SECTION 4.9
NOISE

This section defines technical terminology used in the analysis of noise; identifies federal, state and local regulations applicable to noise; and describes the environmental setting with regard to existing ambient noise levels. This section also analyzes potential noise impacts associated with construction and operation of the proposed Project. The information in this section is based on information provided by the applicants and included in the Project Description. Predicted construction noise levels were calculated utilizing the Federal Highway Administration's Roadway Construction Noise Model (2006). Modeling outputs can be found in **Appendix H** provided on the attached CD of Technical Appendices of this EIR.

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second, or hertz (Hz).

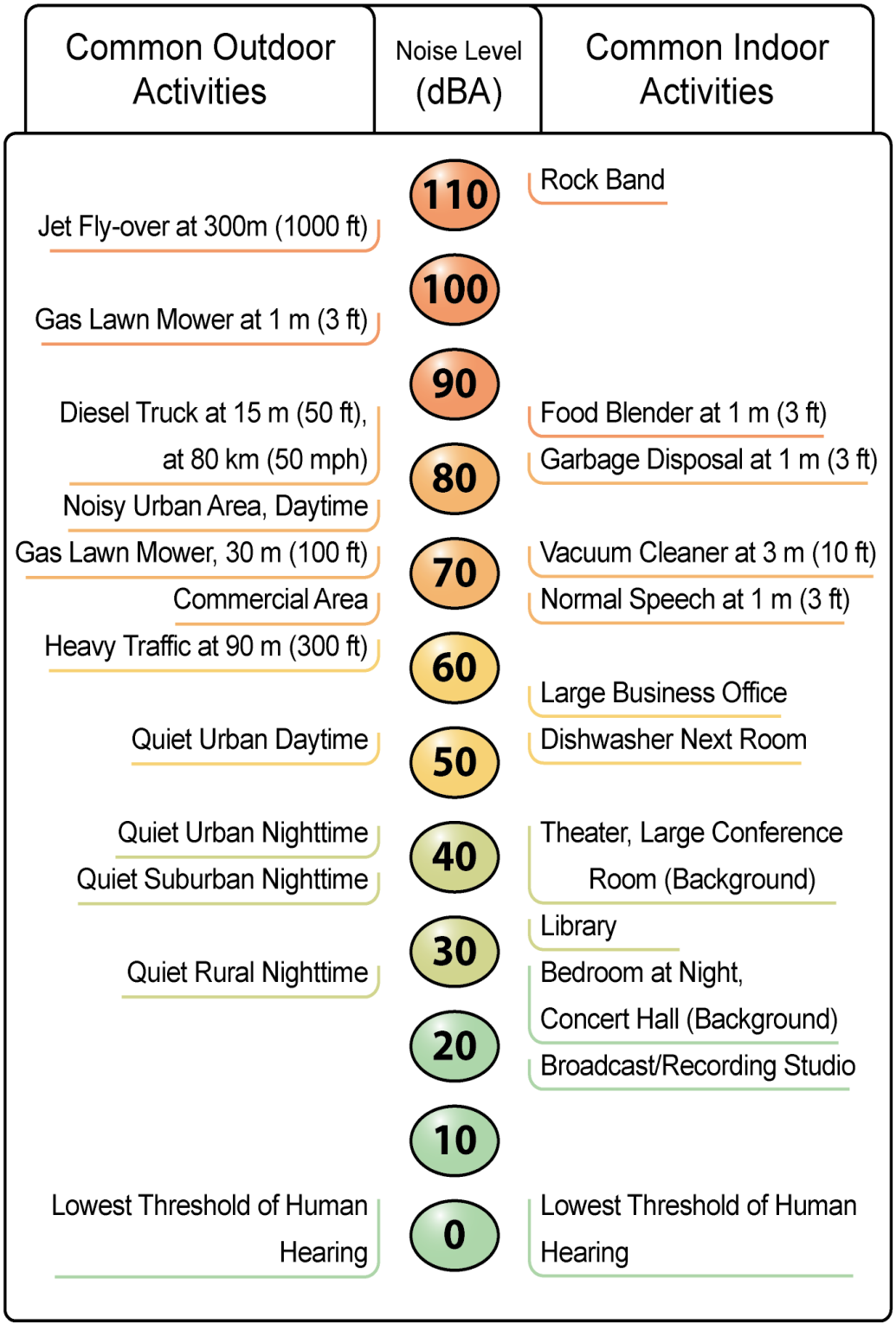
Noise is a subjective reaction to different types of sounds. Noise is typically defined as airborne sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. A typical noise environment consists of a base of steady background noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These sources can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a large and awkward range of numbers. To avoid this, the decibel (dB) scale was devised. The decibel scale uses the hearing threshold (20 micropascals) as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent on many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

A. ADDITION OF DECIBELS

The decibel scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound and twice as loud as a 60 dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions (FTA 2006). For example, a 65 dBA source of sound, such as a truck, when joined by another 65 dBA source results in a sound amplitude of 68 dBA, not 130 dBA (i.e., doubling the source strength increases the sound pressure by 3 dBA). Under the decibel scale, three sources of equal loudness together would produce an increase of 5 dBA. **Figure 4.9-1** depicts typical noise levels associated with common noise sources.



Source: Caltrans 2012.

FIGURE 4.9-1
COMMON NOISE LEVELS

B. SOUND PROPAGATION AND ATTENUATION

Noise can be generated by a number of sources, including mobile sources, such as automobiles, trucks and airplanes, and stationary sources, such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately 6 dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately 3 dBA for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (FHWA 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces such as soft dirt or grass can absorb sound. Thus, an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed for soft surfaces. For line sources, an overall attenuation rate of 3 dBA per doubling of distance is assumed (FHWA 2011).

Receptors located downwind from a source can be exposed to increased noise levels during windy conditions relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) from the highway due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects.

Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA (FHWA 2006). In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

C. NOISE DESCRIPTORS

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined in **Table 4.9-1**.

The A-weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

TABLE 4.9-1
COMMON ACOUSTICAL DESCRIPTORS

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.
Community Noise Equivalent Level, CNEL	A 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

D. HUMAN RESPONSE TO NOISE

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10 dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

Effects of Noise on People

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over 8 hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise

and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

E. FUNDAMENTALS OF ENVIRONMENTAL GROUND-BORNE VIBRATION

Sources of earth-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 4.9-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high noise environments, which are more prevalent where ground-borne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. Common sources for ground-borne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per section (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

F. NOISE-SENSITIVE RECEPTORS

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The closest noise-sensitive land uses consist predominantly of commercial businesses including a movie theatre and hotels, which are located approximately 1,445 feet east of 2421 Enterprise Boulevard. As shown in **Figure 4.9-2**, the nearest sensitive receptor that could be affected by the Project is the Small World Montessori School located approximately 850 feet to the northeast of the northeast corner of 2421 Enterprise Boulevard.

TABLE 4.9-2
HUMAN REACTION AND DAMAGE TO BUILDINGS FOR CONTINUOUS OR FREQUENT INTERMITTENT VIBRATION LEVELS

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage

Source: Caltrans 2004.

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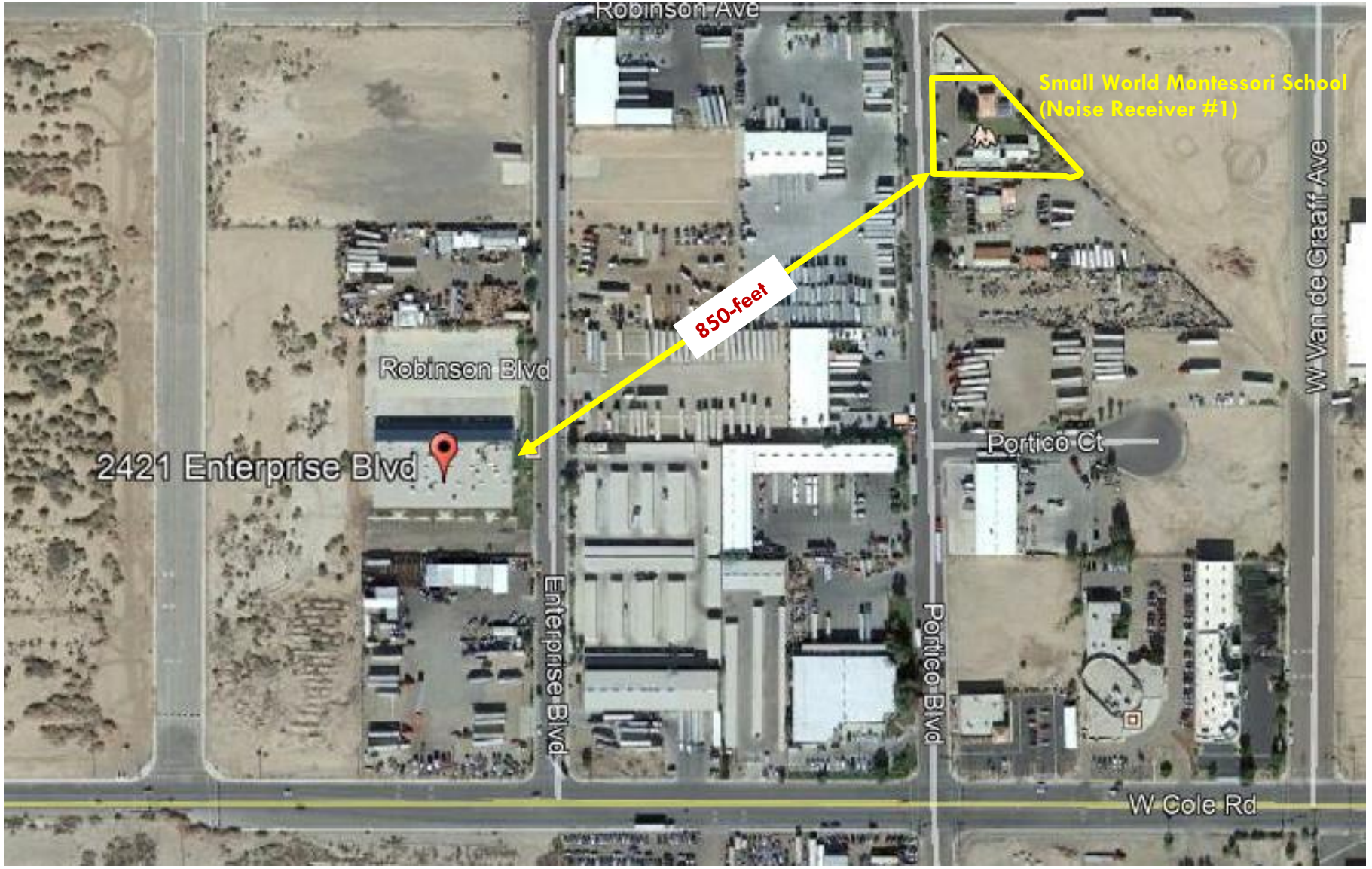

Source: Google Earth, EGI 2018.

FIGURE 4.9-2
CLOSEST SENSITIVE RECEPTOR TO 2421 ENTERPRISE BOULEVARD

4.9.1 REGULATORY FRAMEWORK

A. FEDERAL

The Noise Control Act of 1972 (P.L. 92-574)

The Noise Control Act and several other federal laws require the federal government to set and enforce uniform noise standards for aircraft and airports, interstate motor carriers and railroads, workplace activities, medium and heavy-duty trucks. Most federal noise standards focus on preventing hearing loss by limiting exposure to sounds of 90 dBA and higher. However, some are stricter and focus on limiting exposure to quieter levels. This law establishes the upper limit for noise for most commercial and industrial activities, including the proposed Project.

Occupational Safety and Health Act of 1970

The Federal Occupational Safety and Health Administration (OSHA) regulates on-site noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 decibels with A-weighting (dBA) over an 8-hour work shift (29 Code of Regulations [CFR] 1910.95). Employers are required to develop a hearing conservation program when employees are exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis. This law mandates the maximum noise exposure for workers and requires employers to develop hearing conservation programs. The proposed Project is required to adhere to all applicable OSHA rules and regulations.

B. STATE

State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The *State of California General Plan Guidelines* (2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. These guidelines are used by the City of Calexico to develop its General Plan guidelines and Noise Ordinance.

C. LOCAL

City of Calexico

Calexico General Plan

The Noise Element of the General Plan evaluates present and projected levels within the community as a guide for establishing a pattern of land uses in the Land Use Element that minimize the exposure of community residents to excessive noise. The Noise Element is closely related to other elements of the General Plan, particularly the Land Use, Circulation, Housing, Parks and Recreation and Open Space elements. A major objective of the Noise Element is to encourage noise-compatibility between land uses. Effective land use planning can alleviate both perceived and real noise problems. Calexico's current General Plan dated February 2007 was adopted by the City on May 1, 2007.

Table 4.9-3 analyzes the consistency of the proposed Project with the applicable goals and objectives relating to land use from the City of Calexico General Plan Noise Element (City of Calexico 2007). While this EIR analyzes the Project's consistency with the General Plan pursuant to CEQA Guidelines Section 15125(d), the Calexico City Council ultimately determines consistency with the General Plan.

TABLE 4.9-3
CITY OF CALEXICO GENERAL PLAN CONSISTENCY ANALYSIS

General Plan Goals and Objectives	Consistent with General Plan?	Analysis
NOISE ELEMENT		
Goal: Maintain the quiet rural residential nature of the community through the use of sensitive land use practices and appropriate noise mitigation measures.		
7.8.1.1 Acceptable Noise Levels		
Objective 1: The City should establish adverse noise levels for various noise-sensitive uses.		
Policy 1e: 75 dBA CNEL is established as the acceptable outdoor noise exposure level for golf courses, riding stables, water recreation, cemeteries, industrial, manufacturing, utilities, and agriculture.	Yes.	The proposed Project is consistent with this policy with implementation of mitigation measures MM 4.9.3, MM 4.9.4a and MM 4.9.4b. See also **Table 4.9-4**.
7.8.1.2 Land Use Compatibility		
Objective 2: Land use distribution should account for the noise characteristics of basic uses.	Yes	The Project is located in the Portico Industrial Park, an industrial area of the City with uses generation industrial noise levels. The Project is also sited within the Cannabis Overlay Zone (COZ), an area specifically designated for commercial cannabis operations. Therefore, the proposed Project is consistent with this objective.
Policy 2a. The location and distribution of land uses throughout the City should take into account the compatibility of the different uses and their respective noise levels.	Yes	The proposed Project is located in an area zoned for Industrial and Commercial Highway as well as the COZ. The noise generated in association with Project construction and operation is consistent with these land uses. Therefore, the proposed Project is consistent with this policy.
Policy 2b. The review of development applications shall consider the impact of the use on the noise environment of existing or planned contiguous uses.	Yes	The proposed Project's development application considers the impact of the use on the noise environment through preparation of this CEQA document. Therefore, the proposed Project is consistent with this policy.
Policy 2c. Where necessary because of incompatibilities, noise attenuation measures shall be required by the City to achieve the acceptable noise exposure levels.	Yes	The proposed Project would install shielding barriers during both construction and operation (MM 4.9.3 and MM 4.9.4a) that would attenuate excessive noise levels and achieve acceptable noise exposure levels. Therefore, the proposed Project is consistent with this policy.

TABLE 4.9-3
CITY OF CALEXICO GENERAL PLAN CONSISTENCY ANALYSIS

General Plan Goals and Objectives	Consistent with General Plan?	Analysis
7.8.1.4 Requirement for Project Specific Noise Studies		
Objective 4: Noise studies shall be required for certain projects which have the potential to increase ambient noise levels or the potential to expose sensitive receptors to unacceptable noise levels.	--	A formal noise study was not prepared given that the proposed Project is consistent with the existing land use and zoning designations and is located in an industrial portion of the City and the COZ. The Project is not a noise sensitive use nor are any noise sensitive receptors located immediately adjacent to the Project parcels. However, modeling was prepared in a good faith effort to demonstrate that the Project would not increase ambient noise levels or expose the nearest sensitive receptor (the Small World Montessori School) to unacceptable noise levels. Therefore, the proposed Project is consistent with this objective.

Land Use Compatibility

Land use compatibility is an important consideration in the planning and design of new developments. The City of Calexico has developed acceptable noise exposure levels for various land uses based on guidelines from the U.S. Department of Housing and Urban Development and the California State Office of Noise Control (City of Calexico 2007, p. 7-3). **Table 4.9-4** summarizes acceptable noise levels for various uses.

TABLE 4.9-4
CITY OF CALEXICO ACCEPTABLE LAND USE NOISE EXPOSURE LEVELS

Land Use	Noise Level
Indoor noise levels	45 dBA CNEL
Acceptable outdoor noise exposure for all private residential areas	65 dBA CNEL
Acceptable outdoor noise exposure for schools, libraries, churches, hospitals, nursing homes, parks and recreation areas	70 dBA CNEL
Acceptable outdoor noise exposure for office, business, commercial, professional and mixed-use	70 dBA CNEL
Acceptable outdoor noise exposure for golf courses, riding stables, water recreation cemeteries, industrial, manufacturing, utilities, and agricultural.	75 dBA CNEL

Source: City of Calexico 2007, p. 7-20.

City of Calexico Noise Ordinance

Title 8, Chapter 8.46 of the City of Calexico's Municipal Code is the City's Noise Ordinance. The Noise Ordinance is required to be consistent with the General Plan Noise Element. Several sections of the Noise Ordinance are applicable to the proposed Project.

Section 8.46.030 addresses fixed and non-stationary noise sources. Specifically, it prohibits the operation of any single or combination of fixed source or non-stationary source equipment or machinery, except construction equipment used in connection with construction operations, that individually or collectively cause the sound level at any point on the property line of any property to exceed, by five decibels or more, the noise level limits set forth in Section 8.46.031, plus allowances for time duration in Section 8.46.032.

Section 8.46.031 establishes noise level limits for the City. The noise level or sound referred to in this section is intended to mean the higher of (a) actual measured ambient noise, or (b) the allowable noise level (refer to **Table 4.9-5**). For measurement locations on a boundary between two different zones, the noise level limit applicable to the lower noise zone plus 5 dB is used.

TABLE 4.9-5
ALLOWABLE NOISE LEVEL BY ZONE

Zone	Time	Sound level (A-weighted) decibels
Residential	7 a.m. to 10 p.m.	50
low density	10 p.m. to 7 a.m.	40
Residential	7 a.m. to 10 p.m.	60
high density	10 p.m. to 7 a.m.	50
Commercial	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	50
Industrial	7 a.m. to 10 p.m.	70
	10 p.m. to 7 a.m.	55

Source: Calexico Municipal Code.

Section 8.46.032 establishes the time duration allowances (**Table 4.9-6**), for the noise levels summarized by zone in **Table 4.9-5** during the daytime hours.

TABLE 4.9-6
TIME DURATION CORRECTION TABLE

Duration of Sound	dB(A) Allowance
Up to 30 minutes per hour	+ 3
Up to 15 minutes per hour	+ 6
Up to 10 minutes per hour	+ 8
Up to 5 minutes per hour	+ 11
Up to 2 minutes per hour	+ 15
Up to 1 minute per hour	+ 18
Up to 30 seconds per hour	+ 21
Up to 15 seconds per hour	+ 24

Source: Calexico Municipal Code.

Section 8.46.041 establishes controlled hours of operation. Specifically, it prohibits the operation of any of the following other than between the hours of 8 a.m. to 8 p.m. in residential zones and between the hours of 7 a.m. to 8 p.m. in all other zones:

- Powered model vehicles;
- Loading and unloading vehicles such as trash collectors, fork lifts or cranes within one thousand feet of a residence;
- Domestic power tools;
- Gasoline and electric powered leaf blowers.

Notwithstanding the foregoing, Section 8.46.041 does not prohibit the operation or use of any such equipment at any time within said zones by the city, its officers or employees, or any agent or franchisee of the city.

Section 8.46.042 addresses construction. Section 8.46.042 specifically prohibits the operation of construction tools or equipment in the performance of any outside construction or repair work on buildings and/or structures between the hours of 5 p.m. of each day and 8 a.m. of the next day if the sound produced is of such intensity or quality that it disturbs the peace and quiet of any other person of normal sensitivity. Exceptions for this include construction work complying with the term of a written early work permit which may be issued by the building official upon a showing of sufficient need due to hot or inclement weather or the use of an unusually long process material, or other circumstances of unusual and compelling nature.

Section 8.46.043 addresses unusual or loud noises. Specifically, Subsection I deals with machinery, equipment, fans and air conditioning. It prohibits operation of any machinery, equipment, pump, fan, air conditioning apparatus or similar mechanical device in any manner so as in create any noise which would cause the noise level at the property line or party wall line of any residential property to exceed the ambient noise level by more than 5 dB.

Ground-borne Vibration

There are no federal or state regulatory standards for ground-borne vibration. However, various criteria have been established to assist in the evaluation of vibration impacts. For example, the California Department of Transportation (Caltrans) has developed vibration criteria based on potential structural damage risks and human annoyance.

At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. For most structures, PPV (i.e. a vibration metric) threshold of 0.5 inches per second is sufficient to avoid structure damage, with the exception of fragile historic structures or ruins. For the protection of fragile, historic, and residential structures, Caltrans recommends a more conservative threshold of 0.2 inches per second PPV. This same threshold would represent the level at which vibrations would be potentially annoying to people in buildings.

Section 8.46.043 of the City of Calexico's Noise Ordinance addresses vibration. Specifically, Subsection J deals with vibration. It prohibits the operation of any device which creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on a private property or one-hundred-fifty feet from the source if on a public space or public right-of-way.

4.9.2 ENVIRONMENTAL SETTING

A. PROJECT PARCELS

Four of the five Project parcels are zoned Industrial and one is zoned Commercial Highway. Land uses to the west are zoned Industrial Rail, to the north and east are Industrial, and to the south are Commercial Highway (refer to Figure 4.1-2 in Section 4.1, Land Use). Surrounding uses consist of industrial businesses including a pallet storage yard to the north, a mini-storage facility and CAM Trucking at 2452 Enterprise Boulevard to the east and a tire shop to the south. Nearby noise-sensitive land uses consist predominantly of commercial businesses including a movie theatre and hotels, generally located approximately 1,445 feet to the east of 2421 Enterprise Boulevard between Van De Graaff Avenue and Scaroni Avenue. The nearest sensitive receptor (i.e. Noise Receiver #1) that could be affected by the Project is the Small World Montessori School located approximately 850 feet northeast of the northeast corner of the proposed Transportation and Distribution Facility (refer to **Figure 4.9-2**). It should be noted that Noise Receiver #1 is sited in an area zoned Industrial which has a higher noise threshold than areas zoned Commercial.

Ambient Noise Environment

The noise environment in which the Project parcels are located is defined primarily by vehicular traffic on West Cole Boulevard from SR 111; vehicular traffic on Enterprise Boulevard and Sunset Boulevard; and industrial noises related to the surrounding businesses located to the north, south, and east. These are industrial uses including a pallet storage yard, a mini-storage facility, trucking operation and tire shop.

While no noise measurements were taken on area roadways, existing noise levels can be inferred from Level of Service (LOS). Based on the "Trinity Cannabis Cultivation & Manufacturing Facility NE Corner of West Cole Boulevard/Sunset Boulevard, City of Calexico, Draft Focused Traffic Analysis" (LOS 2018) (**Appendix J** of this EIR), West Cole Boulevard is operating at LOS A (the highest level) at the intersection with Sunset Boulevard and LOS B (the next highest) at the intersection with Enterprise Boulevard. These high LOS levels indicate that these intersections along West Cole Boulevard are performing well with relatively free-flowing traffic and are not crowded. Traffic noise levels from similar roads operating at LOS A in Calexico (City of Calexico 2008) had noise levels of 56 dBA, well below all of the land use noise criteria for various land-use designations identified in **Table 4.9-4**, above.

4.9.3 IMPACTS AND MITIGATION MEASURES

A. STANDARDS OF SIGNIFICANCE

Criteria for determining the significance of noise impacts were developed based on information contained in the CEQA Guidelines Appendix G. According to the guidelines, a Project may have a significant effect on the environment if it would result in the following conditions:

a) Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or of applicable standards of other agencies.

b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

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

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the Project area to excessive noise levels.

For purposes of this analysis and where applicable, the City of Calexico noise standards were used for evaluation of Project-related noise impacts. Thresholds of significance used in this analysis are discussed under each specific impact discussion.

B. ISSUES SCOPED OUT AS PART OF THE INITIAL STUDY

Criteria "e" and "f" were eliminated from further evaluation as part of the Initial Study Checklist because none of the Project parcels are located within the land use plan area of the Calexico International Airport (Imperial County 1996) (refer to Figure 4.1-1 in Section 4.1, Land Use) or in the vicinity of a private airport. The proposed Project is industrial in nature and therefore is not a noise sensitive land use. No impacts are identified with regards to airport noise.

C. METHODOLOGY

A combination of existing literature and accepted noise prediction and sound propagation algorithms, e.g. the U.S. Department of Transportation, Federal Highway Administration's (FHWA) *Roadway Construction Noise Model* (versions 1.1) were used to: 1) predict short-term construction noise levels; 2) predict long-term non-transportation noise levels; 3) predict long-term transportation source noise levels; and 4) evaluate ground-borne vibration impacts.

Short-Term Construction Noise

Predicted noise levels at nearby noise-sensitive land uses were calculated utilizing typical noise levels and usage rates associated with construction equipment derived from the FHWA's *Roadway Construction Noise Model* (versions 1.1).

Long-term Operational Stationary-Source Noise

Predicted noise levels associated with on-site stationary noise sources and activities were calculated based on representative data for the "SKYPLUME" exhaust system using high speed evacuation fans. Operational noise levels were predicted assuming an average noise attenuation rate of 6 dB per doubling of distance from the source and an excess noise attenuation rate of 1.5 dB per 1,000 feet. Operational noise levels were calculated at nearby sensitive noise receptors (only one was present) for comparison to the City's Noise Ordinance. Additionally, the potential noise impact from back-up diesel generators was addressed.

Long-term Traffic Noise

At full buildout, the Project would employ approximately 75 employees. The Project parcels would be accessed from West Cole Boulevard. It is assumed that approximately 5 percent of the construction worker traffic would travel to and from the west (i.e., in San Diego County and other local residential developments) while the remaining 95 percent would originate from various Imperial Valley cities to the east and travel west on West Cole Boulevard off of SR 111 (LOS 2018, p. 13). According to the 2013 California Department of Transportation (Caltrans) *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, doubling of traffic on a roadway would result in an increase of 3 dB (a barely perceptible increase). The Project's daily trips (22) would be a nominal increase compared to the 13,834 average daily trips (ADT) (LOS 2018, p. 10) currently traveling along West Cole Boulevard and thus, would not result in a perceptible increase in traffic noise levels.

Ground-borne Vibration

No major existing sources of ground-borne vibration have been identified near the Project parcels. Ground-borne vibration levels associated with construction-related activities were evaluated utilizing typical ground-borne vibration levels rates associated with construction equipment obtained from the U.S. Department of Transportation, Federal Transit Administration's *Transit Noise and Vibration Impact Assessment Guidelines* (FTA 2006). Ground-borne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby land uses and the criteria typically applied for structural damage and human annoyance.

D. PROJECT IMPACTS AND MITIGATION MEASURES

Exposure to, or Generation of, Noise Levels in Excess of Standards

Impact 4.9.1 Activities associated with construction of the proposed Project would increase short-term noise levels on the Project parcels and vicinity. However, no noise levels established in the City of Calexico Noise Ordinance would be exceeded during construction. Therefore, a **less than significant impact** would occur in association with noise standards.

Short-Term Construction-Generated Noise

Construction noise associated with the proposed Project would be temporary (30 months in duration) and would vary depending on the nature of the activities being performed. Tenant improvements proposed at 2421 Enterprise Boulevard would occur inside the existing building while new construction would occur on the three parcels along Sunset Boulevard as well as any improvements necessary at the Transportation and Distribution Facility located on the parcel-carve of APN 059-343-018.

Noise generated by construction would primarily be associated with the operation of off-road equipment for on-site construction activities as well as construction vehicle traffic on area roadways. Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., site preparation, grading, excavation, construction, paving). Noise generated by construction equipment, including earth movers, material handlers, and portable generators, can reach high levels.

During construction, exterior noise levels could affect Noise Receiver #1 (refer to **Figure 4.9-2**). The nearest construction noise would occur approximately 850 feet from Noise Receiver #1 if any improvements are undertaken at the carve-out parcel. However, it is acknowledged that the most intensive construction activities would occur on the Project parcels located along Sunset Boulevard and would not be concentrated on the carve-out parcel closest to the sensitive receptors. Tenant Improvements related to Building A (2421 Enterprise Boulevard) would occur approximately 925 feet from Noise Receiver #1 and take place inside the structure. Construction of Buildings B, C, and D would occur 1,000 feet or farther from this receptor.

The specific equipment types that would be used during construction were obtained from construction equipment identified in the "Air Quality and Greenhouse Gas Impact Assessment for the Trinity Cultivation and Manufacturing Facility" (AMBIENT 2018), provided in included in **Appendix B** of this EIR. It is assumed that typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings.

Other primary sources of acoustical disturbance would be random incidents which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). These estimations of noise levels take into account the distance to the receptor, attenuation from molecular absorption, and anomalous excess attenuation. During these activities, exterior noise levels could affect receptors in the vicinity of the Project parcels.

Short-term construction noise impacts would be considered significant if the proposed Project would exceed applicable City noise standards. Per the requirements of the City's Noise Ordinance, construction noise from a single piece of equipment or a combination of equipment shall not exceed 60 dBA Leq for areas zoned Commercial and 70 dBA Leq for areas zoned Industrial (where Noise Receiver #1 is located), when averaged over an 8-hour period, and measured at the nearest sensitive receptor. This standard assumes a construction period of days or weeks relative to an individual sensitive receptor. Additionally, construction noise would be considered significant if it exceeded 55 dBA Leq outside of the hours of 10 p.m. to 7 a.m. every day of the week.

To estimate the worst-case construction noise levels that may occur at a noise-sensitive receptor, the combined construction equipment noise levels were calculated for both Phase 1 and Phase 2 construction, accounting for overlapping building (i.e., Buildings B and C). **Table 4.9-7** summarizes the anticipated short-term noise levels generated during Project construction. As shown, the maximum temporary and intermittent noise level that Noise Receiver #1 could be exposed to is 62.4 dBA. This is below the City construction noise standard of 70 dBA for areas zoned Industrial. It should be noted that 62.4 dBA is the noise outside Noise Receiver #1; the noise level inside would be further attenuated by the building itself.

TABLE 4.9-7
CONSTRUCTION NOISE MODELING OUTPUT AT NOISE RECEIVER #1

Equipment	LMax (dBA)	Leq (dBA)	Exceed City Noise Standard
All Other Equipment > 5 HP	57.4	54.4	No
Backhoe	52.4	48.4	No
Compactor (ground)	50.6	43.6	No
Compressor (air)	50.6	46.6	No
Concrete saw	62.4	55.4	No
Dump truck	56.4	52.4	No
Front end loader	50.6	46.6	No
Man Lift	55.6	48.6	No
Paver	55.6	52.5	No
Scraper	55.6	51.6	No
Vibratory Concrete Mixer	52.4	55.4	No

*Source: Results of Noise Modeling (**Appendix H**)*

As previously identified, the City of Calexico establishes noise limitations pertaining to construction-related activities. Specifically, construction equipment operations are allowed in Commercial and Industrial zones during the hours of 7 a.m. to 10 p.m. weekly. For these reasons, impacts associated with noise from on-site construction activities are considered **less than significant**.

Construction Vehicle Traffic

Construction generated vehicle traffic would include a mix of light-duty automobiles and trucks, medium-duty trucks, and heavy-duty trucks. According to Section E of the Project Description, an estimated two trucks would deliver materials to the Project parcels at staggered times throughout the day during construction. All construction workers and trucks are assumed to arrive during the AM peak hour and depart during the PM peak hour. In addition, all workers are assumed to drive separate vehicles to and from the construction site. The Project parcels would be accessed from West Cole Boulevard. It is assumed that approximately 5 percent of the construction worker traffic would travel to and from the west (i.e., in San Diego County and other local residential developments) while the remaining 95 percent would originate from various Imperial Valley cities to the east and travel west on West Cole Boulevard off SR 111. Based on the results of the traffic study, this would result in an increase in 22 construction vehicles during the AM and PM peak hours (LOS 2018, p. 11).

The proposed Project will generate additional temporary vehicle traffic to the local roadway network. These additional vehicle trips will contribute to a temporary increase in roadway noise in the Project vicinity. A doubling of traffic volumes is typically required to result in an increase in the ambient noise levels of between 3.0 to 5.0 dBA. The increase of 3.0 to 5.0 dBA is considered the limit where changes in the noise levels may be perceived by persons with normal hearing.

According to the Draft Focused Traffic Analysis prepared as part of the proposed Project, the ADT during construction would increase by 88 (LOS 2018, p. 11) which would not affect the existing LOS and would not result in any perceptible change in the existing traffic noise levels. For these reasons, impacts associated with short-term noise from construction vehicle traffic are considered **less than significant**.

Operation

At full buildout, the Project would employ approximately 75 employees. It is assumed that 95 percent of the employees would originate from various Imperial Valley cities and would access the Project from SR 111 via West Cole Boulevard heading west. The remaining 5 percent of the worker traffic would travel to

and from the west (i.e., in San Diego County and other local residential developments). Each employee is assumed to be traveling alone and is assumed to arrive and depart during the AM and PM peak hours. Additionally, all four cultivation and manufacturing facilities (Barrington Consulting, LLC; Cole Boulevard Advisors, LLC; Desert Valley Partners, LLC; and Trinity 341, LLC) and Calexico Distribution Company, LLC expect to transfer product to a local cannabis permitted transporter where the product will use Interstate 8. The product will depart in the early morning (between 4 a.m. and 6 a.m.). Each Applicant intends to make approximately two deliveries per week for a total of eight trips.

As discussed above under construction generated traffic, it typically requires a doubling of traffic volumes to result in an increase in the ambient noise levels of between 3.0 to 5.0 dBA. According to the Draft Focused Traffic Analysis prepared as part of the proposed Project, the ADT during operations would increase by 332 (75 AM in, 75 lunch out, 75 lunch in, 75 PM out plus 32 delivery and support trips) which would not affect the existing LOS along West Cole Boulevard and would not result in any perceptible change in the existing traffic noise levels. For these reasons, impacts associated with short-term noise from operational vehicle traffic are considered **less than significant**.

As part of operations, the Project would employ a "SKYPLUME" exhaust system that disburses odors using high speed evacuation fans. Based on modeling using the FHWA Noise Model, the Lmax would be 51.3 dBA and the L_{10} (refer to **Table 4.9-1**) would be 54.3 dBA at Noise Receiver #1. These noise levels would not exceed the Noise Ordinance threshold of 55 dBA for nighttime operations in areas zoned for Industrial Use (refer to **Table 4.9-5**). The "SKYPLUME" exhaust system uses diesel generators for backup power. These generators have sound levels of 70 dBA at a distance of 23 feet when installed with a Level 3 Hospital Silencer (Gilette Generators 2018). Based on modeling using the FWS Noise Model for generators with similar sound profiles the Lmax at Noise Receiver #1 would be 48.2 dBA (see **Appendix H**). For these reasons, noise impacts associated with long-term operations are considered **less than significant**.

Mitigation Measures

None required.

Significance After Mitigation

Not applicable.

Excessive Ground-Borne Vibration or Ground-Borne Noise Levels

Impact 4.9.2 Ground-borne vibration levels associated with short-term Project construction and long-term operational activities would not exceed applicable ground-borne vibration criteria at nearby land uses. This impact would be considered **less than significant.**

Construction

Increases in ground-borne vibration levels attributable to the proposed Project would primarily be associated with short-term construction-related activities. Project construction would have the potential to result in varying degrees of temporary ground-borne vibration, depending on the specific construction equipment used and the operations involved. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. This analysis of the proposed Project uses the Caltrans recommended standard of 0.2 inches per second peak particle velocity (PPV) with respect to the prevention of structural damage for normal buildings (**Table 4.9-2**). This is also the level at which vibrations may begin to annoy people in buildings. Therefore, ground-borne vibration levels would be considered significant if predicted short-term construction or long-term operational ground-borne vibration levels attributable to the proposed Project would exceed 0.2 inches per second PPV at the nearest offsite existing structure. **Table 4.9-8** summarizes ground-borne vibration levels associated with representative construction equipment**.**

TABLE 4.9-8
REPRESENTATIVE VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment Type	Peak Particle Velocity at 20 Feet (inches per second)
Large Bulldozer	0.123
Caisson Drilling	0.123
Loaded Trucks	0.105
Rock Breaker	0.082
Jackhammer	0.048
Small Bulldozer/Tractor	0.004

Source: FTA 2006; Caltrans 2004.

The nearest off-site structure to the Project parcels (associated with Noise Receiver #1) is over 850 feet from the construction site boundary. Based on the vibration levels presented in **Table 4.9-8**, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.123 in/sec PPV at 20 feet. Therefore, the use of virtually any type of construction equipment would not result in a ground-borne vibration velocity level above 0.2 in/sec. As a result, ground-borne vibration impacts would be considered **less than significant** during Project construction.

Operation

Long-term operational activities associated with the proposed Project would not involve the use of any equipment or processes that would result in potentially significant levels of ground-borne vibration. Thus, ground-borne vibration impacts would be considered **less than significant** during operation of the proposed Project.

Mitigation Measures

None required.

Significance After Mitigation

Not Applicable.

Substantial Permanent Increase in Ambient Noise Levels

Impact 4.9.3 Long-term operation of the proposed Trinity Cannabis Cultivation and Manufacturing Facility would result in a substantial permanent increase in ambient noise levels in the project vicinity above existing levels. This impact is considered **potentially significant.**

Operation

The proposed Project would operate seven days per week with employees mostly arriving after 6 a.m. and leaving before 6 p.m. Noise generated by Project operations would be associated with employee traffic to and from the Project and the operation of the electrical motors used to power the "SKYPLUME" exhaust system. Long term operational traffic noise is discussed under Impact 4.9.1 and deemed not to exceed the City of Calexico Noise Ordinance threshold for Industrial zones. Long-term operational noise impacts would be considered significant if the proposed Project would result in non-transportation noise levels that would exceed applicable City noise standards at nearby noise-sensitive land uses. As discussed under Impact 4.9.1 operation of the Project would not exceed applicable City noise standards. When the ambient noise level is equal to or exceeds the Property Line noise standard, the applicable noise standard is the ambient noise level (in dBA) plus 3 dB. In instances where the adjoining land use designations differs from that of the noise-generating land use, the more restrictive noise standard shall apply plus 5 dBA. Modeling of the exhaust fans indicates that nighttime ambient noise levels in the parcels zoned for

Industrial use would not be exceeded. This is assuming shielding of 10 dBA is used (See **Appendix H** for fan modeling results).

For the parcel zoned Commercial Highway the nighttime ambient noise level of 50 dBA (see **Table 4.9-5**) could be exceeded (See **Appendix H** for fan modeling results) by 7.5 dBA Lmax and 4.4 dBA L_{10}. Thus, this impact would be considered **potentially significant.**

Mitigation Measures

MM 4.9.3 Each cultivation and manufacturing facility in areas zoned Industrial shall install noise shielding equal to 10 dBA around fans and motors. The cultivation and manufacturing facility zoned Commercial Highway shall install shielding equal to 18 dBA around fans and motors.

Timing/Implementation: *As a condition of Project approval/during operation.*
Enforcement/Monitoring: *City of Calexico Planning Department*.

Significance After Mitigation

Installation of mitigation measure MM 4.9.3 would require installation of shielding around exhaust fans and motors in each cultivation and manufacturing facility to reduce the noise level to within the City's standards for nighttime noise. With installation of noise shields, impacts associated with a substantial permanent increase in noise would be reduced to **less than significant**.

Substantial Temporary or Periodic Increase in Ambient Noise Levels

Impact 4.9.4 Substantial temporary or periodic increases in ambient noise levels would occur in the Project vicinity above levels existing without the Project. This impact would be considered **potentially significant.**

Temporary noise impacts from construction activities would result in an increase in the ambient noise level in the Project vicinity above levels existing without the Trinity Cannabis Cultivation and Manufacturing Facility. **Table 4.9-9** summarizes sound levels at the property line for Commercial Highway zone. The parcel on which 2421 Enterprise Boulevard (and the proposed parcel carve-out for the Transportation and Distribution Facility) is located is zoned Industrial and would experience noise levels in excess of the City standard.

TABLE 4.9-9
SOUND LEVEL AT PROPERTY LINE (COMMERCIAL HIGHWAY)

Equipment	LMax (dBA) Exceedances	Leq (dBA) Exceedances	Exceed City Noise Standard (60 dBA)
All Other Equipment > 5 HP	10.5	7.4	Yes
Backhoe	5.5	1.5	Yes
Compactor (ground)	5.5	None	Yes
Compressor (air)	5.5	1.5	Yes
Concrete saw	15.5	8.5	Yes
Dump truck	9.5	5.5	Yes
Front end loader	5.5	1.5	Yes
Man Lift	3.5	10.5	Yes
Paver	10.5	7.4	Yes
Scraper	10.5	6.5	Yes
Vibratory Concrete Mixer	5.5	None	Yes

Note: Assumes no shielding of equipment. Measured at 150 feet from equipment to property line.

Table 4.9-10 summarizes sound levels at the property line for Industrial zone. As shown, the City Noise Standard would be exceeded for several pieces equipment (All Other Equipment > 5 HP as well as for concrete saw, man lift, paver and scraper).

TABLE 4.9-10
SOUND LEVEL AT PROPERTY LINE (INDUSTRIAL)

Equipment	LMax (dBA) Exceedances	Leq (dBA) Exceedances	Exceed City Noise Standard (70 dBA)
All Other Equipment > 5 HP	0.5	None	Yes
Backhoe	None	None	No
Compactor (ground)	None	None	No
Compressor (air)	None	None	No
Concrete saw	5.5	None	Yes
Dump truck	None	None	No
Front end loader	None	None	No
Man Lift	0.5	None	Yes
Paver	0.5	None	Yes
Scraper	0.5	None	Yes
Vibratory Concrete Mixer	None	None	N/A

Note: Assumes no shielding of equipment. Measured at 150 feet from equipment to property line.

As discussed above the "SKYPLUME" exhaust system uses diesel generators for backup power. These generators have sound levels of 70 dBA at a distance of 23 feet when installed with a Level 3 Hospital Silencer (Gilette Generators 2018). Based on modeling using the FWS Noise Model for generators with similar sound profiles the following noise levels would be expected at the property lines assuming only a Level 2 Silencer is used (**Table 4.9-11**).

TABLE 4.9-11
NOISE PREDICTION AT PROPERTY LINES

Building Description	Distance from property line (feet)	Db	Shielding (dB)	Open (dB)	Level 2 (dB)
Building A – South Property Line	105	74	6	68	56
Building B – North Property Line	285	65	6	59	47
Building C – West Property Line (Across Sunset Boulevard)	205	68	0	68	56
Building D – South Property Line	235	67	6	61	49

*Based on manufacturer data for an unenclosed genset equipped with a critical silencer.

Shielding assumes minimum 6 dB noise reduction with an 8-foot concrete masonry wall.

For Buildings A and C, the Level 2 (dB) at the property line would be 56 dB (see **Appendix H**). This would exceed the night time noise standard at the property line if the generator was run continuously. However, this is a backup generator that would only run if the primary power were interrupted. The City of Calexico allows for brief exceedances of the noise limit and it is unlikely the backup power supply would exceed these durations.

Due to the exceedances of the City noise standard outlined above, this impact would be considered **potentially significant.**

Mitigation Measures

MM 4.9.4a The Project contractor shall install a heavy vinyl noise curtain around the Project parcels during construction to reduce sound levels.

Timing/Implementation: During construction/Project contractor.
Enforcement/Monitoring: City of Calexico Planning Department/City Code Enforcement.

MM 4.9.4b Noise measurements shall be taken intermittently during construction to ensure that the City's noise standards are not exceeded beyond durations allowed by the City's Municipal Code.

Timing/Implementation: During construction/City Code Enforcement.
Enforcement/Monitoring: City of Calexico Planning Department/City Code Enforcement.

Significance After Mitigation

The City Noise Ordinance allows for time duration exceedances (**Table 4.9-6**). Assuming the time durations were observed for the equipment operation, implementation of mitigation measure MM 4.9.4a would reduce operational noise levels by 5 dBA (FHWA 2006). With installation of a heavy vinyl noise curtain and measuring of noise levels (MM 4.9.4b) to ensure that noise levels are not elevated for durations exceeding the City's Municipal Code, the proposed Project would not exceed the noise levels identified in the City's Noise Ordinance. Therefore, impacts resulting in a substantial, temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project would be reduced to **less than significant**.

4.9.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

A. CUMULATIVE SETTING

The geographic extent of the cumulative setting for noise consists of the existing businesses immediately adjacent to the Project parcels as well as the surrounding areas within the City within approximately one mile of the Project parcels. One mile was chosen since any noise generated by the proposed Project is assumed to be attenuated to an imperceptible level at that distance. Two proposed cumulative projects, Town Center Industrial Park and the Calexico Mega Park are located within one mile of the Trinity Cannabis Cultivation and Manufacturing Facility.

B. CUMULATIVE IMPACTS AND MITIGATION MEASURES

Contribution to Cumulative Noise Levels

Impact 4.9.5 Due to the distance between the proposed Project and other proposed projects within one mile, the proposed Project would not result in a substantial contribution to cumulative noise levels. Therefore, cumulative noise impacts would be considered **less than cumulatively considerable.**

Construction

The Project area is zoned Industrial and Commercial Highway and is within the COZ. Impacts associated with noise from on-site construction activities as well as construction vehicle traffic were considered less than significant as there is only one sensitive receptor in the area and construction noise would occur for a limited duration.

The Town Center Industrial Park and the Calexico Mega Park are proposed, but not yet constructed. Both projects are within one mile of the proposed Project. The Town Center Industrial Park is directly to the west of the Parcels 1, 2 and 3. The Calexico Mega Park is more than 0.5 miles to the northeast. As neither project has been constructed, and the proposed Project's construction noise contribution is minor

(approximately 55 dBA), the Project's contribution to cumulative noise levels is considered **less than cumulatively considerable** during construction. Likewise, with implementation of mitigation measures MM 4.9.4a and MM 4.9.4b, construction noise levels would be reduced to levels consistent with City of Calexico Noise Ordinance and cumulative construction noise impacts would be **less than cumulatively considerable.**

Operation

Daily trips associated with the Project would be nominal compared to the vehicle trips currently experienced in the Project vicinity, and thus, would not result in a perceptible increase in traffic noise levels. The Town Center Industrial Park and Calexico Mega Park have not yet been constructed and thus are currently not adding vehicle trip noise on area roadways.

As previously stated, in addition to traffic in the Project area, the noise environment is characterized by other industrial and transportation-related commercial businesses (i.e. a pallet storage yard, a mini-storage facility, trucking operation and a tire shop). However, individually the Project would result in noise levels below 55 dBA at the nearest sensitive receptor. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dB higher than one source under the same conditions (FTA 2006). Assuming the existing commercial and industrial activities generate similar noise levels, the combined noise levels would still be well below the City's applicable daytime and nighttime noise standards (i.e., 60 and 70 dBA for daytime [Commercial and Industrial] and 50 and 55 dBA nighttime [Commercial and Industrial]). Thus, the Project's contribution to cumulative noise levels is considered **less than cumulatively considerable** during operations. Likewise, with implementation of mitigation measure MM 4.9.3 (installation of noise shields around exhaust fans and motors), operational noise levels would be reduced to levels consistent with City of Calexico Noise Ordinance and cumulative operational noise impacts would be **less than cumulatively considerable.**

Mitigation Measures

Implementation of project-specific mitigation measures MM 4.9.3 and MM 4.9.4a and MM 4.9.4b would reduce construction and operational noise levels to levels consistent with the City of Calexico Noise Ordinance.

Significance After Mitigation

Implementation of project-specific mitigation measures would address increases in ambient noise levels through requiring installation of noise shielding equal to 10 dBA around fans and motors (MM 4.9.3); installation of a heavy vinyl noise curtain around the Project parcels during construction to reduce sound levels (MM 4.9.4a); and taking noise measurements intermittently during construction to ensure that the City's noise standards are not exceeded beyond durations allowed by the City's Municipal Code (MM 4.9.4b). Therefore, following implementation of these mitigation measures, cumulative impacts associated with increases in ambient noise levels would be **less than cumulatively considerable**.