021)				
	Total Volume	Vehicle Type	Volume	Speed
EB Rider – Perris to Redlands	400	Cars	379	40
		M. Trucks	8	40
		H. Trucks	14	40
		Buses	0	40
WB Rider – Redlands to Perris	730	Cars	691	40
		M. Trucks	14	40
		H. Trucks	25	40
		Buses	0	40
EB Rider – Redlands to Wilson	535	Cars	507	40
		M. Trucks	10	40
		H. Trucks	18	40
		Buses	0	40
WB Rider – Wilson to Redlands	714	Cars	676	40
		M. Trucks	14	40
		H. Trucks	24	40
		Buses	0	40
EB Rider – Wilson to Evans	623	Cars	590	40
		M. Trucks	12	40
		H. Trucks	21	40
		Buses	0	40
WB Rider – Evans to Wilson	990	Cars	937	40
		M. Trucks	19	40
		H. Trucks	34	40
		Buses	0	40
NB Redlands – Placentia to Ric	203	Cars	192	40
		M. Trucks	4	40
		H. Trucks	7	40
		Buses	0	40
SB Redlands – Rider to Placen	23	Cars	22	40
		M. Trucks	0	40
		H. Trucks	1	40
		Buses	0	40
NB Wilson – Placentia to S Site	203	Cars	192	40
		M. Trucks	4	40
		H. Trucks	7	40
		Buses	0	40
SB Wilson – S Site to Placentia	362	Cars	343	40
		M. Trucks	7	40
		H. Trucks	12	40
		Buses	0	40
NB Wilson – S Site to N Site	213	Cars	202	40
		M. Trucks	4	40
		H. Trucks	7	40
		Buses	0	40
SB Wilson – N Site to S Site	355	Cars	336	40
		M. Trucks	7	40
		H. Trucks	12	40
		Buses	0	40
NB Wilson – N Site to Rider	212	Cars	201	40
		M. Trucks	4	40
		H. Trucks	7	40
		Buses	0	40
SB Wilson – Rider to N Site	372	Cars	352	40
		M. Trucks	7	40
		H. Trucks	13	40
		Buses	0	40
EB Placentia – Redlands to Wil	145	Cars	137	40
		M. Trucks	3	40
		H. Trucks	5	40
		Buses	0	40
WB Placentia – Wilson to Redla	308	Cars	292	40
		M. Trucks	6	40
		H. Trucks	10	40
				40

Percentage Distribution	
car	94.69 %
medium trucks	1.91 %
heavy trucks	3.40 %

Receiver Name	**X**	Y	Z
R1	**1737.6**	3684.8	1452.8
R2	**2908.2**	3910.8	1448.5
R3	**3953.6**	3599.1	1450.9
R4	**3527.9**	3013.2	1446.5
R5	**4536.6**	3413.4	1447.5
R6	**4540**	2950.5	1442
R7	**4513.4**	2530	1438.6
R8	**3611**	1763.3	1443.1
R9	**3981.6**	1080.1	1446.8
R10	**6289**	3884.6	1448.6
Roadway geometry			
EB Rider - Perris to Redlands-1	x	y	altitude(ft)
EB Rider - Perris to Redlands-1	800.7	3760.7	1454
EB Rider - Perris to Redlands-2	1201.2	3760.4	1452.1
EB Rider - Perris to Redlands-3	1564.9	3761.4	1449.9
EB Rider - Perris to Redlands-4	1915.1	3760.3	1446
EB Rider - Perris to Redlands-5	2293.2	3763.8	1444.5
EB Rider - Perris to Redlands-6	2692.7	3764.7	1443.1
EB Rider - Perris to Redlands-7	2997.4	3764.7	1443
EB Rider - Perris to Redlands-8	3228.2	3762.2	1442.7
EB Rider - Perris to Redlands-9	3394.5	3758.9	1443.7
EB Rider - Redlands to Wilson-1	x	y	altitude(ft)
EB Rider - Redlands to Wilson-1	3410.1	3756.3	1443.6
EB Rider - Redlands to Wilson-2	3565.5	3763.5	1442.5
EB Rider - Redlands to Wilson-3	3748.5	3770.2	1440.9
EB Rider - Redlands to Wilson-4	3900.5	3776.6	1442.6
EB Rider - Redlands to Wilson-5	4165.8	3778.4	1440.6
EB Rider - Redlands to Wilson-6	4327.3	3776.9	1439.9
EB Rider - Redlands to Wilson-7	4540.8	3767.5	1440
EB Rider - Redlands to Wilson-8	4700.5	3765.8	1440.4
EB Rider - Wilson to Evans-1	x	y	altitude(ft)
EB Rider - Wilson to Evans-1	4704.9	3765.3	1440.4
EB Rider - Wilson to Evans-2	4941.8	3770.4	1439.1
EB Rider - Wilson to Evans-3	5113.8	3776	1438.6
EB Rider - Wilson to Evans-4	5359.3	3782.8	1437
EB Rider - Wilson to Evans-5	5548.2	3786.7	1437
EB Rider - Wilson to Evans-6	5781.5	3786.9	1438.2
EB Rider - Wilson to Evans-7	6038.9	3783.6	1438.2
EB Rider - Wilson to Evans-8	6306.6	3784.6	1438.6
EB Rider - Wilson to Evans-9	6603.9	3784.5	1439.7
EB Rider - Wilson to Evans-10	6922.3	3785.1	1441.2
EB Rider - Wilson to Evans-11	7323	3785.8	1441.8
WB Rider - Evans to Wilson-1	x	y	altitude(ft)
WB Rider - Evans to Wilson-1	7322.7	3821.7	1441.7
WB Rider - Evans to Wilson-2	7058.4	3820	1442.8
WB Rider - Evans to Wilson-3	6606.8	3816.2	1440
WB Rider - Evans to Wilson-4	6273.9	3816.4	1438.7
WB Rider - Evans to Wilson-5	5914.4	3811.5	1438.8
WB Rider - Evans to Wilson-6	5588.2	3809.2	1437.1
WB Rider - Evans to Wilson-7	5304.8	3806.2	1438.5
WB Rider - Evans to Wilson-8	5002.1	3801.5	1439.7
WB Rider - Evans to Wilson-9	4705.9	3800.8	1440.7
WB Rider - Wilson to Redlands-1	x	y	altitude(ft)

WB Rider - Wilson to Redlands-1	4700.4	3800.3	1440.7
WB Rider - Wilson to Redlands-2	4484.8	3798.8	1440.1
WB Rider - Wilson to Redlands-3	4200.1	3795.3	1440.9
WB Rider - Wilson to Redlands-4	3867.1	3794.1	1441.7
WB Rider - Wilson to Redlands-5	3605.4	3795.2	1441.6
WB Rider - Wilson to Redlands-6	3402.5	3794.4	1442.8
WB Rider - Redlands to Perris-1	x	y	altitude(ft)
WB Rider - Redlands to Perris-1	3397.9	3793.9	1442.8
WB Rider - Redlands to Perris-2	3137.1	3791.7	1442.7
WB Rider - Redlands to Perris-3	2838.7	3787.7	1444.4
WB Rider - Redlands to Perris-4	2520.8	3788.8	1444.3
WB Rider - Redlands to Perris-5	2218.1	3792.4	1445.2
WB Rider - Redlands to Perris-6	1917.7	3797.2	1446.2
WB Rider - Redlands to Perris-7	1652.3	3798.4	1448.6
WB Rider - Redlands to Perris-8	1366.6	3797.4	1451.1
WB Rider - Redlands to Perris-9	1095.3	3796	1453.1
WB Rider - Redlands to Perris-10	798.7	3799	1454.8
NB Redlands 1-1	x	y	altitude(ft)
NB Redlands 1-1	3406.3	1183.7	1443.1
NB Redlands 1-2	3408.6	1356.4	1444
NB Redlands 1-3	3407.7	1509.6	1443.8
NB Redlands 1-4	3405.8	1739.1	1442.7
NB Redlands 1-5	3404.3	1971.1	1443.7
NB Redlands 1-6	3403.3	2200.5	1443.3
NB Redlands 1-7	3402.4	2441.1	1443.1
NB Redlands 1-8	3401.7	2637.3	1443.6
NB Redlands 1-9	3401.5	2857	1445.4
NB Redlands 1-10	3402.3	3109.2	1447.2
NB Redlands 1-11	3404.6	3362.5	1445.3
NB Redlands 1-12	3411.3	3500.7	1444.2
NB Redlands 1-13	3404.8	3626.4	1443.8
NB Redlands 1-14	3403.9	3752.1	1443.8
SB Redlands 1-1	x	y	altitude(ft)
SB Redlands 1-1	3386.2	3752.1	1444
SB Redlands 1-2	3387.4	3610.8	1443.8
SB Redlands 1-3	3388.9	3449.8	1444.8
SB Redlands 1-4	3391.6	3318.2	1445.5
SB Redlands 1-5	3391.5	3111.5	1446.9
SB Redlands 1-6	3390.6	2919.4	1446.8
SB Redlands 1-7	3389.6	2760.6	1444.2
SB Redlands 1-8	3390.7	2521.8	1443
SB Redlands 1-9	3391.6	2244.3	1443.3
SB Redlands 1-10	3392.9	1959.8	1443.1
SB Redlands 1-11	3395.6	1629.4	1443.7
SB Redlands 1-12	3393.4	1549.4	1443.8
SB Redlands 1-13	3387.3	1470.1	1443.7
SB Redlands 1-14	3383.4	1408.8	1443.8
SB Redlands 1-15	3380.3	1309	1443.6
SB Redlands 1-16	3379.7	1184.5	1442.7
NB Wilson - Placentia to S Site-1	x	y	altitude(ft)
NB Wilson - Placentia to S Site-1	4721.2	1168.1	1440
NB Wilson - Placentia to S Site-2	4718	1440.5	1437.6
NB Wilson - Placentia to S Site-3	4716.3	1721.2	1437.3
NB Wilson - Placentia to S Site-4	4716.7	1989	1437.1
NB Wilson - Placentia to S Site-5	4715.8	2173.6	1436.9

NB Wilson - S Site to N Site-1	x	y	altitude(ft)
NB Wilson - S Site to N Site-1	4715.6	2176.3	1436.9
NB Wilson - S Site to N Site-2	4716.8	2432.5	1437
NB Wilson - S Site to N Site-3	4715.1	2728.9	1438.9
NB Wilson - N Site to Rider-1	x	y	altitude(ft)
NB Wilson - N Site to Rider-1	4715.1	2732.1	1438.9
NB Wilson - N Site to Rider-2	4713.8	3036	1440.4
NB Wilson - N Site to Rider-3	4713.1	3344.8	1443.1
NB Wilson - N Site to Rider-4	4712.9	3629.7	1440.7
NB Wilson - N Site to Rider-5	4712	3762.4	1440.4
SB Wilson - Rider to N Site-1	x	y	altitude(ft)
SB Wilson - Rider to N Site-1	4691.4	3761	1440.4
SB Wilson - Rider to N Site-2	4691.4	3560.3	1441.9
SB Wilson - Rider to N Site-3	4692.2	3326.3	1442.7
SB Wilson - Rider to N Site-4	4693.4	3100.1	1438.7
SB Wilson - Rider to N Site-5	4696.2	2731.6	1439.1
SB Wilson - N Site to S Site-1	x	y	altitude(ft)
SB Wilson - N Site to S Site-1	4696.1	2729.1	1439.1
SB Wilson - N Site to S Site-2	4694.8	2446.7	1437
SB Wilson - N Site to S Site-3	4696.9	2176.9	1436.9
SB Wilson - S Site to Placentia-1	x	y	altitude(ft)
SB Wilson - S Site to Placentia-1	4696.6	2173.5	1436.9
SB Wilson - S Site to Placentia-2	4698.6	1981.2	1437.1
SB Wilson - S Site to Placentia-3	4699.2	1775.5	1437.3
SB Wilson - S Site to Placentia-4	4698.1	1578.1	1437.5
SB Wilson - S Site to Placentia-5	4698.9	1404.7	1438.7
SB Wilson - S Site to Placentia-6	4701.4	1167.8	1440
EB Placentia - Redlands to Wilson-1	x	y	altitude(ft)
EB Placentia - Redlands to Wilson-1	3394.8	1147.6	1443.3
EB Placentia - Redlands to Wilson-2	3525.3	1149.6	1442.7
EB Placentia - Redlands to Wilson-3	3769	1150.1	1442.9
EB Placentia - Redlands to Wilson-4	4006.2	1151.3	1441.8
EB Placentia - Redlands to Wilson-5	4259	1152.2	1441
EB Placentia - Redlands to Wilson-6	4499.4	1152.7	1441.3
EB Placentia - Redlands to Wilson-7	4698	1152.5	1440.3
WB Placentia - Wilson to Redlands-1	x	y	altitude(ft)
WB Placentia - Wilson to Redlands-1	4695.7	1178.3	1439.9
WB Placentia - Wilson to Redlands-2	4525.1	1177.3	1440
WB Placentia - Wilson to Redlands-3	4194.1	1175.7	1440
WB Placentia - Wilson to Redlands-4	3887.8	1175.3	1440.8
WB Placentia - Wilson to Redlands-5	3603.2	1173.6	1443.8
WB Placentia - Wilson to Redlands-6	3394.6	1173.5	1442.9
6' Wall-1	x	y	altitude(ft)
6' Wall-1	6020.4	4126.9	1447.1
6' Wall-2	6019	3856.7	1443.1
6' Wall-3	6536.4	3859.8	1444.5
6' Wall-4	6560.8	3884.1	1445.2
6' Wall-5	6561.7	3930.7	1446.7

Appendix C-RCNM Results

Report date:	12/16/2019														
Case Description:	**First Industrial Warehouse Project - Grading**														
				---- Receptor #1 ----											
		Baselines (dBA)													
Description	Land Use	Daytime	Evening	Night											
R7- residential home west of the project site along Wilson	Residential	62.7	69.7	62.5											
				Equipment											
				Spec	Actual	Receptor	Estimated								
		Impact		Lmax	Lmax	Distance	Shielding								
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)								
Excavator - First Industrial		No	25		80.7	225	0								
Grader - First Industrial		No	13	85		225	0								
Dozer - First Industrial		No	13		81.7	225	0								
Scraper - First Industrial		No	25		83.6	225	0								
Tractor/Loader/Backhoe - First Industrial		No	25		77.6	225	0								
				Results											
		Calculated (dBA)			Noise Limits (dBA)						Noise Limit Exceedance (dBA)				
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator - First Industrial		67.6	61.6	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A
Grader - First Industrial		71.9	63.1	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A
Dozer - First Industrial		68.6	59.8	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A
Scraper - First Industrial		70.5	64.5	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A
Tractor/Loader/Backhoe - First Industrial		64.5	58.5	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A
	Total	71.9	69	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A

Case Description:	**First Industrial Warehouse Project - Building Construction**															
				---- Receptor #1 ----												
		Baselines (dBA)														
Description	Land Use	Daytime	Evening	Night												
R7- residential home west of the project site along Wilson	Residential	62.7	69.7	62.5												
				Equipment												
				Spec	Actual	Receptor	Estimated									
		Impact		Lmax	Lmax	Distance	Shielding									
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)									
Crane - First Industrial		No	11		80.6	225	0									
Forklift - First Industrial		No	33		77.6	225	0									
Generator Set - First Industrial		No	11		80.6	225	0									
Tractor Loader Backhoe - First Industrial Construction		No	33		77.6	225	0									
Welder - First Industrial		No	11	73		225	0									
				Results												
		Calculated (dBA)			Noise Limits (dBA)							Noise Limit Exceedance (dBA)				
				Day		Evening		Night		Day		Evening		Night		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Crane - First Industrial		67.5	57.9	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
Forklift - First Industrial		64.5	59.7	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
Generator Set - First Industrial		67.5	57.9	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
Tractor Loader Backhoe - First Industrial Construction		64.5	59.7	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
Welder - First Industrial		59.9	50.3	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
	Total	67.5	65.1	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	

Case Description:	**First Industrial Warehouse Project - Paving**															
				---- Receptor #1 ----												
		Baselines (dBA)														
Description	Land Use	Daytime	Evening	Night												
R7- residential home west of the project site along Wilson	Residential	62.7	69.7	62.5												
				Equipment												
				Spec	Actual	Receptor	Estimated									
		Impact		Lmax	Lmax	Distance	Shielding									
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)									
Crushing/proc Equipment - First Industrial (ground compactor		No	25		83.2	225	0									
Paver - First Industrial		No	25		77.2	225	0									
Paving Equipment - First Industrial (scarafier)		No	25		89.5	225	0									
Rollers - First Industrial		No	25		80	225	0									
				Results												
		Calculated (dBA)			Noise Limits (dBA)							Noise Limit Exceedance (dBA)				
				Day		Evening		Night		Day		Evening		Night		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Crushing/proc Equipment - First Industrial (ground compactor		70.1	64.1	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
Paver - First Industrial		64.1	58.1	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
Paving Equipment - First Industrial (scarafier)		76.4	70.4	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
Rollers - First Industrial		66.9	60.9	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
	Total	76.4	71.9	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	

Case Description:	First Industrial Warehouse Project - Painting															
				---- Receptor #1 ----												
		Baselines (dBA)														
Description	Land Use	Daytime	Evening	Night												
R7- residential home west of the project site along Wilson	Residential	62.7	69.7	62.5												
				Equipment												
				Spec	Actual	Receptor	Estimated									
		Impact		Lmax	Lmax	Distance	Shielding									
Description		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)									
Air Compressors - First Industrial		No	100		77.7	225	0									
				Results												
		Calculated (dBA)			Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Air Compressors - First Industrial		64.6	64.6	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	
	Total	64.6	64.6	85	N/A	85	N/A	80	N/A	None	N/A	None	N/A	None	N/A	