Appendix K

Noise and Vibration Analysis
(April 2024)

Green Valley Specific Plan (Case Road Mixed Use)

NOISE AND VIBRATION ANALYSIS

CITY OF PERRIS

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LIST OF ABBREVIATED TERMS

(1)	Reference
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Green Valley Specific Plan (Case Road Mixed Use)
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Green Valley Specific Plan (Case Road Mixed Use) (GVSP) development ("Project"). The Project site is located north of Ethanac Road, east of Green Valley Parkway, south of Watson Road, and west of Interstate in the City of Perris. The Project features the development of approximately 44 acres of land within the existing GVSP in Planning Areas 40, 41, and 44. This study has been prepared to satisfy applicable City of Perris standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (State CEQA Guidelines). (1)

The results of this Green Valley Specific Plan (Case Road Mixed Use) Noise and Vibration Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Operational Noise	7	*Less Than Significant*	-
Construction Noise	8	*Less Than Significant*	-
Nighttime Concrete Pour		*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Green Valley Specific Plan (Case Road Mixed Use) ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Project site is located north of Ethanac Road, east of Green Valley Parkway, south of Watson Road, and west of Interstate 215 in the City of Perris as shown on Exhibit 1-A.

1.2 GREEN VALLEY SPECIFIC PLAN EIR

The City of Perris approved the Green Valley Specific Plan (Specific Plan) and certified the associated Green Valley Specific Plan Environmental Impact Report (EIR) in March 1990. The EIR noise section concluded that the significant noise impacts can be mitigated to insignificance through use of the suggested mitigation and review of final design by a qualified acoustical engineer. The impacts after mitigation were deemed less than significant. The Approved Specific Plan as evaluated in the 1990 Specific Plan EIR allows up to the following within Planning Areas (PAs) 40 through 44:

- 564,000 square feet of business park use (PAs 40 and 41)
- 471,500 square feet of general commercial use of which 319,000 square feet of commercial retail use has already been developed on the northwest corner of Case Road and Ethanac Road (PAs 42, 43 and 44).

According to the EIR, the primary sources of noise in the Specific Plan study area include traffic on I-215 and surrounding roads, trains on the nearby AT&SF railroad, aircraft from March Air Force Base, and operations at the Perris Valley Airport. This noise analysis was prepared to support an addendum to the EIR.

1.3 PROJECT DESCRIPTION

The Project proposes to implement the following uses within PAs 40 through 44, as shown on Exhibit 1-B and outlined below:

- 498,000 square feet of industrial use
- 116,000 square feet of self-storage use (14,600-square-foot one-story building in the northern portion of the parcel and a 63,400-square-foot two-story building within the central portion of the parcel and an approximately 38,000-square-foot two-story building within the southern portion of the parcel) plus partially-covered recreational vehicle (RV) and/or trailer parking with up to 215 parking stalls.

- 27,200 square feet of general commercial use (21,600-square-foot building for retail and restaurants and two 2,800-square-foot fast-food with drive-through restaurant pads)
- 80,000-square-foot, 4-story hotel (128-keys)

EXHIBIT 1-A: LOCATION MAP

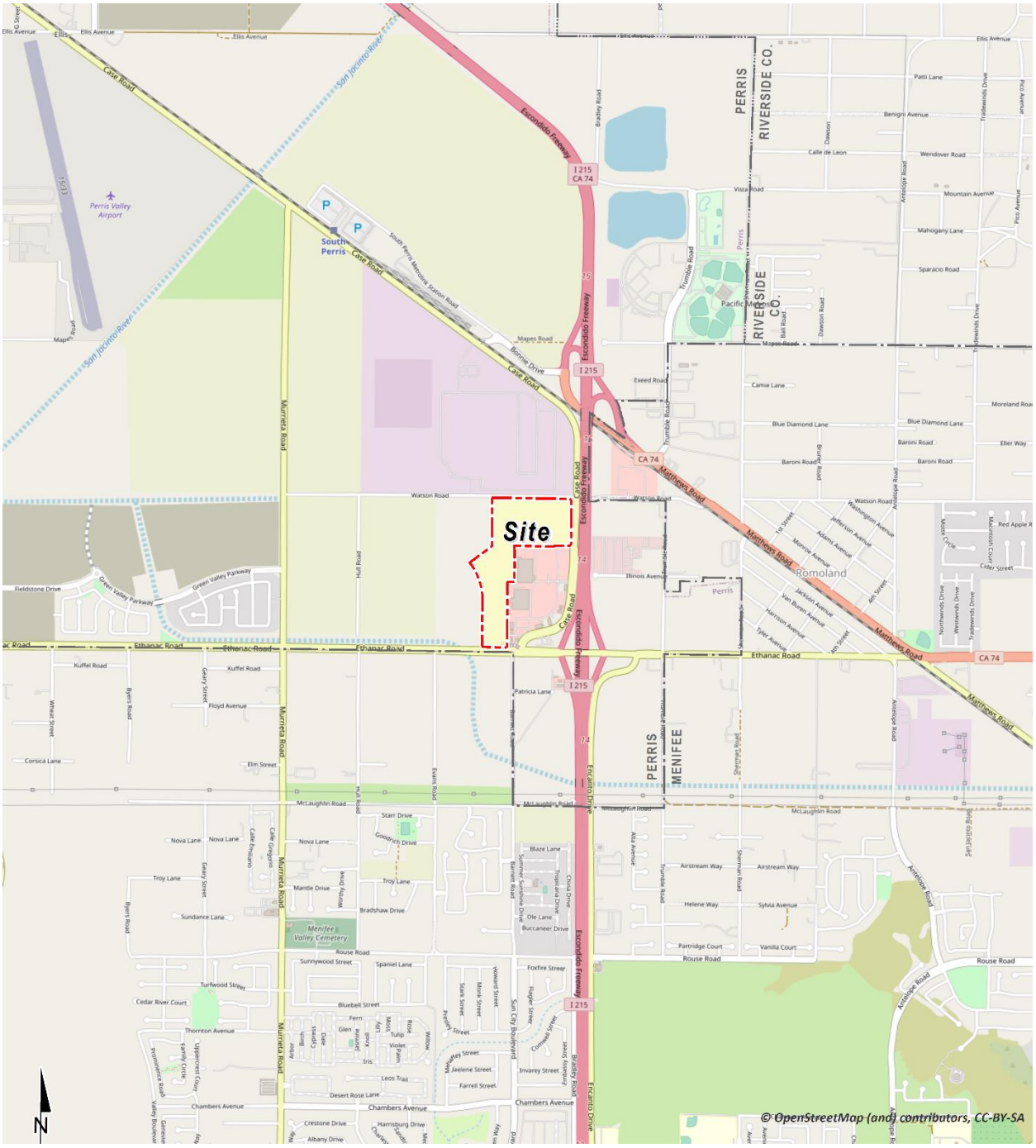
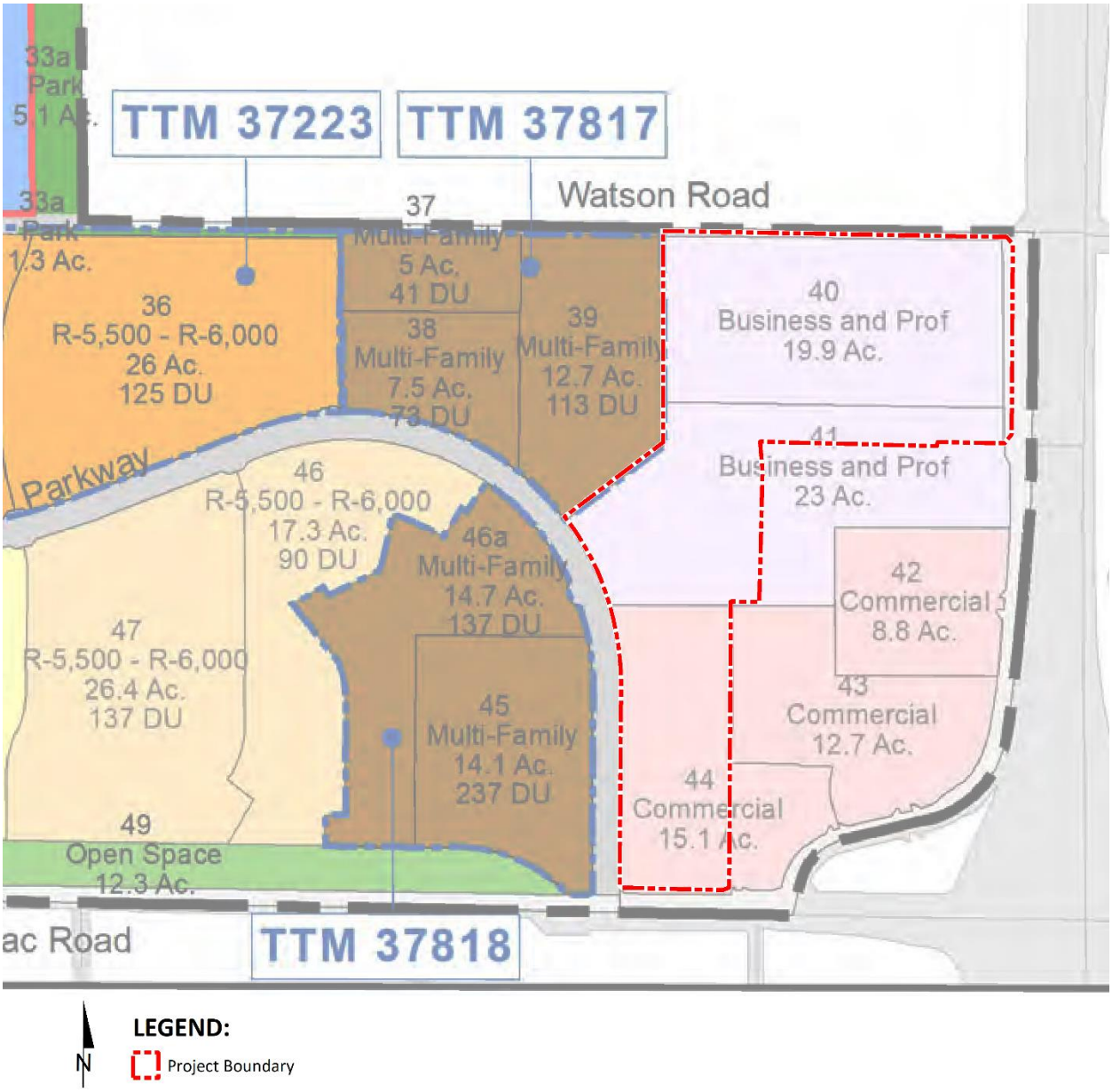


EXHIBIT 1-B: PROJECT CONCEPTUAL LAND USE PLAN



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2 FUNDAMENTALS

Noise is simply defined as *unwanted sound*. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort (3). Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most used metric is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Perris relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels 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) 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. (2)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of-sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The Federal Highway Administration (FHWA) does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must block the line-of-sight path of sound from the noise source.

2.6 LAND USE COMPATIBILITY WITH NOISE

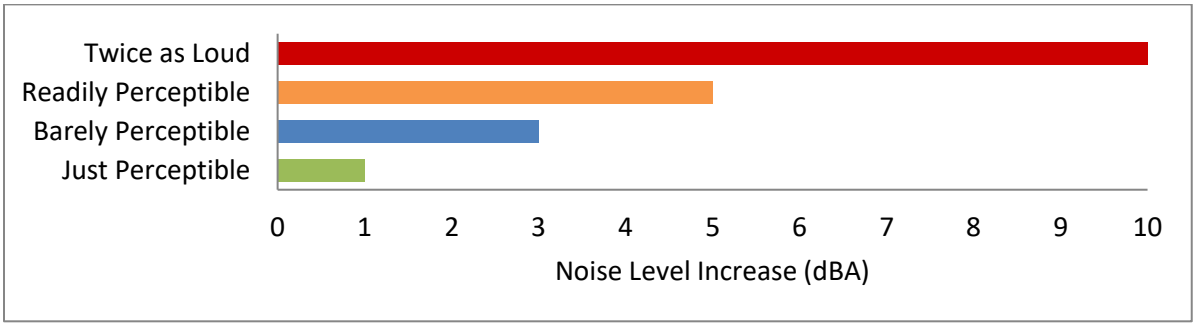
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (7 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8)(8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*, vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (8). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (8). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structures reduce vibration levels due to the coupling of the building to the soil.

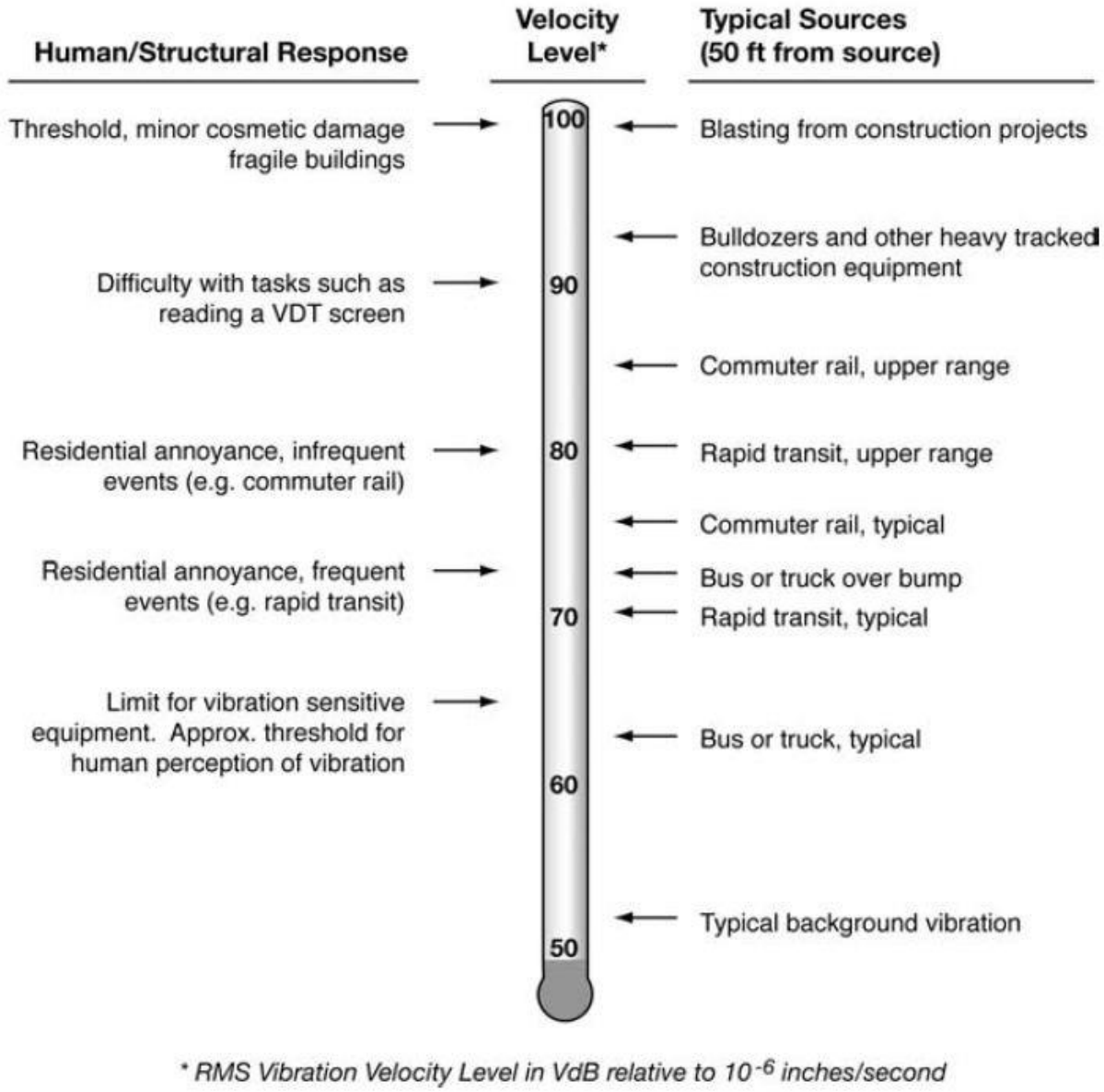
There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal (8). The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body (8). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (9). Thus, either can be used in the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide a background of common vibration levels and set vibration limits. (8) Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

As stated in the FTA guidance manual, the background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity

level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual.

3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (10) OPR identifies suggested land use noise compatibility levels as part of its General Plan Guidelines. These suggested guidelines provide planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels. The guidelines identify normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for various land uses. The land use compatibility guidelines are intended to be an advisory resource when considering changes in land use and policies, such as zoning modifications. In addition, the State through the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF PERRIS GENERAL PLAN NOISE ELEMENT

The City of Perris has adopted a Noise Element of the General Plan (11) to control and abate environmental noise, and to protect the citizens of Perris from excessive exposure to noise. The Noise Element specifies the maximum allowable unmitigated exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies noise polices and implementation measures designed to protect, create, and maintain an environment free from noise that may jeopardize the health or welfare of sensitive receptors, or degrade quality of life.

The noise standards identified in the City of Perris General Plan are guidelines to evaluate the acceptability of the transportation related noise level impacts. These standards are based on the Governor's Office of Planning and Research (OPR) and are used to assess the long-term traffic noise impacts on land use. According to the City's Land Use Compatibility for Community Noise Exposure (Exhibit N-1), noise-sensitive land uses such as single-family residences are *normally acceptable* with exterior noise levels below 60 dBA CNEL and *conditionally acceptable* with noise levels below 65 dBA CNEL. Commercial uses are *normally acceptable* with exterior noise levels

below 65 dBA CNEL and *conditionally acceptable* with noise levels below 75 dBA CNEL and *normally unacceptable* with exterior noise level above 75 dBA CNEL. Industrial uses are considered *normally acceptable* with exterior noise levels of up to 70 dBA CNEL, and *conditionally acceptable* with exterior noise levels between 70 to 80 dBA CNEL. (11)

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the proposed Project, operational noise such as the expected loading dock activity, trailer parking, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, pool activity, drive-through speakerphone, and truck movements are typically evaluated against standards established under a City's Municipal Code.

The City of Perris Municipal Code, Chapter 7.34 *Noise Control*, Section 7.34.040, establishes the permissible noise level at any point on the property line of the affected residential receivers. Therefore, for residential properties, the exterior noise level shall not exceed a maximum noise level of 80 dBA L_{max} during daytime hours (7:01 a.m. to 10:00 p.m.) and shall not exceed a maximum noise level of 60 dBA L_{max} during the nighttime hours (10:01 p.m. to 7:00 a.m.), as shown on Table 3-1. (12) The City of Perris Municipal Code is included in Appendix 3.1. Additional exterior noise level standards are identified in the City of Perris General Plan Noise Element Implementation Measure V.A.1 which requires that new industrial facilities and large-scale commercial facilities within 160 feet of the property line of existing noise-sensitive land uses must demonstrate compliance with a 60 dBA CNEL exterior noise level standard. Table 3-1 shows the Municipal Code and General Plan standards used in this analysis to evaluate the potential operational noise levels from the Project.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land Use	Time Period	Noise Level Standard (dBA)
City of Perris	Residential[1]	Daytime (7:01 a.m. - 10:00 p.m.)	80 dBA L_{max}
		Nighttime (10:01 p.m. - 7:00 a.m.)	60 dBA L_{max}
	Within 160 Feet of PL[2]	24-Hours	60 dBA CNEL

[1] City of Perris Municipal Code, Sections 7.34.040 & 7.34.050 (Appendix 3.1).
[2] City of Perris General Plan Noise Element, Implementation Measure V.A.1.

3.4 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the proposed Project, noise from construction activities is typically evaluated against standards established under a City's Municipal Code. The City of Perris Municipal Code, Section 7.34.060, identifies the City's construction noise standards and permitted hours of construction activity (refer to Table 3-2). The City of Perris Municipal Code, Section 7.34.060, noise level standard of 80 dBA L_{max} applies to residential zones within the City of Perris. (12)

TABLE 3-2: CONSTRUCTION NOISE STANDARDS

Jurisdiction	Permitted Hours of Construction Activity	Construction Noise Level Standard
City of Perris[1]	7:00 a.m. to 7:00 p.m. on any day except Sundays and legal holidays (with the exception of Columbus Day and Washington's birthday).	80 dBA L_{max}

[1] City of Perris Municipal Code, Section 7.34.060 (Appendix 3.1).

The City of Perris Municipal Code, Section 7.34.060, identifies the City's construction noise standards and limits construction activities to the hours of 7:00 a.m. to 7:00 p.m. on any day except Sundays and legal holidays (except for Columbus Day and Washington's birthday). The City of Perris Municipal Code, Section 7.34.060, noise level standard of 80 dBA L_{max} applies to residential zones within the City of Perris. (12) The L_{max} represents the maximum instantaneous sound level recorded during a given time period. It measures the highest peak level of noise reached at any moment and does not consider the duration of individual noise events.

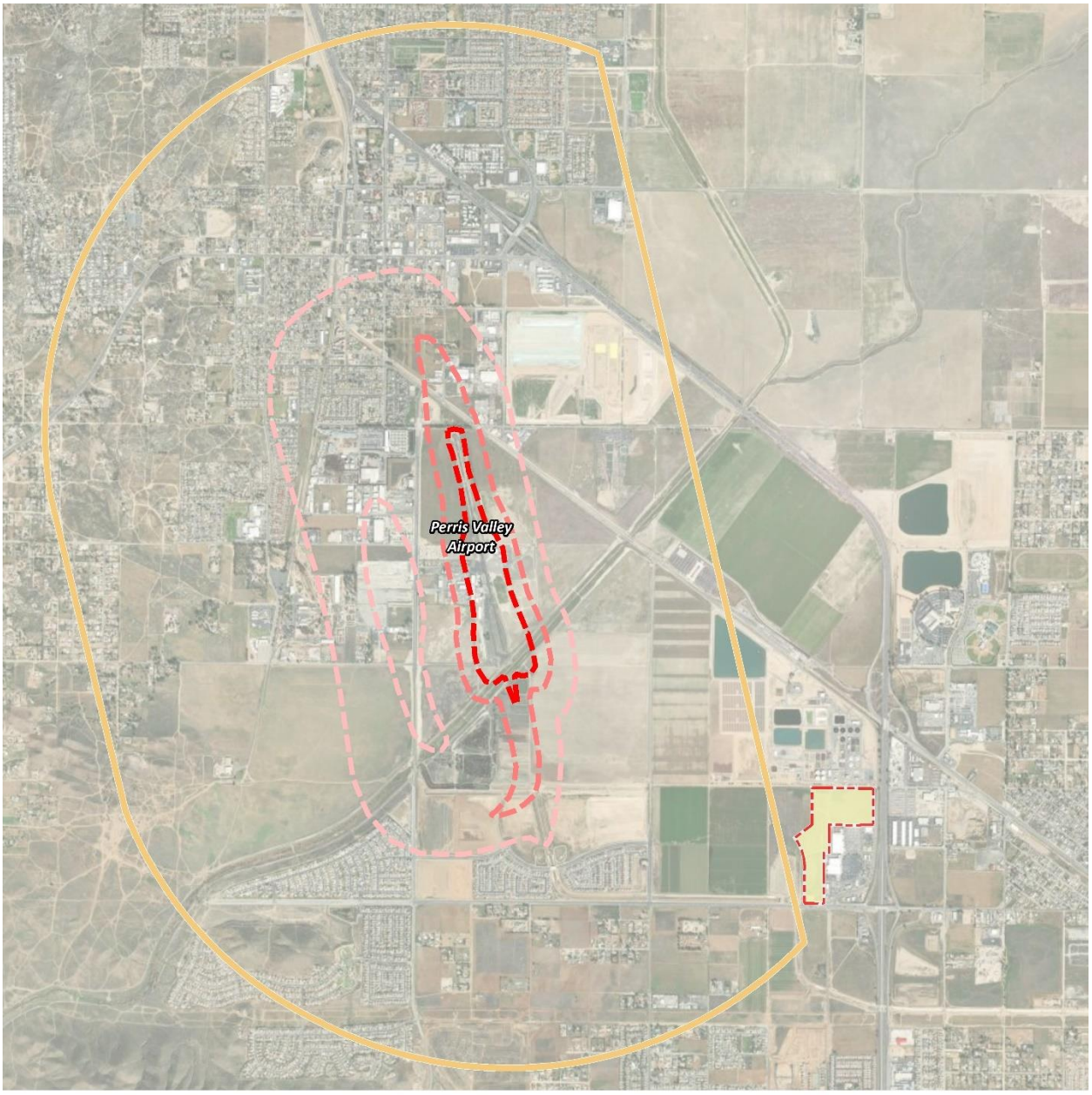
3.5 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (8) To analyze vibration impacts originating from the construction of the Project, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Perris does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (9 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

3.6 PERRIS VALLEY AIRPORT (PV)

The Perris Valley Airport (PV) is located approximately 1.4 miles northwest of the Project Site. This places the Project site outside the limits of the Perris Valley Airport Influence Area as shown on Exhibit 3-B. Therefore, the Project is not subject to the *Riverside County Airport Land Use Compatibility Plan Policy Document* (RC ALUCP). As shown on Exhibit 3-B, the Project site is located well outside the 55 dBA CNEL noise level contour boundaries and the Project land use is considered *clearly acceptable.*

EXHIBIT 3-B: PERRIS VALLEY AIRPORT (PV) NOISE CONTOURS



Source: Riverside County Airport Land Use Compatibility Plan Policy Document (July 2010)

4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

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

B. Generation of excessive ground-borne vibration or ground-borne 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 NOISE LEVEL INCREASES (THRESHOLD A)

Sensitive receivers are areas where humans are participating in activities that may be subject to the stress of significant interference from noise and often include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Other receivers include office and industrial buildings, which are not considered as sensitive as single-family homes, but are still protected by City of Perris land use compatibility standards, as discussed below. The City of Perris does not consider noise increases to non-noise-sensitive uses to be significant. (13) Further, CEQA requires that consideration be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact.

Noise level increases due to Project related off-site traffic noise levels and the operational (stationary) source noise activities at the nearest receiver locations resulting from the Project are evaluated based on the Federal Interagency Committee on Noise (FICON) (14) guidance. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

The adopted Specific Plan relied on a single threshold to assess the increase in ambient noise levels. Consistent with *King & Gardiner Farms, LLC v. County of Kern*, the Court of Appeal held that the noise analysis should consider both the magnitude of the increase in noise level and the absolute noise level associated with a project in determining the significance of the project's noise impacts. The approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (15) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project

noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (16 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described previously in Section 3.5 of this analysis, the vibration impacts originating from the construction of the proposed Project, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

The closest airport which would require additional noise analysis under CEQA Appendix G Guideline C is the Perris Valley Airport (PV). As previously described in Section 3.6 of this analysis, the Project site is not located within the Perris Valley Airport Influence Area. Therefore, the potential impacts under CEQA Appendix G Guideline C, are *less than significant* and are not further analyzed in this noise study.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-1 shows the significance criteria summary matrix.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	**Nighttime**
Operational (Stationary)	At residential land use[1]	80 dBA L_{max}	60 dBA L_{max}
	Within 160 Feet of noise-sensitive use[2]	60 dBA CNEL (exterior)	
	if ambient is < 60 dBA L_{eq}[3]	≥ 5 dBA L_{eq} Project increase	
	if ambient is 60 - 65 dBA L_{eq}[3]	≥ 3 dBA L_{eq} Project increase	
	if ambient is > 65 dBA L_{eq}[3]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise Level Threshold[4]	80 dBA L_{max}	
	Vibration Level Threshold[5]	0.3 PPV (in/sec)	

[1] City of Perris Municipal Code, Section 7.34.040 (Appendix 3.1).
[2] City of Perris General Plan Noise Element, Implementation Measure V.A.1.
[3] FICON, 1992.
[4] City of Perris Municipal Code, Section 7.34.060 (Appendix 3.1).
[5] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19 (older residential structures).
"Daytime" = 7:01 a.m. - 10:00 p.m.; "Nighttime" = 10:01 p.m. - 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, September 13th, 2023. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the equivalent or the energy average hourly sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.), nighttime (10:00 p.m. to 7:00 a.m.) and the calculated 24-hour community noise equivalent level (CNEL) at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located east of the site near the residence at 25764 Trumble Rd.	64.1	60.0	67.3
L2	Located southwest of the site near the residence at 26038 Hull St.	65.7	60.6	68.7
L3	Located west of the site near the retail building at 3150 Case Rd.	55.5	48.8	57.3
L4	Located northwest of the site near existing industrial land use at 27010 Watson Rd.	49.2	45.5	53.3

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

Table 5-1 provides the energy average noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

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6 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 6-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Other receivers include office and industrial buildings, which are not considered as sensitive as single-family homes, but are still protected by City of Perris land use compatibility standards.

To describe the Project noise levels, five receiver locations were identified. This includes the future on-site Project receiver describing the proposed residential use (R4) and the hotel (R5). To the extent this analysis considers impacts in relation to future receivers, it does so for informational purposes to show compliance with City regulations. Impacts of the environment on a project are excluded from CEQA unless the project itself "exacerbates" such impacts. (26) As such, any impact on the receivers within the Project is not an impact under CEQA.

Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to the property line of each receiver location.

R1: Location R1 represents the existing residence at 25780 Trumble Road, approximately 1,793 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing residence at 26038 Hull Street, approximately 1,925 feet southwest of the Project site. Receiver R2 is placed in the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the proposed future residential development within the Specific Plan located approximately 60 feet west of the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the proposed future residential development within the Specific Plan located approximately 45 feet west of the Project site with a planned 6-foot-high community block wall. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the proposed future hotel development within the Specific Plan. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

EXHIBIT 6-A: SENSITIVE RECEIVER LOCATIONS

7 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 6, resulting from the operation of the proposed Project. Exhibit 7-A identifies the representative noise source locations used to assess the operational noise levels. The operational noise analysis includes the planned on-site 14-foot-high screen walls surrounding the loading docks. The screen wall locations shown on Exhibit 7-A are designed for screening, privacy, noise control, and security.

7.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. To present the potential worst-case noise conditions, this analysis assumes the Project warehouse use would be operational 24 hours per day, seven days per week. Consistent with similar uses, the Project business operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: loading dock activity, trailer parking, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, pool activity, drive-through speakerphone, and truck movements.

7.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 7-1 used to estimate the Project operational noise impacts. Table 7-1 presents both the average hourly L_{eq} and the maximum permissible L_{max} reference noise levels. The average hour L_{eq} noise levels are used to calculate the 24-hour noise levels necessary to demonstrate compliance with the City of Perris 60 dBA CNEL exterior noise level standard for industrial and large commercial facilities within 160 feet of the property line of existing noise-sensitive land uses. In addition, the average hourly L_{eq} noise levels are used to describe the Project related operational noise level increases.

The L_{max} reference noise levels shown on Table 7-1 are used to estimate the Project's maximum permissible exterior noise level consistent with the City's L_{max} noise level standards. It is important to note that the following projected noise levels assume the worst-case noise environment with the loading dock activity, trailer parking, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, pool activity, drive-through speakerphone, and truck movements all operating continuously. These sources of noise activity will likely vary throughout the day.

EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS

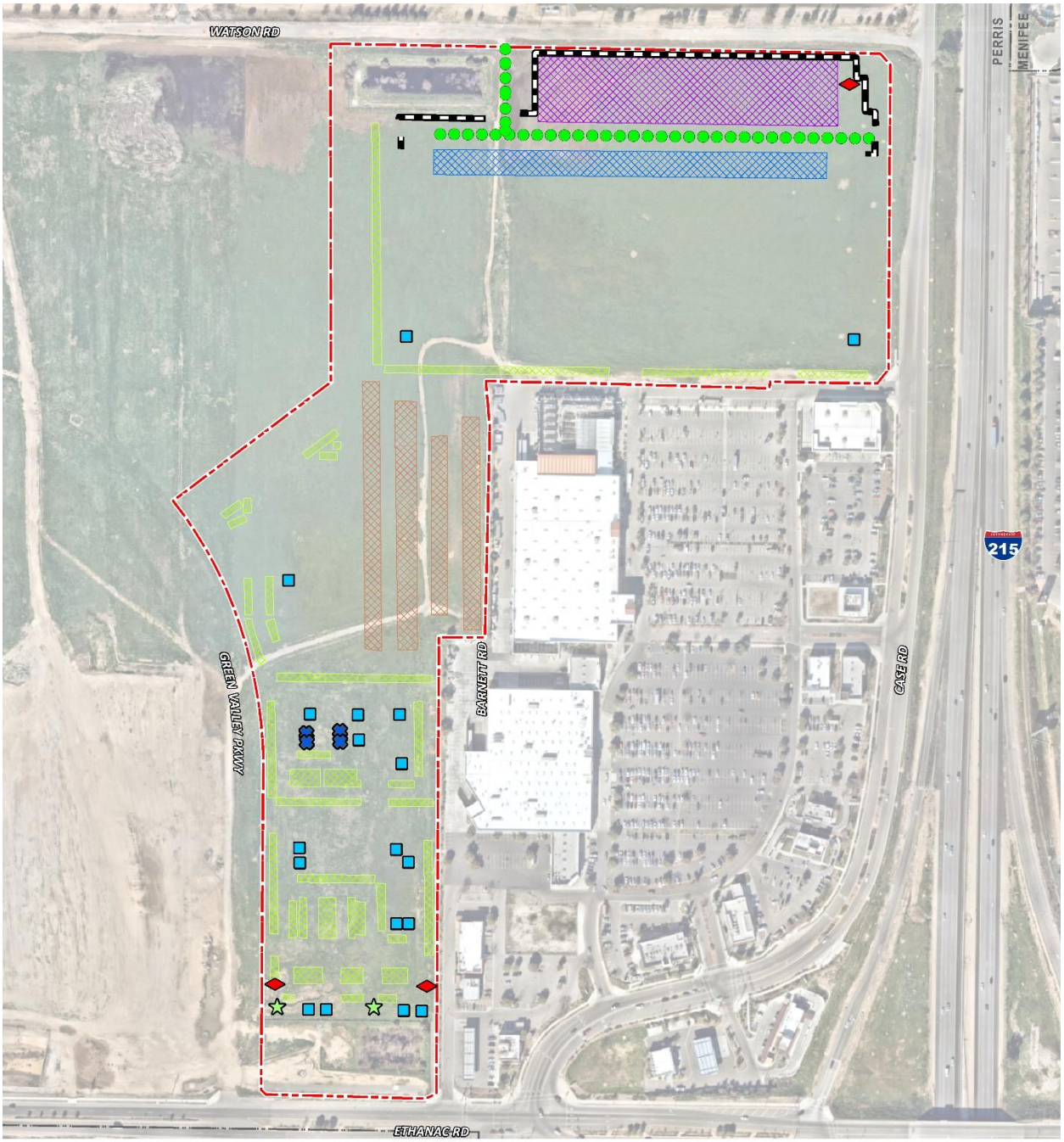

TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level (dBA L_{eq})		Reference Noise Level (dBA L_{max})	
		Day	Night	@ Ref. Dist.	@ 50 Feet	@ Ref. Dist.	@ 50 Feet
Loading Dock Activity	8'	60	60	78.4	64.4	88.8	74.8
Trailer Parking	8'	60	60	67.2	62.8	75.6	71.2
RV Storage	5'	60	0	67.2	62.8	75.6	71.2
Roof-Top Air Conditioning Units	5'	39	28	77.2	57.2	77.7	57.7
Trash Enclosure Activity	5'	60	30	72.7	56.8	87.0	71.1
Parking Lot Vehicle Movements	5'	60	60	66.6	56.1	70.2	59.7
Pool Activity	5'	60	0	68.7	54.7	94.6	80.6
Drive-Through Speakerphone	3'	60	30	62.0	51.5	65.3	54.8
Truck Movements	8'	60	60	64.0	58.0	79.1	73.1

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

7.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

7.2.2 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical operational noise activities associated with the Project. This includes truck idling, truck deliveries, backup alarms, trailer docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background operation activities.

The reference loading dock activity noise level measurement was taken over a fourteen-minute period and represents multiple noise sources taken from the center of activity generating a reference noise level of 74.8 dBA L_{max} at a uniform reference distance of 50 feet. Specifically, the reference noise level measurement represents one truck located approximately 30 feet from the noise level meter with another truck passing by to park roughly 20 feet away, both with their engines idling. Throughout the reference noise level measurement, a separate docked and running reefer truck was located approximately 50 feet east of the measurement location. Additional background noise sources included truck pass-by noise, truck drivers talking to each other next to docked trucks, and air brake release noise when trucks are parked.

7.2.3 TRAILER PARKING

The reference tractor trailer parking activities are intended to describe the typical operational noise source levels associated with the Project. This includes truck idling, deliveries, backup alarms, unloading/loading, docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background forklift operations. To evaluate the noise levels associated with truck idling, backup alarms, trailer movements and storage activities, Urban Crossroads collected a reference noise level measurement at an existing parcel hub facility to describe the potential operational noise levels associated with Project tractor trailer parking activities. The measured reference noise level at 50 feet from activity was measured at 71.2 dBA L_{max}. The reference noise level measurement includes a semi-truck with trailer pass-by event, background switcher cab trailer towing, drop-off, idling, and backup alarm events.

7.2.4 RV STORAGE

The reference RV Storage mirrors the tractor trailer parking activities with a reference noise level at 50 feet from activity was measured at 71.2 dBA $L_{max.}$ However, the RV Storage activities are limited to daytime hours with no planned nighttime activities.

7.2.5 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements were collected from Lennox SCA120 series 10-ton model packaged air conditioning unit. At a uniform reference distance of 50 feet, the roof-top air conditioning units generate a reference noise level of 57.7 dBA L_{max}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

7.2.6 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 71.1 dBA L_{max} and 56.8 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for each of the Project buildings.

7.2.7 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity, a long-term reference noise level measurement was collected in the center of activity within the staff parking lot of a warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 57.7

dBA L_{max}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due to cars pulling in and out of parking spaces in combination with car doors opening and closing.

7.2.8 POOL ACTIVITY

To represent the noise levels associated with potential hotel pool activities, Urban Crossroads collected a reference noise level measurement at the Covenant Hill Clubhouse Pool in the unincorporated community of Ladera Ranch in the County of Orange. The reference noise level at 50 feet is 80.6 dBA L_{max} for pool activity. The pool activity noise levels include kids playing, running, screaming, splashing, playing with a ball, and parents talking. Pool and Spa activities are estimated to occur for 60 minutes during all the daytime hours, with no nighttime activities.

7.2.9 DRIVE-THROUGH SPEAKERPHONE ACTIVITY

To describe the potential noise level impacts associated with potential drive-thru speakerphones and vehicle activities, a reference noise level measurement was collected. The reference noise levels collected are expected to reflect potential drive-thru speakerphone noise level activities at the Project site, since the reference measurement includes both drive-thru speakerphone and vehicle activity noise. The noise sources included in the reference noise level measurement consist of voices of the employees over the speakerphone, customers' voices ordering food, car engines idling, car radios playing music, and cars queuing in the drive-thru lane. At 50 feet from the speakerphone, a reference noise level of 54.8 dBA L_{max} was measured.

7.2.10 TRUCK MOVEMENTS

The truck movements reference noise level measurement was taken over a 15-minute period and represents multiple noise sources producing a reference noise level of 73.1 dBA L_{max} at 50 feet. The noise sources included at this measurement location account for the rattling and squeaking during normal opening and closing operations, the gate closure equipment, truck engines idling outside the entry gate, truck movements through the entry gate, and background truck court activities and forklift backup alarm noise.

7.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels. Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source.

Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance,

sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 7.1 includes the detailed noise dBA L_{max} model inputs including the planned 14-foot-high screen walls used to estimate the Project operational noise levels presented in this section.

7.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, trailer parking, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, pool activity, drive-through speakerphone, and truck movements, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 7-2 shows the Project operational noise levels during the daytime hours of 7:01 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 46.4 to 66.7 dBA L_{max}.

TABLE 7-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{max})				
	R1	R2	R3	R4	R5
Cold Storage Loading Dock Activity	30.0	24.1	30.4	55.3	31.3
Trailer Parking	36.2	30.3	25.1	44.3	30.2
RV Storage	45.3	39.2	48.7	48.0	64.0
Roof-Top Air Conditioning Units	28.1	30.4	42.1	31.6	38.6
Trash Enclosure Activity	33.5	35.0	42.9	33.7	26.2
Parking Lot Vehicle Movements	31.3	34.7	53.7	33.2	51.4
Pool Activity	24.7	47.8	66.4	28.4	53.7
Drive-Through Speakerphone	13.6	16.2	23.9	9.4	5.0
Truck Movements	14.1	10.4	8.6	32.2	11.3
Total (All Noise Sources)	**46.4**	**48.9**	**66.7**	**56.4**	**64.6**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

Table 7-3 shows the Project operational noise levels during the nighttime hours of 10:01 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 37.9 to 55.7 dBA L_{max}. The differences between the daytime and nighttime noise levels are largely related to the duration of noise activity (Table 7-1).

TABLE 7-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA L_{max})				
	R1	R2	R3	R4	R5
Cold Storage Loading Dock Activity	30.0	24.1	30.4	55.3	31.3
Trailer Parking	36.2	30.3	25.1	44.3	30.2
RV Storage	0.0	0.0	0.0	0.0	0.0
Roof-Top Air Conditioning Units	25.7	28.0	39.6	29.2	36.2
Trash Enclosure Activity	29.5	31.0	39.0	29.7	22.2
Parking Lot Vehicle Movements	31.3	34.7	53.7	33.2	51.4
Pool Activity	0.0	0.0	0.0	0.0	0.0
Drive-Through Speakerphone	9.6	12.2	19.9	5.5	1.1
Truck Movements	14.1	10.4	8.6	32.2	11.3
Total (All Noise Sources)	**38.9**	**37.9**	**54.0**	**55.7**	**51.6**

[1] See Exhibit 7-A for the noise source locations. CadnaA noise model calculations are included in Appendix 7.1.

7.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Perris exterior noise level standards at nearby noise-sensitive receiver locations. Table 7-4 shows the operational noise levels associated with the Project will not exceed the City of Perris exterior noise level standards at the nearest sensitive receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 7-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA L_{max})[2]		Noise Level Standards (dBA L_{max})[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	46.4	38.9	80	60	No	No
R2	48.9	37.9	80	60	No	No
R3	66.7	54.0	80	60	No	No
R4	56.4	55.7	80	60	No	No
R5	64.6	51.6	80	60	No	No

[1] See Exhibit 6-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 7-2 and 7-3.
[3] Exterior noise level standards per the City of Perris Municipal Code, sections 7.34.040 (Appendix 3.1).
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

Consistent with the City of Perris General Plan Noise Element, Implementation Measure V.A.1, Project operational noise levels at the nearest sensitive receiver locations cannot exceed 60 dBA CNEL. The CNEL metric is typically used to describe 24-hour transportation-related noise levels, however, the City of Perris General Plan Noise Element requires new industrial facilities and large

commercial facilities to demonstrate compliance at any noise-sensitive land use within 160 feet of the Project site. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive particularly for noise sensitive residential land use. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure.

Table 7-5 includes the evening and nighttime adjustments made to the operational noise levels during the applicable hours to convert the hourly operational noise levels (L_{eq}) to 24-hour CNELs. Table 7-5 indicates that the 24-hour noise levels associated with the Project at the nearest receiver locations are expected to range from 40.2 to 57.2 dBA CNEL. The Project-related operational noise levels shown on Table 7-5 will not exceed the City of Perris 60 dBA CNEL exterior noise level standards at the nearest receiver locations. The 24-hour noise level calculations are included in Appendix 7.2.

TABLE 7-5: OPERATIONAL NOISE LEVEL COMPLIANCE (CNEL)

Receiver Location[1]	Project Operational Noise Levels[2]			Exterior Noise Level Standards (CNEL)[3]	Noise Level Standards Exceeded?[4]
	Daytime (dBA L_{eq})	Nighttime (dBA L_{eq})	24-Hour (CNEL)		
R1	38.6	32.5	40.3	60	No
R2	36.1	33.3	40.2	60	No
R3	51.5	50.5	57.2	60	No
R4	48.4	47.7	54.4	60	No
R5	56.6	48.1	56.9	60	No

[1] See Exhibit 6-A for the receiver locations.
[2] Proposed Project operational noise level calculations are included in Appendix 7.2.
[3] City of Perris General Plan Noise Element Implementation Measure V.A.1
[4] Do the estimated Project operational noise source activities exceed the noise level standards? "Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

7.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES (LEQ)

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined

Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 7-6 and 7-7, respectively. As indicated on Tables 7-6, the Project will generate a daytime operational noise level increases ranging from 0.0 to 3.6 dBA L_{eq} at the nearest receiver locations. Table 7-7 shows that the Project will generate a nighttime operational noise level increase ranging from 0.0 to 4.2 dBA L_{eq} at the nearest receiver locations. Therefore, Project-related operational noise level increases at the sensitive receiver locations are considered *less than significant.*

To the extent this analysis considers impacts in relation to future receivers within the Specific Plan, it does so for informational purposes to show compliance with City regulations. Impacts of the environment on a project are excluded from CEQA unless the project itself "exacerbates" such impacts. (18) As such, any impact on the receivers within the Project is not an impact under CEQA.

7.7 OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas and at the Project site. According to the *Green Valley Specific Plan (Case Road Mixed Use) Trip Generation Assessment*, (19) the Project is anticipated to generate 17,697 fewer two-way trip ends per day as compared to the uses evaluated for the same areas within the 1990 Specific Plan EIR. Based on a comparison to the currently approved Specific Plan, the development of the proposed Project is anticipated to result in a net reduction in trips. Therefore, since the Project represents a net reduction in trips from the approved 1990 Specific Plan EIR, the off-site traffic noise levels generated by the Project are considered *less than significant* and no further analysis is required.

TABLE 7-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES (LEQ)

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Noise Sensitive Land Use?	Increase Criteria[7]	Increase Criteria Exceeded?[7]
R1	38.6	L1	64.1	64.1	0.0	Yes	5.0	No
R2	36.1	L2	65.7	65.7	0.0	Yes	1.5	No
R3	51.5	L3	55.5	57.0	1.5	Yes	5.0	No
R4	48.4	L4	49.2	51.8	2.6	Yes	5.0	No
R5	56.6	L3	55.5	59.1	3.6	Yes	5.0	No

[1] See Exhibit 6-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 7-5.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 7-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES (LEQ)

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Noise Sensitive Land Use?	Increase Criteria[7]	Increase Criteria Exceeded?[7]
R1	32.5	L1	60.0	60.0	0.0	Yes	5.0	No
R2	33.3	L2	60.6	60.6	0.0	Yes	5.0	No
R3	50.5	L3	48.8	52.7	3.9	Yes	5.0	No
R4	47.7	L4	45.5	49.7	4.2	Yes	5.0	No
R5	48.1	L3	48.8	51.5	2.7	Yes	5.0	No

[1] See Exhibit 6-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 7-5.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

8 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. The Specific Plan EIR determined that the exposure of residential land uses and other noise-sensitive receptors to construction-generated noise during the more noise-sensitive evening and nighttime hours would have a *significant impact*. This *significant impact* triggered mitigation requiring all construction activity near residential land uses to be limited to the daytime hours of 7:00 a.m. to 7:00 p.m. and be prohibited on weekends. The Specific Plan EIR determined that this mitigation would reduce the impact to *less than significant*. However, the requirement that construction activity be limited to daytime hours does not reduce the impacts experienced at the sensitive receiver locations. Therefore, the following analysis is provided to assess the construction impacts.

Exhibit 8-A shows the on-site construction noise source activity including the site adjacent off-site roadway improvement locations in relation to the nearest sensitive receiver locations previously described in Section 6. To prevent construction noise from impacting noise-sensitive land uses, City of Perris Municipal Code Section 7.34.060 limits construction activities to the hours of 7:00 a.m. to 7:00 p.m. on any day except Sundays and legal holidays (with the exception of Columbus Day and Washington's birthday).

8.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when operating at the project site boundaries closest to the nearest sensitive receiver locations can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

- Site Preparation
- Grading
- Building Construction
- Architectural Coating
- Paving
- Landscaping

8.2 CONSTRUCTION REFERENCE NOISE LEVELS

This construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (20) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment including reference L_{max} noise levels measured at 50 feet.

Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 85 dBA L_{max} when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a

noise level of 85 dBA L_{max} measured at 50 feet from the noise source to the receiver would be reduced to 79 dBA L_{max} at 100 feet from the source to the receiver and would be further reduced to 73 dBA L_{max} at 200 feet from the source to the receiver. Table 8-1 provides a summary of the construction reference noise levels expected with the Project construction activities.

EXHIBIT 8-A: CONSTRUCTION NOISE SOURCE LOCATIONS

TABLE 8-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{max})[1]	Highest Reference Noise Level (dBA L_{max})
Site Preparation	Crawler Tractors	82	82
	Rubber Tired Dozers	79	
Grading	Crawler Tractors	82	85
	Excavators	81	
	Graders	85	
	Rubber Tired Dozers	79	
	Scrapers	84	
Building Construction	Cranes	81	85
	Forklifts	85	
	Generator Sets	73	
	Backhoes	78	
	Welders	74	
Arch. Coating	Air Compressors	78	78
Paving	Pavers	77	85
	Paving Equipment	85	
	Rollers	80	

[1] FHWA's Roadway Construction Noise Model, January 2006.

8.3 CONSTRUCTION NOISE ANALYSIS

Using the reference RCNM L_{max} construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts with multiple pieces of equipment operating simultaneously at the nearest receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location.

As shown on Table 8-2, the construction noise levels are expected to range from 53.5 to 69.4 dBA L_{max} at the nearby receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

TABLE 8-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Highest Construction Noise Levels (dBA L_{max})						
	Site Preparation	Grading	Building Construction	Arch. Coating	Paving	Landscaping	Highest Levels[2]
R1	51.5	54.5	54.5	47.5	54.5	54.5	54.5
R2	50.5	53.5	53.5	46.5	53.5	53.5	53.5
R3	66.4	69.4	69.4	62.4	69.4	69.4	69.4
R4	65.5	68.5	68.5	61.5	68.5	68.5	68.5

[1] Construction noise source and receiver locations are shown on Exhibit 8-A.
[2] Construction noise level calculations based on distance from the construction activity area to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 8.1.

8.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only construction noise levels are evaluated against exterior noise level thresholds established by Section 7.34.060 of City of Perris Municipal Code at the adjacent property line. As shown on Table 8-3, the estimated construction noise levels at the adjacent noise sensitive receiver locations will satisfy the 80 dBA L_{max} construction noise level standard. Therefore, the unmitigated noise impact due to Project construction activities is considered *less than significant* at all receiver locations.

TABLE 8-3: UNMITIGATED CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{max})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	54.5	80	No
R2	53.5	80	No
R3	69.4	80	No
R4	68.5	80	No

[1] Construction noise source and receiver locations are shown on Exhibit 8-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 8-2.
[3] City of Perris Municipal Code, Section 7.34.060 (Appendix 3.1).
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

8.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities will occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad and loading dock areas. Since the nighttime concrete pours will take place outside the permitted City of Perris Municipal Code Section 7.34.060 hours of 7:00 a.m. to 7:00 p.m. on any day except Sundays and legal holidays (with the exception of Columbus Day and Washington's birthday), the Project Applicant will be required to obtain authorization for nighttime work from the City of Perris. Table 8-4 shows the

concrete pour activities noise levels during the building construction phase will range from 53.5 to 69.4 dBA L_{max} at the nearby receiver locations. With prior authorization from the City of Perris, the nighttime concrete pour activities will satisfy the 80 dBA L_{max} construction noise level standard. Therefore, the nighttime concrete pour noise levels are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 8-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{max})		
	Exterior Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	49.2	80	No
R2	57.4	80	No
R3	59.1	80	No
R4	59.5	80	No

[1] Noise receiver locations are shown on Exhibit 8-A.
[2] Nighttime Concrete Pour noise model inputs are included in Appendix 8.2.
[3] City of Perris Municipal Code, Section 7.34.060 (Appendix 3.1).
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

8.6 CONSTRUCTION VIBRATION ANALYSIS

Construction vibration impacts were not discussed in the Specific Plan EIR. However, it is expected that Project construction activity will result in varying degrees of ground vibration, depending on the equipment and methods employed. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 8-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 8-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089
Vibratory Roller	0.210

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

Using the vibration source level of construction equipment provided on Table 8-5 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration building damage impacts. Table 8-6 presents the expected Project related vibration levels at the nearby building structure locations. At distances ranging from 45 to 1,925 feet from the Project construction boundary to the receiver building locations, construction vibration velocity levels are estimated to be between 0.000 and 0.087 PPV (in/sec). Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at all the sensitive receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site.

In addition, the typical construction vibration levels are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating.

TABLE 8-6: CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
R1	1,793'	0.000	0.000	0.000	0.000	0.000	0.000	0.3	No
R2	1,925'	0.000	0.000	0.000	0.000	0.000	0.000	0.3	No
R3	60'	0.001	0.009	0.020	0.024	0.056	0.056	0.3	No
R4	45'	0.001	0.014	0.031	0.037	0.087	0.087	0.3	No

[1] Construction noise source and receiver locations are shown on Exhibit 8-A.
[2] Distance from receiver building facade to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 8-5).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

9 REFERENCES

1. **Association of Environmental Professionals.** *California Environmental Quality Act, Environmental Checklist Form Appendix G.* 2023.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011. FHWA-HEP-10-025.
5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123.* September 2018.
9. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
10. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2019.
11. **City of Perris.** *General Plan Noise Element.* August 2005.
12. —. *Municipal Code, Chapter 7.34 Noise Control.*
13. **Urban Crossroads, Inc.** *Ramona Gate Noise Impact Analysis Comments.* May 2022.
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15. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
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18. ***CBIA v. BAAQMD (2015) 62 Cal.4th 369, 386 and Ballona Wetlands Land Trust v. City of Los Angeles (2011) 201 Cal.App.4th 455, 473.***
19. **Urban Crossroads, Inc. *Green Valley Specific Plan Amendment Trip Generation Assessment.* March 2024.**
20. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning. *FHWA Roadway Construction Noise Model.* January, 2006.**

10 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Green Valley Specific Plan (Case Road Mixed Use) Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 584-3148.

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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of San Diego • March, 2018
Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF PERRIS MUNICIPAL CODE

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CHAPTER 7.34. - NOISE CONTROL

Sec. 7.34.010. - Declaration of policy.

Excessive noise levels are detrimental to the health and safety of individuals. Noise is considered a public nuisance, and the city discourages unnecessary, excessive or annoying noises from all sources. Creating, maintaining, causing, or allowing to be created, caused or maintained, any noise or vibration in a manner prohibited by the provisions of the ordinance codified in this chapter is a public nuisance and shall be punishable as a misdemeanor.

(Code 1972, § 7.34.010; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.020. - Definitions.

(a) *General.* The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Ambient noise means the all-encompassing noise associated with a given environment usually being composed of sounds from many sources near and far. For the purpose of this chapter, ambient noise level is the level obtained when the noise level is averaged over a period of five minutes without inclusion of noise from isolated identifiable sources at the location and time of day near that at which a comparison is to be made.

Decibel (dB) means an intensity unit which denotes the ratio between two quantities which are proportional to power; the number of decibels corresponding to the ratio is ten times the common logarithm of this ratio.

Sound amplifying equipment means any machine or device for the amplification of the human voice, music or any other sound. The term "sound amplifying equipment" does not include standard vehicle radios when used and heard only by the occupants of the vehicle in which the vehicle radio is installed. The term "sound amplifying equipment," as used in this chapter, does not include warning devices on any vehicle used only for traffic safety purposes and shall not include communications equipment used by public or private utilities when restoring utility service following a public emergency or when doing work required to protect person or property from an imminent exposure to danger.

Sound level (noise level) in decibels is the value of a sound measurement using the "A" weighting network of a sound level meter. Slow response of the sound level meter needle shall be used except where the sound is impulsive or rapidly varying in nature, in which case, fast response shall be used.

Sound level meter means an instrument, including a microphone, an amplifier, an output meter and frequency weighting networks, for the measurement of sound levels, which satisfies the pertinent requirements in American National Standards Institute's specification S1.4-1971 or the most recent revision for type S-2A general purpose sound level meters.

(b) *Supplementary definitions of technical terms.* Definitions of technical terms not defined in this section shall be obtained from the American National Standards Institute's Acoustical Terminology S1-1971 or the most recent revision thereof.

(Code 1972, § 7.34.020; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.030. - Measurement methods.

(a) Sound shall be measured with a sound level meter as defined in section 7.34.020.

(b) Unless otherwise provided, outdoor measurements shall be taken with the microphone located at any point on the property line of the noise source but no closer than five feet from any wall or vertical obstruction and three to five feet above ground level whenever possible.

(c) Unless otherwise provided, indoor measurements shall be taken inside the structure with the microphone located at any point as follows:

(1) No less than three feet above floor level;

(2) No less than five feet from any wall or vertical obstruction; and

(3) Not under common possession and control with the building or portion of the building from which the sound is emanating.

(Code 1972, § 7.34.030; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.040. - Sound amplification.

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

(1) The only amplified sound permitted shall be either music or the human voice, or both.

(2) The volume of amplified sound shall not exceed the noise levels set forth in this subsection when measured outdoors at or beyond the property line of the property from which the sound emanates.

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

(Code 1972, § 7.34.040; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.050. - General prohibition.

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

(b) The characteristics and conditions which should be considered in determining whether a violation of the provisions of this section exists should include, but not be limited to, the following:

(1) The level of the noise;

(2) Whether the nature of the noise is usual or unusual;

(3) Whether the origin of the noise is natural or unnatural;

(4) The level of the ambient noise;

(5) The proximity of the noise to sleeping facilities;

(6) The nature and zoning of the area from which the noise emanates and the area where it is received;

(7) The time of day or night the noise occurs;

(8) The duration of the noise; and

(9) Whether the noise is recurrent, intermittent or constant.

(Code 1972, § 7.34.050; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.060. - Construction noise.

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

(Code 1972, § 7.34.060; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.070. - Refuse vehicles and parking lot sweepers.

No person shall operate or permit to be operated a refuse compacting, processing or collection vehicle or parking lot sweeper between the hours of 7:00 p.m. to 7:00 a.m. in any residential area unless a permit has been applied for and granted by the city.

(Code 1972, § 7.34.070; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.080. - Disturbing, excessive, offensive noises; declaration of certain acts constituting.

The following activities, among others, are declared to cause loud, disturbing, excessive or offensive noises in violation of this section and are unlawful, namely:

(1) *Horns, signaling devices, etc.* Unnecessary use or operation of horns, signaling devices or other similar devices on automobiles, motorcycles or any other vehicle.

(2) *Radios, television sets, phonographs, loud speaking amplifiers and similar devices.* The use or operation of any sound production or reproduction device, radio receiving set, musical instrument, drums, phonograph, television set, loudspeakers, sound amplifier, or other similar machine or device for the producing or reproducing of sound, in such a manner as to disturb the peace, quiet or comfort of any reasonable person of normal sensitivity in any area of the city is prohibited. This provision shall not apply to any participant in a licensed parade or to any person who has been otherwise duly authorized by the city to engage in such conduct.

(3) *Animals.*

a. The keeping or maintenance, or the permitting to be kept or maintained, upon any premises owned, occupied or controlled by any person of any animal or animals which by any frequent or long-continued noise shall cause annoyance or discomfort to a reasonable person of normal sensitiveness

in the vicinity.

b. The noise from any such animal or animals that disturbs two or more residents residing in separate residences adjacent to any part of the property on which the subject animal or animals are kept or maintained, or three or more residents residing in separate residences in close proximity to the property on which the subject animal or animals are kept or maintained, shall be prima facie evidence of a violation of this section.

(4) *Hospitals, schools, libraries, rest homes, long-term medical or mental care facilities.* To make loud, disturbing, excessive noises adjacent to a hospital, school, library, rest home or long-term medical or mental care facility, which noise unreasonably interferes with the workings of such institutions or which disturbs or unduly annoys occupants in said institutions.

(5) *Playing of radios on buses and trolleys.* The operation of any radio, phonograph or tape player on an urban transit bus or trolley so as to emit noise that is audible to any other person in the vehicle is prohibited.

(6) *Playing of radios, phonographs and other sound production or reproduction devices in public parks and public parking lots and streets adjacent thereto.* The operation of any radio, phonograph, television set or any other sound production or reproduction device in any public park or any public parking lot, or street adjacent to such park or beach, without the prior written approval of the city manager or the administrator, in such a manner that such radio, phonograph, television set or sound production or reproduction device emits a sound level exceeding those found in the table in section 7.34.040.

(7) *Leaf blowers.*

a. The term "leaf blower" means any portable, hand-held or backpack, engine-powered device with a nozzle that creates a directable airstream which is capable of and intended for moving leaves and light materials.

b. No person shall operate a leaf blower in any residential zoned area between the hours of 7:00 p.m. and 8:00 a.m. on weekdays and 5:00 p.m. and 9:00 a.m. on weekends or on legal holidays.

c. No person may operate any leaf blower at a sound level in excess of 80 decibels measured at a distance of 50 feet or greater from the point of noise origin.

d. Leaf blowers shall be equipped with functional mufflers and an approved sound limiting device required to ensure that the leaf blower is not capable of generating a sound level exceeding any limit prescribed in this section.

(Code 1972, § 7.34.080; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.090. - Burglar alarms.

(a) Audible burglar alarms for structures or motor vehicles are prohibited unless the operation of such burglar alarm can be terminated within 20 minutes of being activated.

(b) Notwithstanding the requirements of this provision, any member of the county sheriff's department, Perris Division, shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm installed in any building, dwelling or motor vehicle at any time during the period of its activation. On or after 30 days from the effective date of the ordinance codified in this chapter, any building, dwelling or motor vehicle upon which a burglar alarm has been installed shall prominently display the telephone number at which communication may be made with the owner of such building, dwelling or motor vehicle.

(Code 1972, § 7.34.090; Ord. No. 1082, § 2(part), 2000)

Sec. 7.34.100. - Motor vehicles.

(a) Off-highway.

(1) Except as otherwise provided for in this chapter, it shall be unlawful to operate any motor vehicle of any type on any site, other than on a public street or highway as defined in the California Vehicle Code, in any manner so as to cause noise in excess of those noise levels permitted for on-highway motor vehicles as specified in the table for "45-mile-per-hour or less speed limits" contained in section 23130 of the California Vehicle Code and as corrected for distances set forth in subsection (a)(2) of this section.

(2) The maximum noise level as the on-highway vehicle passes may be measured at a distance of other than 50 feet from the centerline of travel, provided the measurement is further adjusted by adding algebraically the application correction as follows:

Distance (feet)	Correction (decibels)
25	−6
28	−5
32	−4
35	−3
40	−2
45	−1
50 (preferred distance)	0
56	+1
63	+2
70	+3
80	+4
90	+5

100	+6

(b) Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations including the blowing of sirens and/or horns.

(Code 1972, § 7.34.100; Ord. No. 1082, § 2(part), 2000)

APPENDIX 5.1:

STUDY AREA PHOTOS

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15360_L1_O 1.North
33, 44' 48.220000"117, 11' 5.190000"

15360_L1_O 2.South
33, 44' 48.110000"117, 11' 5.080000"

15360_L1_O 3.East
33, 44' 48.020000"117, 11' 5.110000"

15360_L1_O 4.West
33, 44' 48.090000"117, 11' 5.000000"

JN:15360

15360_L2_S 1.North
33, 44' 34.830000"117, 12' 4.330000"

15360_L2_S 2.South
33, 44' 34.830000"117, 12' 4.330000"

15360_L2_S 3.East
33, 44' 34.830000"117, 12' 4.330000"

15360_L2_S 4.West
33, 44' 34.830000"117, 12' 4.330000"

JN:15360

15360_L3_V 1.North
33, 44' 52.100000"117, 11' 35.320000"

15360_L3_V 2.South
33, 44' 52.130000"117, 11' 35.520000"

15360_L3_V 3.East
33, 44' 52.160000"117, 11' 35.540000"

15360_L3_V 4.West
33, 44' 52.060000"117, 11' 35.680000"

JN:15360

15360_L4_T 1.North
33, 45' 1.250000"117, 11' 40.870000"

15360_L4_T 2.South
33, 45' 1.150000"117, 11' 40.960000"

15360_L4_T 3.East
33, 45' 1.140000"117, 11' 40.820000"

15360_L4_T 4.West
33, 45' 1.150000"117, 11' 40.900000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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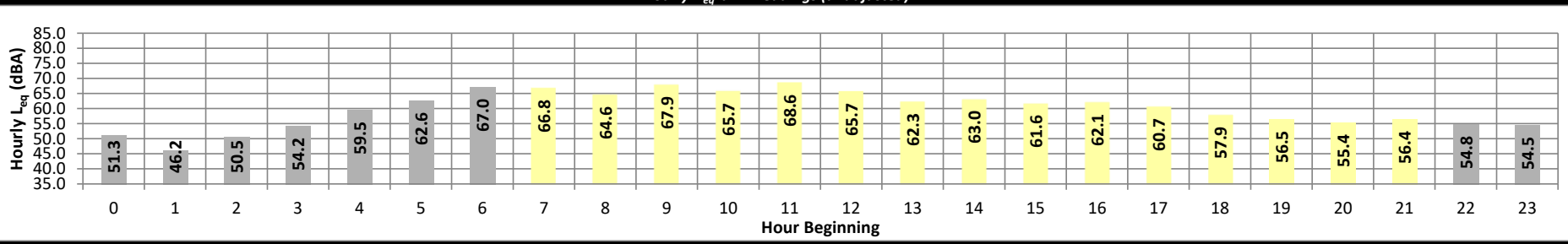
24-Hour Noise Level Measurement Summary

Date: Wednesday, September 13, 2023 *Location:* L1 - Located east of the site near the residence at 25764 *Meter:* Piccolo II *JN:* 15360

Project: Green Valley SP *Source:* Trumble Rd. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	51.3	63.6	43.3	63.1	62.1	58.2	54.2	48.5	46.4	44.2	43.8	43.4	51.3	10.0	61.3
	1	46.2	51.0	42.0	50.8	50.5	49.7	49.1	47.3	45.3	42.9	42.5	42.1	46.2	10.0	56.2
	2	50.5	60.3	38.8	59.8	59.2	57.5	56.2	50.1	42.6	39.6	39.3	38.9	50.5	10.0	60.5
	3	54.2	66.4	44.1	66.2	65.3	61.6	58.2	51.0	48.3	45.2	44.7	44.2	54.2	10.0	64.2
	4	59.5	72.4	46.2	71.7	71.0	67.5	64.1	54.6	50.1	47.0	46.7	46.3	59.5	10.0	69.5
	5	62.6	75.1	47.7	74.6	73.6	70.1	67.4	59.5	52.3	48.5	48.1	47.8	62.6	10.0	72.6
	6	67.0	80.2	51.1	79.8	78.9	74.8	71.6	61.4	54.9	51.8	51.5	51.2	67.0	10.0	77.0
Day	7	66.8	78.0	49.8	77.5	76.9	74.4	73.0	63.8	56.7	51.0	50.5	50.0	66.8	0.0	66.8
	8	64.6	76.5	48.2	76.1	75.3	72.2	69.7	61.8	56.8	49.9	49.0	48.4	64.6	0.0	64.6
	9	67.9	80.3	48.2	79.8	79.1	76.1	73.0	63.7	57.2	49.7	48.9	48.3	67.9	0.0	67.9
	10	65.7	77.1	49.2	76.6	75.9	73.2	71.0	64.4	58.4	50.9	50.1	49.4	65.7	0.0	65.7
	11	68.6	81.6	48.5	81.2	80.1	76.2	73.3	63.5	57.5	50.1	49.3	48.7	68.6	0.0	68.6
	12	65.7	77.3	50.4	76.6	75.7	73.2	71.2	63.8	58.4	52.3	51.4	50.5	65.7	0.0	65.7
	13	62.3	73.5	52.5	73.0	72.4	69.5	67.0	60.9	56.5	53.0	52.8	52.6	62.3	0.0	62.3
	14	63.0	75.3	48.1	74.7	74.0	70.5	67.8	60.4	54.3	49.1	48.6	48.2	63.0	0.0	63.0
	15	61.6	73.4	48.1	72.8	72.1	69.0	66.7	59.6	54.4	49.1	48.7	48.2	61.6	0.0	61.6
	16	62.1	73.8	49.8	73.3	72.4	69.3	66.9	60.4	55.0	50.9	50.4	49.9	62.1	0.0	62.1
	17	60.7	71.7	50.4	71.4	70.7	67.7	65.2	59.5	55.3	51.4	50.9	50.5	60.7	0.0	60.7
	18	57.9	70.1	48.3	69.6	68.7	65.7	62.6	54.2	51.3	49.0	48.7	48.4	57.9	0.0	57.9
	19	56.5	68.9	47.9	68.2	67.6	64.2	60.5	52.7	50.1	48.5	48.3	48.0	56.5	5.0	61.5
	20	55.4	65.6	48.3	65.2	64.5	62.4	60.7	53.2	50.9	49.0	48.7	48.3	55.4	5.0	60.4
	21	56.4	68.1	47.5	67.8	66.9	63.8	61.5	52.2	50.0	48.2	47.9	47.6	56.4	5.0	61.4
Night	22	54.8	65.4	47.9	65.1	64.7	62.2	59.2	52.5	50.6	48.7	48.4	48.0	54.8	10.0	64.8
	23	54.5	67.4	45.7	66.4	65.4	61.9	58.4	50.4	48.3	46.5	46.1	45.8	54.5	10.0	64.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.4	65.6	47.5	65.2	64.5	62.4	60.5	52.2	50.0	48.2	47.9	47.6
	Max	68.6	81.6	52.5	81.2	80.1	76.2	73.3	64.4	58.4	53.0	52.8	52.6
Energy Average		64.1	Average:		73.6	72.8	69.8	67.3	59.6	54.8	50.2	49.6	49.1
Night	Min	46.2	51.0	38.8	50.8	50.5	49.7	49.1	47.3	42.6	39.6	39.3	38.9
	Max	67.0	80.2	51.1	79.8	78.9	74.8	71.6	61.4	54.9	51.8	51.5	51.2
Energy Average		60.0	Average:		66.4	65.6	62.6	59.8	52.8	48.7	46.1	45.7	45.3

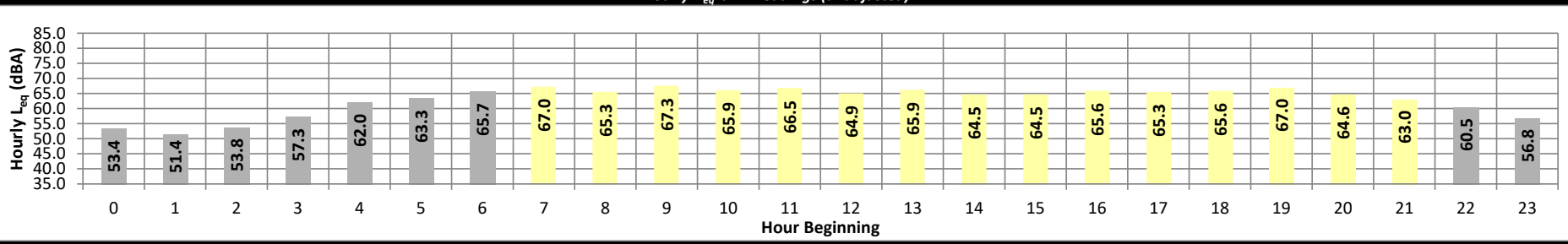
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
67.3	**64.1**	**60.0**

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 13, 2023 *Location:* L2 - Located southwest of the site near the residence at 26038 *Meter:* Piccolo II *JN:* 15360

Project: Green Valley SP *Source:* Hull St. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.4	65.0	38.5	64.6	64.0	61.0	58.9	51.2	44.4	39.6	39.2	38.7	53.4	10.0	63.4
	1	51.4	63.0	35.4	62.8	62.4	59.6	57.0	47.3	40.8	36.6	36.1	35.6	51.4	10.0	61.4
	2	53.8	65.6	35.3	65.2	64.8	62.2	59.3	50.4	42.1	36.6	36.0	35.4	53.8	10.0	63.8
	3	57.3	69.0	33.1	68.6	68.1	65.4	63.1	54.4	43.6	33.9	33.5	33.1	57.3	10.0	67.3
	4	62.0	72.0	38.4	71.7	71.2	69.0	67.4	62.2	55.4	43.4	41.5	38.8	62.0	10.0	72.0
	5	63.3	72.7	42.1	72.4	71.8	70.0	68.7	64.0	57.9	46.4	44.0	42.3	63.3	10.0	73.3
	6	65.7	76.7	45.3	75.9	75.2	72.3	70.2	66.0	60.8	49.1	47.2	45.7	65.7	10.0	75.7
Day	7	67.0	75.0	48.6	74.8	74.2	72.5	71.4	68.4	64.5	53.3	50.8	48.9	67.0	0.0	67.0
	8	65.3	74.8	47.6	74.4	73.8	71.6	70.0	66.2	61.2	51.1	49.2	47.8	65.3	0.0	65.3
	9	67.3	78.5	47.9	78.0	77.2	73.8	71.4	67.1	61.9	51.5	49.5	48.1	67.3	0.0	67.3
	10	65.9	75.8	46.2	75.4	74.7	72.3	70.8	66.5	61.1	50.4	48.5	46.5	65.9	0.0	65.9
	11	66.5	78.1	45.8	77.5	76.6	73.1	70.9	66.3	60.9	49.7	47.6	46.1	66.5	0.0	66.5
	12	64.9	74.5	47.4	74.2	73.6	71.1	69.8	65.5	60.3	50.5	49.1	47.7	64.9	0.0	64.9
	13	65.9	78.8	46.2	77.8	76.4	72.4	69.9	65.0	59.3	49.3	47.9	46.5	65.9	0.0	65.9
	14	64.5	73.8	50.0	73.5	72.9	70.5	69.3	65.2	60.5	53.0	51.7	50.4	64.5	0.0	64.5
	15	64.5	73.5	48.5	73.1	72.5	70.7	69.5	65.5	60.3	51.8	50.4	48.9	64.5	0.0	64.5
	16	65.6	76.4	51.8	75.9	74.9	71.9	70.1	65.8	61.1	54.5	53.3	52.2	65.6	0.0	65.6
	17	65.3	74.8	50.5	74.4	73.6	71.2	69.7	66.1	61.7	53.6	52.1	50.9	65.3	0.0	65.3
	18	65.6	74.5	49.6	74.0	73.3	71.2	70.2	66.8	62.4	52.9	51.1	49.8	65.6	0.0	65.6
	19	67.0	78.4	49.9	77.9	76.7	73.4	71.1	66.8	62.1	53.4	51.5	50.1	67.0	5.0	72.0
	20	64.6	73.0	50.0	72.8	72.5	71.1	69.9	65.4	60.6	52.4	51.2	50.1	64.6	5.0	69.6
	21	63.0	71.8	47.5	71.6	71.3	69.7	68.4	63.3	58.3	50.2	48.9	47.8	63.0	5.0	68.0
Night	22	60.5	70.1	44.2	69.8	69.5	67.5	66.1	60.5	54.5	46.1	45.0	44.4	60.5	10.0	70.5
	23	56.8	67.5	42.2	67.3	66.9	64.6	62.1	55.6	49.9	43.7	43.1	42.4	56.8	10.0	66.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.0	71.8	45.8	71.6	71.3	69.7	68.4	63.3	58.3	49.3	47.6	46.1
	Max	67.3	78.8	51.8	78.0	77.2	73.8	71.4	68.4	64.5	54.5	53.3	52.2
Energy Average		65.7	Average:		75.0	74.3	71.8	70.1	66.0	61.1	51.8	50.2	48.8
Night	Min	51.4	63.0	33.1	62.8	62.4	59.6	57.0	47.3	40.8	33.9	33.5	33.1
	Max	65.7	76.7	45.3	75.9	75.2	72.3	70.2	66.0	60.8	49.1	47.2	45.7
Energy Average		60.6	Average:		68.7	68.2	65.7	63.7	56.8	49.9	41.7	40.6	39.6

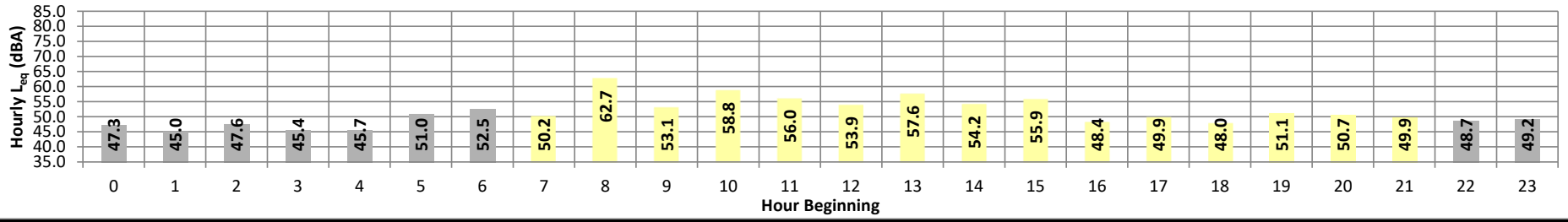
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
68.7	**65.7**	**60.6**

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 13, 2023 *Location:* L3 - Located west of the site near the retail building at 3150 *Meter:* Piccolo II *JN:* 15360

Project: Green Valley SP *Source:* Case Rd. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	47.3	52.5	45.1	52.1	51.8	50.8	50.1	47.4	46.4	45.5	45.3	45.1	47.3	10.0	57.3
	1	45.0	46.6	44.0	46.4	46.3	46.1	45.8	45.2	44.9	44.3	44.2	44.1	45.0	10.0	55.0
	2	47.6	56.0	44.4	55.3	54.6	52.4	50.9	47.3	45.5	44.8	44.6	44.5	47.6	10.0	57.6
	3	45.4	48.7	44.3	48.5	48.3	47.5	46.9	45.5	45.0	44.5	44.4	44.3	45.4	10.0	55.4
	4	45.7	49.1	44.4	48.8	48.4	47.7	47.3	45.8	45.3	44.7	44.5	44.4	45.7	10.0	55.7
	5	51.0	58.4	46.7	57.8	57.1	55.7	55.0	51.2	48.8	47.2	46.9	46.7	51.0	10.0	61.0
	6	52.5	60.5	47.2	60.2	59.7	58.4	57.2	52.7	49.4	47.6	47.4	47.3	52.5	10.0	62.5
Day	7	50.2	58.3	44.8	58.0	57.6	56.4	55.3	49.8	47.5	45.5	45.2	44.9	50.2	0.0	50.2
	8	62.7	70.5	60.9	69.4	68.0	65.3	64.3	62.5	61.8	61.3	61.1	61.0	62.7	0.0	62.7
	9	53.1	63.4	44.9	62.5	61.6	59.8	58.3	52.3	49.2	45.7	45.4	45.0	53.1	0.0	53.1
	10	58.8	68.3	49.2	67.4	66.7	64.8	63.6	58.9	55.3	50.3	49.8	49.3	58.8	0.0	58.8
	11	56.0	64.4	47.8	64.0	63.4	62.1	61.4	56.4	52.5	48.7	48.5	48.0	56.0	0.0	56.0
	12	53.9	60.3	48.0	60.0	59.7	58.9	58.0	54.7	51.8	49.0	48.6	48.1	53.9	0.0	53.9
	13	57.6	64.4	49.6	63.9	63.6	62.6	61.8	58.8	55.7	51.0	50.4	49.8	57.6	0.0	57.6
	14	54.2	62.5	45.6	62.3	61.8	60.1	58.4	55.1	50.9	46.5	46.1	45.7	54.2	0.0	54.2
	15	55.9	66.6	44.6	66.3	65.8	63.9	62.0	52.9	48.6	45.4	45.1	44.7	55.9	0.0	55.9
	16	48.4	54.5	44.7	54.1	53.6	52.3	51.1	48.7	47.3	45.5	45.2	44.9	48.4	0.0	48.4
	17	49.9	60.1	44.4	59.2	58.3	55.5	53.9	49.3	46.9	45.1	44.8	44.5	49.9	0.0	49.9
	18	48.0	54.9	45.0	54.5	53.9	52.5	50.7	47.7	46.7	45.6	45.4	45.1	48.0	0.0	48.0
	19	51.1	55.9	49.3	55.5	55.0	53.7	52.8	51.4	50.6	49.7	49.5	49.4	51.1	5.0	56.1
	20	50.7	58.5	47.5	58.3	57.9	56.0	53.4	50.2	49.1	48.0	47.8	47.6	50.7	5.0	55.7
	21	49.9	57.0	46.7	56.6	56.3	55.1	52.9	49.6	48.2	47.1	46.9	46.8	49.9	5.0	54.9
Night	22	48.7	53.6	46.5	53.2	52.9	52.0	51.3	48.9	47.8	46.8	46.7	46.5	48.7	10.0	58.7
	23	49.2	55.2	46.2	54.8	54.5	53.5	52.2	49.4	47.9	46.7	46.5	46.3	49.2	10.0	59.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.0	54.5	44.4	54.1	53.6	52.3	50.7	47.7	46.7	45.1	44.8	44.5
	Max	62.7	70.5	60.9	69.4	68.0	65.3	64.3	62.5	61.8	61.3	61.1	61.0
Energy Average		55.5	Average:		60.8	60.2	58.6	57.2	53.2	50.8	48.3	48.0	47.6
Night	Min	45.0	46.6	44.0	46.4	46.3	46.1	45.8	45.2	44.9	44.3	44.2	44.1
	Max	52.5	60.5	47.2	60.2	59.7	58.4	57.2	52.7	49.4	47.6	47.4	47.3
Energy Average		48.8	Average:		53.0	52.6	51.6	50.7	48.2	46.8	45.8	45.6	45.5

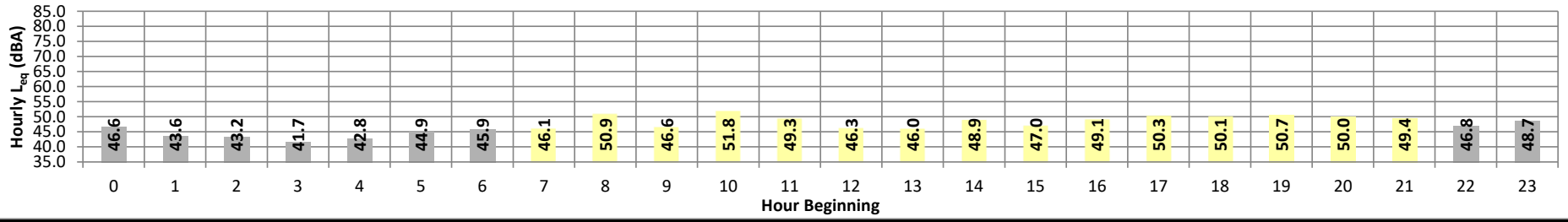
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
57.3	**55.5**	**48.8**

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 13, 2023 *Location:* L4 - Located northwest of the site near existing industrial land *Meter:* Piccolo II *JN:* 15360

Project: Green Valley SP *Source:* use at 27010 Watson Rd. *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	46.6	52.3	43.9	51.8	51.5	50.3	49.4	46.8	45.7	44.4	44.2	44.0	46.6	10.0	56.6
	1	43.6	47.4	41.9	47.0	46.7	45.4	44.8	43.9	43.3	42.4	42.2	42.0	43.6	10.0	53.6
	2	43.2	46.8	41.8	46.6	46.2	44.9	44.3	43.5	42.9	42.2	42.1	41.9	43.2	10.0	53.2
	3	41.7	45.3	40.6	45.1	44.7	43.2	42.5	41.9	41.5	40.9	40.8	40.6	41.7	10.0	51.7
	4	42.8	46.6	41.6	46.3	45.9	44.4	43.7	42.9	42.5	41.9	41.8	41.7	42.8	10.0	52.8
	5	44.9	48.2	43.5	47.9	47.5	46.3	45.9	45.2	44.6	43.9	43.8	43.6	44.9	10.0	54.9
	6	45.9	52.3	43.8	51.9	51.6	49.9	48.2	45.5	44.8	44.1	44.0	43.8	45.9	10.0	55.9
Day	7	46.1	50.2	44.2	49.9	49.6	48.6	48.1	46.5	45.5	44.6	44.5	44.3	46.1	0.0	46.1
	8	50.9	60.7	45.9	60.4	59.7	57.6	55.2	49.1	47.8	46.6	46.4	46.1	50.9	0.0	50.9
	9	46.6	52.2	43.6	51.9	51.5	50.2	49.2	46.9	45.7	44.3	44.1	43.7	46.6	0.0	46.6
	10	51.8	58.5	44.5	58.1	57.7	56.6	56.1	53.1	49.0	45.3	45.0	44.7	51.8	0.0	51.8
	11	49.3	56.1	43.8	55.5	54.8	53.4	52.9	50.4	47.8	44.9	44.5	43.9	49.3	0.0	49.3
	12	46.3	52.2	41.1	51.6	51.2	50.4	49.8	47.4	45.1	41.9	41.6	41.2	46.3	0.0	46.3
	13	46.0	52.3	42.7	51.9	51.4	49.7	48.8	46.7	44.8	43.3	43.1	42.8	46.0	0.0	46.0
	14	48.9	59.2	43.5	58.5	58.1	55.5	52.5	47.3	45.9	44.1	43.9	43.6	48.9	0.0	48.9
	15	47.0	52.5	43.9	51.9	51.4	50.3	49.6	47.8	46.1	44.5	44.3	44.0	47.0	0.0	47.0
	16	49.1	53.5	46.3	53.1	52.5	51.7	51.3	49.8	48.6	47.1	46.8	46.5	49.1	0.0	49.1
	17	50.3	60.3	45.6	59.9	59.5	57.0	53.9	48.6	47.4	46.2	45.9	45.7	50.3	0.0	50.3
	18	50.1	59.7	46.8	59.2	58.4	55.0	52.3	49.1	48.3	47.2	47.0	46.8	50.1	0.0	50.1
	19	50.7	55.3	48.7	54.9	54.4	53.1	52.4	51.0	50.2	49.2	49.0	48.8	50.7	5.0	55.7
	20	50.0	53.2	48.1	53.0	52.6	51.8	51.4	50.4	49.7	48.7	48.5	48.2	50.0	5.0	55.0
	21	49.4	52.7	47.4	52.5	52.2	51.4	51.1	49.8	49.1	48.0	47.7	47.5	49.4	5.0	54.4
Night	22	46.8	51.5	44.8	51.2	50.8	49.8	48.7	47.1	46.2	45.3	45.1	44.9	46.8	10.0	56.8
	23	48.7	53.1	46.2	52.8	52.4	51.5	51.0	49.4	47.9	46.7	46.5	46.3	48.7	10.0	58.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	46.0	50.2	41.1	49.9	49.6	48.6	48.1	46.5	44.8	41.9	41.6	41.2
	Max	51.8	60.7	48.7	60.4	59.7	57.6	56.1	53.1	50.2	49.2	49.0	48.8
Energy Average		49.2	Average:		54.8	54.3	52.8	51.6	48.9	47.4	45.7	45.5	45.2
Night	Min	41.7	45.3	40.6	45.1	44.7	43.2	42.5	41.9	41.5	40.9	40.8	40.6
	Max	48.7	53.1	46.2	52.8	52.4	51.5	51.0	49.4	47.9	46.7	46.5	46.3
Energy Average		45.5	Average:		49.0	48.6	47.3	46.5	45.1	44.4	43.5	43.4	43.2

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
53.3	**49.2**	**45.5**

APPENDIX 7.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS (LMAX)

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15360 - Green Valley SPA

CadnaA Noise Prediction Model: 15360_08.cna
Date: 10.04.24
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	46.4	38.9	47.3	80.0	60.0	0.0				5.00	a	6277577.44	2216536.49	5.00
R2		R2	48.9	37.9	48.0	80.0	60.0	0.0				5.00	a	6272466.54	2215079.18	5.00
R3		R3	66.7	54.0	65.3	80.0	60.0	0.0				5.00	a	6274293.80	2216372.58	5.00
R4		R4	56.4	55.7	62.5	80.0	60.0	0.0				5.00	a	6274487.85	2217862.50	5.00
R5		R5	64.7	51.6	63.1	80.0	60.0	0.0				5.00	a	6274623.79	2216324.68	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC18	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274721.60	2217215.09	50.00
POINTSOURCE		AC17	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6275813.75	2217206.95	50.00
POINTSOURCE		AC16	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274486.77	2216293.09	65.00
POINTSOURCE		AC15	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274603.31	2216291.44	65.00
POINTSOURCE		AC14	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274605.50	2216230.16	65.00
POINTSOURCE		AC13	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274705.62	2216292.54	65.00
POINTSOURCE		AC12	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274710.00	2216172.17	65.00
POINTSOURCE		AC11	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274482.94	2215572.50	30.00
POINTSOURCE		AC10	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274526.16	2215571.95	30.00
POINTSOURCE		AC09	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274714.93	2215569.76	30.00
POINTSOURCE		AC08	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274759.24	2215568.67	30.00
POINTSOURCE		AC07	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274460.50	2215966.99	45.00
POINTSOURCE		AC06	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274461.60	2215929.78	45.00
POINTSOURCE		AC05	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274696.87	2215962.61	45.00
POINTSOURCE		AC04	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274726.42	2215931.42	45.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC03	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274727.51	2215781.50	45.00
POINTSOURCE		AC02	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274697.42	2215781.50	45.00
POINTSOURCE		AC01	89.4	89.4	89.4	Lw	89.4		585.00	0.00	252.00	5.00	g	6274434.68	2216620.02	45.00
POINTSOURCE		DT01	86.5	86.5	86.5	Lw	86.5		900.00	0.00	270.00	3.00	a	6274407.43	2215579.61	3.00
POINTSOURCE		DT02	86.5	86.5	86.5	Lw	86.5		900.00	0.00	270.00	3.00	a	6274642.70	2215578.51	3.00
POINTSOURCE		TRA01	102.8	102.8	102.8	Lw	102.8		900.00	0.00	270.00	5.00	a	6275802.57	2217830.31	5.00
POINTSOURCE		TRA02	102.8	102.8	102.8	Lw	102.8		900.00	0.00	270.00	5.00	a	6274400.32	2215634.32	5.00
POINTSOURCE		TRA03	102.8	102.8	102.8	Lw	102.8		900.00	0.00	270.00	5.00	a	6274770.74	2215629.40	5.00
POINTSOURCE		PL01	112.3	112.3	112.3	Lw	112.3		900.00	0.00	0.00	5.00	a	6274477.47	2216247.13	5.00
POINTSOURCE		PL02	112.3	112.3	112.3	Lw	112.3		900.00	0.00	0.00	5.00	a	6274478.56	2216225.24	5.00
POINTSOURCE		PL03	112.3	112.3	112.3	Lw	112.3		900.00	0.00	0.00	5.00	a	6274559.54	2216251.50	5.00
POINTSOURCE		PL04	112.3	112.3	112.3	Lw	112.3		900.00	0.00	0.00	5.00	a	6274560.08	2216226.33	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRK03	91.4	91.4	91.4	66.3	66.3	66.3	Lw	91.4									8	a
LINESOURCE		TRK02	91.4	91.4	91.4	73.3	73.3	73.3	Lw	91.4									8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRK03	8.00	a			6274801.94	2217708.28	8.00	0.00
						6275868.67	2217697.10	8.00	0.00
LINESOURCE	TRK02	8.00	a			6274963.62	2217917.77	8.00	0.00
						6274963.62	2217707.97	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		CAR01	91.4	91.4	91.4	72.3	72.3	72.3	Lw	91.4					5	a
AREASOURCE		CAR02	91.4	91.4	91.4	71.6	71.6	71.6	Lw	91.4					5	a
AREASOURCE		CAR03	91.4	91.4	91.4	75.1	75.1	75.1	Lw	91.4					5	a
AREASOURCE		CAR04	91.4	91.4	91.4	68.0	68.0	68.0	Lw	91.4					5	a
AREASOURCE		CAR05	91.4	91.4	91.4	68.5	68.5	68.5	Lw	91.4					5	a
AREASOURCE		CAR06	91.4	91.4	91.4	67.2	67.2	67.2	Lw	91.4					5	a
AREASOURCE		CAR07	91.4	91.4	91.4	71.1	71.1	71.1	Lw	91.4					5	a
AREASOURCE		CAR08	91.4	91.4	91.4	66.0	66.0	66.0	Lw	91.4					5	a
AREASOURCE		CAR09	91.4	91.4	91.4	65.5	65.5	65.5	Lw	91.4					5	a
AREASOURCE		CAR10	91.4	91.4	91.4	69.1	69.1	69.1	Lw	91.4					5	a
AREASOURCE		CAR11	91.4	91.4	91.4	69.4	69.4	69.4	Lw	91.4					5	a
AREASOURCE		CAR12	91.4	91.4	91.4	72.4	72.4	72.4	Lw	91.4					5	a
AREASOURCE		CAR13	91.4	91.4	91.4	64.1	64.1	64.1	Lw	91.4					5	a
AREASOURCE		CAR14	91.4	91.4	91.4	67.9	67.9	67.9	Lw	91.4					5	a
AREASOURCE		CAR15	91.4	91.4	91.4	66.1	66.1	66.1	Lw	91.4					5	a
AREASOURCE		CAR16	91.4	91.4	91.4	64.9	64.9	64.9	Lw	91.4					5	a
AREASOURCE		CAR17	91.4	91.4	91.4	66.0	66.0	66.0	Lw	91.4					5	a
AREASOURCE		CAR18	91.4	91.4	91.4	68.5	68.5	68.5	Lw	91.4					5	a
AREASOURCE		CAR19	91.4	91.4	91.4	66.2	66.2	66.2	Lw	91.4					5	a
AREASOURCE		CAR20	91.4	91.4	91.4	71.1	71.1	71.1	Lw	91.4					5	a
AREASOURCE		CAR21	91.4	91.4	91.4	70.2	70.2	70.2	Lw	91.4					5	a
AREASOURCE		CAR22	91.4	91.4	91.4	66.2	66.2	66.2	Lw	91.4					5	a
AREASOURCE		CAR23	91.4	91.4	91.4	66.8	66.8	66.8	Lw	91.4					5	a
AREASOURCE		CAR24	91.4	91.4	91.4	65.0	65.0	65.0	Lw	91.4					5	a
AREASOURCE		CAR25	91.4	91.4	91.4	63.0	63.0	63.0	Lw	91.4					5	a
AREASOURCE		CAR26	91.4	91.4	91.4	71.5	71.5	71.5	Lw	91.4					5	a
AREASOURCE		CAR27	91.4	91.4	91.4	68.7	68.7	68.7	Lw	91.4					5	a
AREASOURCE		CAR28	91.4	91.4	91.4	69.2	69.2	69.2	Lw	91.4					5	a
AREASOURCE		CAR29	91.4	91.4	91.4	69.7	69.7	69.7	Lw	91.4					5	a
AREASOURCE		CAR30	91.4	91.4	91.4	76.6	76.6	76.6	Lw	91.4					5	a
AREASOURCE		CAR31	91.4	91.4	91.4	72.6	72.6	72.6	Lw	91.4					5	a
AREASOURCE		CAR32	91.4	91.4	91.4	69.2	69.2	69.2	Lw	91.4					5	a
AREASOURCE		CAR33	91.4	91.4	91.4	72.7	72.7	72.7	Lw	91.4					5	a
AREASOURCE		CAR34	91.4	91.4	91.4	73.5	73.5	73.5	Lw	91.4					5	a
AREASOURCE		CAR35	91.4	91.4	91.4	71.7	71.7	71.7	Lw	91.4					5	a
AREASOURCE		CAR36	91.4	91.4	91.4	66.9	66.9	66.9	Lw	91.4					5	a
AREASOURCE		CAR37	91.4	91.4	91.4	64.3	64.3	64.3	Lw	91.4					5	a
AREASOURCE		CAR38	91.4	91.4	91.4	61.5	61.5	61.5	Lw	91.4					5	a
AREASOURCE		CAR39	91.4	91.4	91.4	61.1	61.1	61.1	Lw	91.4					5	a
AREASOURCE		CLD01	119.7	119.7	119.7	82.3	82.3	82.3	Lw	119.7					8	a
AREASOURCE		DRY01	111.6	111.6	111.6	71.2	71.2	71.2	Lw	111.6					8	a
AREASOURCE		RV01	111.6	111.6	111.6	77.6	77.6	77.6	Lw	111.6		900.00	0.00	0.00	5	a
AREASOURCE		RV02	111.6	111.6	111.6	77.0	77.0	77.0	Lw	111.6		900.00	0.00	0.00	5	a

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		RV03	111.6	111.6	111.6	79.7	79.7	79.7	Lw	111.6		900.00	0.00	0.00	5	a
AREASOURCE		RV04	111.6	111.6	111.6	78.5	78.5	78.5	Lw	111.6		900.00	0.00	0.00	5	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	CAR01	5.00	a			6274652.55	2215609.15	5.00	0.00
						6274697.96	2215608.06	5.00	0.00
						6274697.96	2215588.91	5.00	0.00
						6274653.10	2215589.46	5.00	0.00
AREASOURCE	CAR02	5.00	a			6274560.63	2215608.61	5.00	0.00
						6274616.44	2215609.15	5.00	0.00
						6274615.35	2215589.46	5.00	0.00
						6274562.82	2215590.55	5.00	0.00
AREASOURCE	CAR03	5.00	a			6274419.47	2215609.70	5.00	0.00
						6274448.47	2215608.61	5.00	0.00
						6274449.01	2215592.74	5.00	0.00
						6274420.56	2215593.29	5.00	0.00
AREASOURCE	CAR04	5.00	a			6274661.85	2215673.72	5.00	0.00
						6274724.23	2215672.62	5.00	0.00
						6274725.32	2215635.42	5.00	0.00
						6274663.49	2215635.42	5.00	0.00
AREASOURCE	CAR05	5.00	a			6274562.27	2215673.72	5.00	0.00
						6274616.44	2215673.72	5.00	0.00
						6274616.44	2215635.96	5.00	0.00
						6274560.63	2215635.42	5.00	0.00
AREASOURCE	CAR06	5.00	a			6274446.28	2215675.36	5.00	0.00
						6274516.31	2215675.36	5.00	0.00
						6274518.50	2215634.87	5.00	0.00
						6274446.28	2215635.96	5.00	0.00
AREASOURCE	CAR07	5.00	a			6274390.47	2215703.26	5.00	0.00
						6274409.07	2215701.62	5.00	0.00
						6274411.81	2215647.45	5.00	0.00
						6274389.37	2215645.81	5.00	0.00
AREASOURCE	CAR08	5.00	a			6274578.69	2215846.07	5.00	0.00
						6274597.29	2215844.97	5.00	0.00
						6274596.20	2215836.22	5.00	0.00
						6274620.82	2215834.58	5.00	0.00
						6274621.36	2215752.51	5.00	0.00
						6274597.29	2215756.34	5.00	0.00
						6274597.29	2215744.85	5.00	0.00
						6274579.78	2215745.94	5.00	0.00
AREASOURCE	CAR09	5.00	a			6274507.56	2215845.52	5.00	0.00
						6274549.14	2215845.52	5.00	0.00
						6274551.33	2215745.94	5.00	0.00
						6274508.11	2215745.39	5.00	0.00
AREASOURCE	CAR10	5.00	a			6274460.50	2215846.61	5.00	0.00
						6274477.47	2215845.52	5.00	0.00
						6274479.65	2215745.94	5.00	0.00
						6274459.96	2215747.03	5.00	0.00
AREASOURCE	CAR11	5.00	a			6274436.43	2215838.41	5.00	0.00
						6274453.94	2215836.77	5.00	0.00
						6274455.03	2215748.13	5.00	0.00
						6274434.79	2215747.03	5.00	0.00
AREASOURCE	CAR12	5.00	a			6274676.08	2215754.69	5.00	0.00
						6274720.94	2215753.60	5.00	0.00
						6274722.59	2215734.45	5.00	0.00
						6274677.17	2215735.54	5.00	0.00
AREASOURCE	CAR13	5.00	a			6274764.17	2215985.04	5.00	0.00
						6274784.41	2215985.04	5.00	0.00
						6274788.24	2215704.36	5.00	0.00
						6274766.90	2215703.81	5.00	0.00
AREASOURCE	CAR14	5.00	a			6274647.63	2215880.54	5.00	0.00
						6274670.61	2215879.44	5.00	0.00
						6274671.15	2215762.90	5.00	0.00
						6274653.10	2215764.00	5.00	0.00
AREASOURCE	CAR15	5.00	a			6274455.58	2215901.88	5.00	0.00
						6274644.89	2215899.69	5.00	0.00
						6274644.34	2215880.54	5.00	0.00
						6274455.58	2215882.73	5.00	0.00
AREASOURCE	CAR16	5.00	a			6274387.19	2216002.55	5.00	0.00
						6274404.69	2216002.00	5.00	0.00
						6274409.07	2215755.79	5.00	0.00
						6274387.73	2215757.98	5.00	0.00
AREASOURCE	CAR17	5.00	a			6274742.28	2216142.07	5.00	0.00
						6274739.55	2216323.18	5.00	0.00
						6274761.43	2216323.73	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6274761.43	2216140.43	5.00	0.00
AREASOURCE	CAR18	5.00	a			6274677.17	2216086.81	5.00	0.00
						6274785.51	2216086.81	5.00	0.00
						6274787.70	2216067.66	5.00	0.00
						6274678.81	2216067.66	5.00	0.00
AREASOURCE	CAR19	5.00	a			6274404.69	2216089.00	5.00	0.00
						6274610.97	2216085.72	5.00	0.00
						6274610.42	2216069.85	5.00	0.00
						6274403.60	2216070.40	5.00	0.00
AREASOURCE	CAR20	5.00	a			6274677.17	2216131.68	5.00	0.00
						6274741.74	2216130.04	5.00	0.00
						6274740.64	2216111.98	5.00	0.00
						6274678.81	2216113.62	5.00	0.00
AREASOURCE	CAR21	5.00	a			6274455.03	2216203.35	5.00	0.00
						6274536.56	2216202.81	5.00	0.00
						6274537.10	2216185.30	5.00	0.00
						6274456.13	2216185.84	5.00	0.00
AREASOURCE	CAR22	5.00	a			6274521.24	2216158.49	5.00	0.00
						6274601.12	2216157.94	5.00	0.00
						6274600.57	2216132.77	5.00	0.00
						6274609.87	2216132.77	5.00	0.00
						6274610.97	2216115.26	5.00	0.00
						6274520.69	2216115.81	5.00	0.00
AREASOURCE	CAR23	5.00	a			6274438.07	2216157.94	5.00	0.00
						6274511.39	2216157.94	5.00	0.00
						6274511.39	2216115.26	5.00	0.00
						6274437.52	2216115.81	5.00	0.00
AREASOURCE	CAR24	5.00	a			6274381.71	2216324.82	5.00	0.00
						6274400.32	2216325.91	5.00	0.00
						6274404.69	2216088.45	5.00	0.00
						6274383.36	2216089.00	5.00	0.00
AREASOURCE	CAR25	5.00	a			6274405.79	2216393.76	5.00	0.00
						6274784.96	2216387.19	5.00	0.00
						6274784.96	2216369.14	5.00	0.00
						6274405.79	2216372.42	5.00	0.00
AREASOURCE	CAR26	5.00	a			6274377.88	2216520.15	5.00	0.00
						6274399.22	2216525.62	5.00	0.00
						6274411.81	2216473.64	5.00	0.00
						6274395.94	2216467.62	5.00	0.00
AREASOURCE	CAR27	5.00	a			6274328.09	2216526.17	5.00	0.00
						6274345.06	2216525.62	5.00	0.00
						6274347.24	2216510.85	5.00	0.00
						6274355.45	2216484.04	5.00	0.00
						6274369.68	2216441.91	5.00	0.00
						6274378.98	2216422.76	5.00	0.00
						6274365.30	2216410.72	5.00	0.00
						6274356.55	2216422.21	5.00	0.00
						6274328.64	2216516.32	5.00	0.00
AREASOURCE	CAR28	5.00	a			6274377.34	2216629.03	5.00	0.00
						6274396.49	2216629.03	5.00	0.00
						6274397.58	2216533.83	5.00	0.00
						6274378.98	2216536.02	5.00	0.00
AREASOURCE	CAR29	5.00	a			6274325.91	2216624.66	5.00	0.00
						6274344.51	2216624.11	5.00	0.00
						6274345.06	2216536.56	5.00	0.00
						6274327.55	2216535.47	5.00	0.00
AREASOURCE	CAR30	5.00	a			6274544.22	2216957.32	5.00	0.00
						6274561.18	2216957.87	5.00	0.00
						6274561.18	2216939.26	5.00	0.00
						6274542.58	2216939.26	5.00	0.00
AREASOURCE	CAR31	5.00	a			6274509.75	2216932.70	5.00	0.00
						6274553.52	2216931.60	5.00	0.00
						6274553.52	2216913.00	5.00	0.00
						6274510.29	2216913.55	5.00	0.00
AREASOURCE	CAR32	5.00	a			6274547.50	2216989.05	5.00	0.00
						6274556.80	2216973.19	5.00	0.00
						6274479.65	2216915.74	5.00	0.00
						6274468.16	2216930.51	5.00	0.00
AREASOURCE	CAR33	5.00	a			6274285.42	2216761.44	5.00	0.00
						6274325.91	2216779.50	5.00	0.00
						6274333.57	2216763.63	5.00	0.00
						6274293.08	2216744.48	5.00	0.00
AREASOURCE	CAR34	5.00	a			6274324.81	2216819.44	5.00	0.00
						6274342.87	2216819.44	5.00	0.00
						6274343.41	2216784.42	5.00	0.00
						6274324.26	2216783.33	5.00	0.00
AREASOURCE	CAR35	5.00	a			6274312.77	2216815.61	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6274323.72	2216800.84	5.00	0.00
						6274280.49	2216769.65	5.00	0.00
						6274267.91	2216783.33	5.00	0.00
AREASOURCE	CAR36	5.00	a			6275676.70	2217132.92	5.00	0.00
						6275846.88	2217130.50	5.00	0.00
						6275845.26	2217112.76	5.00	0.00
						6275678.31	2217114.37	5.00	0.00
AREASOURCE	CAR37	5.00	a			6275297.62	2217136.15	5.00	0.00
						6275605.72	2217132.92	5.00	0.00
						6275606.53	2217115.98	5.00	0.00
						6275297.62	2217117.60	5.00	0.00
AREASOURCE	CAR38	5.00	a			6274669.33	2217144.21	5.00	0.00
						6275216.97	2217139.37	5.00	0.00
						6275215.36	2217119.21	5.00	0.00
						6274667.72	2217125.66	5.00	0.00
AREASOURCE	CAR39	5.00	a			6274637.00	2217735.36	5.00	0.00
						6274655.05	2217735.36	5.00	0.00
						6274661.42	2217144.96	5.00	0.00
						6274640.19	2217144.96	5.00	0.00
AREASOURCE	CLD01	8.00	a			6274788.72	2217670.66	8.00	0.00
						6275747.66	2217662.52	8.00	0.00
						6275745.62	2217599.47	8.00	0.00
						6274787.70	2217609.64	8.00	0.00
AREASOURCE	DRY01	8.00	a			6275040.91	2217897.43	8.00	0.00
						6275773.08	2217890.31	8.00	0.00
						6275774.09	2217727.60	8.00	0.00
						6275042.94	2217738.79	8.00	0.00
AREASOURCE	RV01	5.00	a			6274614.76	2217103.79	5.00	0.00
						6274655.64	2217104.76	5.00	0.00
						6274661.48	2216446.76	5.00	0.00
						6274620.60	2216452.60	5.00	0.00
AREASOURCE	RV02	5.00	a			6274693.60	2217057.07	5.00	0.00
						6274746.16	2217056.09	5.00	0.00
						6274749.08	2216449.68	5.00	0.00
						6274700.42	2216448.71	5.00	0.00
AREASOURCE	RV03	5.00	a			6274783.15	2216970.44	5.00	0.00
						6274821.11	2216972.38	5.00	0.00
						6274821.11	2216534.36	5.00	0.00
						6274782.18	2216535.34	5.00	0.00
AREASOURCE	RV04	5.00	a			6274857.13	2217018.13	5.00	0.00
						6274899.96	2217017.16	5.00	0.00
						6274903.85	2216498.35	5.00	0.00
						6274862.00	2216498.35	5.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIERPLANNED			0						14.00	a		6274707.64	2217671.49	14.00	0.00
												6274708.51	2217702.39	14.00	0.00
BARRIERPLANNED			0						14.00	a		6274704.18	2217743.96	14.00	0.00
												6274704.18	2217750.03	14.00	0.00
												6274915.05	2217745.75	14.00	0.00
BARRIERPLANNED			0						14.00	a		6274998.65	2217759.55	14.00	0.00
												6275035.90	2217758.69	14.00	0.00
												6275035.90	2217906.79	14.00	0.00
												6275818.85	2217895.53	14.00	0.00
												6275819.72	2217844.43	14.00	0.00
												6275840.50	2217846.16	14.00	0.00
												6275841.37	2217763.88	14.00	0.00
												6275864.75	2217762.15	14.00	0.00
												6275866.48	2217727.51	14.00	0.00
BARRIERPLANNED			0						14.00	a		6275864.75	2217691.13	14.00	0.00
												6275864.75	2217657.35	14.00	0.00
												6275841.13	2217658.63	14.00	0.00
BARRIERPLANNED			0						0.00	a		6274707.64	2217671.49	0.00	0.00
												6274708.51	2217702.39	0.00	0.00
BARRIERPLANNED			0						0.00	a		6274704.18	2217743.96	0.00	0.00
												6274704.18	2217750.03	0.00	0.00
												6274915.05	2217745.75	0.00	0.00
BARRIERPLANNED			0						0.00	a		6274998.65	2217759.55	0.00	0.00
												6275035.90	2217758.69	0.00	0.00
												6275035.90	2217906.79	0.00	0.00
												6275818.85	2217895.53	0.00	0.00
												6275819.72	2217844.43	0.00	0.00
												6275840.50	2217846.16	0.00	0.00

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
												6275841.37	2217763.88	0.00	0.00
												6275864.75	2217762.15	0.00	0.00
												6275866.48	2217727.51	0.00	0.00
BARRIERPLANNED			0						0.00	a		6275864.75	2217691.13	0.00	0.00
												6275864.75	2217657.35	0.00	0.00
												6275841.13	2217658.63	0.00	0.00
BARRIERPLANNED			0						6.00	a		6273976.42	2217899.61	6.00	0.00
												6274527.94	2217888.22	6.00	0.00
												6274532.69	2217108.88	6.00	0.00
BARRIERPLANNED			0						0.00	a		6274532.69	2217108.88	0.00	0.00
												6274154.89	2216830.74	0.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		45.00	a	6274690.08	2217671.68	45.00	0.00
									6274788.72	2217670.66	45.00	0.00
									6274787.70	2217609.64	45.00	0.00
									6275745.62	2217599.47	45.00	0.00
									6275747.66	2217662.52	45.00	0.00
									6275845.28	2217658.46	45.00	0.00
									6275850.36	2217210.00	45.00	0.00
									6275842.23	2217182.54	45.00	0.00
									6275818.84	2217175.43	45.00	0.00
									6274726.68	2217187.63	45.00	0.00
									6274700.24	2217193.73	45.00	0.00
									6274696.18	2217220.17	45.00	0.00
BUILDING			BUILDING00002	x	0		25.00	a	6274190.76	2216816.16	25.00	0.00
									6274554.07	2217084.26	25.00	0.00
									6274595.65	2217084.26	25.00	0.00
									6274596.74	2217055.81	25.00	0.00
									6274566.65	2217056.35	25.00	0.00
									6274208.82	2216793.72	25.00	0.00
BUILDING			BUILDING00003	x	0		40.00	a	6274399.22	2216879.08	40.00	0.00
									6274562.82	2216876.89	40.00	0.00
									6274564.46	2216699.61	40.00	0.00
									6274386.09	2216701.26	40.00	0.00
									6274384.45	2216869.23	40.00	0.00
									6274398.68	2216868.13	40.00	0.00
BUILDING			BUILDING00004	x	0		40.00	a	6274415.64	2216650.37	40.00	0.00
									6274563.91	2216648.73	40.00	0.00
									6274566.10	2216446.83	40.00	0.00
									6274416.73	2216449.02	40.00	0.00
BUILDING			BUILDING00005	x	0		60.00	a	6274462.15	2216316.61	60.00	0.00
									6274571.57	2216314.97	60.00	0.00
									6274572.67	2216324.82	60.00	0.00
									6274623.55	2216324.82	60.00	0.00
									6274624.10	2216310.59	60.00	0.00
									6274727.51	2216308.41	60.00	0.00
									6274728.60	2216157.39	60.00	0.00
									6274686.47	2216157.94	60.00	0.00
									6274683.74	2216281.60	60.00	0.00
									6274660.21	2216282.14	60.00	0.00
									6274660.21	2216259.16	60.00	0.00
									6274646.53	2216259.71	60.00	0.00
									6274645.44	2216215.39	60.00	0.00
									6274583.06	2216217.03	60.00	0.00
									6274581.42	2216267.92	60.00	0.00
									6274463.79	2216271.20	60.00	0.00
BUILDING			BUILDING00006	x	0		40.00	a	6274446.28	2215978.48	40.00	0.00
									6274710.55	2215975.19	40.00	0.00
									6274710.00	2215945.65	40.00	0.00
									6274736.81	2215945.10	40.00	0.00
									6274737.91	2215771.66	40.00	0.00
									6274689.76	2215770.56	40.00	0.00
									6274687.02	2215915.56	40.00	0.00
									6274446.83	2215919.39	40.00	0.00
BUILDING			BUILDING00007	x	0		25.00	a	6274472.54	2215596.02	25.00	0.00
									6274537.10	2215594.93	25.00	0.00
									6274537.65	2215548.97	25.00	0.00
									6274474.18	2215548.42	25.00	0.00
BUILDING			BUILDING00008	x	0		25.00	a	6274706.17	2215591.65	25.00	0.00
									6274768.00	2215591.65	25.00	0.00
									6274769.09	2215546.23	25.00	0.00
									6274706.17	2215548.42	25.00	0.00

APPENDIX 7.2:

CADNAA OPERATIONAL NOISE MODEL INPUTS (LEQ)

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15360 - Green Valley SPA

CadnaA Noise Prediction Model: 15360_08_CNEL.cna
Date: 10.04.24
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	38.6	32.5	40.3	80.0	60.0	0.0				5.00	a	6277577.44	2216536.49	5.00
R2		R2	36.1	33.3	40.2	80.0	60.0	0.0				5.00	a	6272466.54	2215079.18	5.00
R3		R3	51.5	50.5	57.2	80.0	60.0	0.0				5.00	a	6274293.80	2216372.58	5.00
R4		R4	48.4	47.7	54.4	80.0	60.0	0.0				5.00	a	6274487.85	2217862.50	5.00
R5		R5	56.6	48.1	56.9	80.0	60.0	0.0				5.00	a	6274623.79	2216324.68	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274434.68	2216620.02	45.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274697.42	2215781.50	45.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274727.51	2215781.50	45.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274726.42	2215931.42	45.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274696.87	2215962.61	45.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274461.60	2215929.78	45.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274460.50	2215966.99	45.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274759.24	2215568.67	30.00
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274714.93	2215569.76	30.00
POINTSOURCE		AC10	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274526.16	2215571.95	30.00
POINTSOURCE		AC11	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274482.94	2215572.50	30.00
POINTSOURCE		AC12	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274710.00	2216172.17	65.00
POINTSOURCE		AC13	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274705.62	2216292.54	65.00
POINTSOURCE		AC14	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274605.50	2216230.16	65.00
POINTSOURCE		AC15	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274603.31	2216291.44	65.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC16	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274486.77	2216293.09	65.00
POINTSOURCE		AC17	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6275813.75	2217206.95	50.00
POINTSOURCE		AC18	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6274721.60	2217215.09	50.00
POINTSOURCE		DT01	86.5	86.5	86.5	Lw	86.5		900.00	0.00	270.00	3.00	a	6274407.43	2215579.61	3.00
POINTSOURCE		DT02	86.5	86.5	86.5	Lw	86.5		900.00	0.00	270.00	3.00	a	6274642.70	2215578.51	3.00
POINTSOURCE		PL01	86.4	86.4	86.4	Lw	86.4		900.00	0.00	0.00	5.00	a	6274477.47	2216247.13	5.00
POINTSOURCE		PL02	86.4	86.4	86.4	Lw	86.4		900.00	0.00	0.00	5.00	a	6274478.56	2216225.24	5.00
POINTSOURCE		PL03	86.4	86.4	86.4	Lw	86.4		900.00	0.00	0.00	5.00	a	6274559.54	2216251.50	5.00
POINTSOURCE		PL04	86.4	86.4	86.4	Lw	86.4		900.00	0.00	0.00	5.00	a	6274560.08	2216226.33	5.00
POINTSOURCE		TRA01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6275802.57	2217830.31	5.00
POINTSOURCE		TRA02	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6274400.32	2215634.32	5.00
POINTSOURCE		TRA03	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	a	6274770.74	2215629.40	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRK03	87.8	87.8	87.8	62.7	62.7	62.7	Lw	87.8									8	a
LINESOURCE		TRK02	87.8	87.8	87.8	69.7	69.7	69.7	Lw	87.8									8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRK03	8.00	a			6274801.94	2217708.28	8.00	0.00
						6275868.67	2217697.10	8.00	0.00
LINESOURCE	TRK02	8.00	a			6274963.62	2217917.77	8.00	0.00
						6274963.62	2217707.97	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		CAR01	87.8	87.8	87.8	68.7	68.7	68.7	Lw	87.8					5	a
AREASOURCE		CAR02	87.8	87.8	87.8	68.0	68.0	68.0	Lw	87.8					5	a
AREASOURCE		CAR03	87.8	87.8	87.8	71.5	71.5	71.5	Lw	87.8					5	a
AREASOURCE		CAR04	87.8	87.8	87.8	64.4	64.4	64.4	Lw	87.8					5	a
AREASOURCE		CAR05	87.8	87.8	87.8	64.9	64.9	64.9	Lw	87.8					5	a
AREASOURCE		CAR06	87.8	87.8	87.8	63.6	63.6	63.6	Lw	87.8					5	a
AREASOURCE		CAR07	87.8	87.8	87.8	67.5	67.5	67.5	Lw	87.8					5	a
AREASOURCE		CAR08	87.8	87.8	87.8	62.4	62.4	62.4	Lw	87.8					5	a
AREASOURCE		CAR09	87.8	87.8	87.8	61.9	61.9	61.9	Lw	87.8					5	a
AREASOURCE		CAR10	87.8	87.8	87.8	65.5	65.5	65.5	Lw	87.8					5	a
AREASOURCE		CAR11	87.8	87.8	87.8	65.8	65.8	65.8	Lw	87.8					5	a
AREASOURCE		CAR12	87.8	87.8	87.8	68.8	68.8	68.8	Lw	87.8					5	a
AREASOURCE		CAR13	87.8	87.8	87.8	60.5	60.5	60.5	Lw	87.8					5	a
AREASOURCE		CAR14	87.8	87.8	87.8	64.3	64.3	64.3	Lw	87.8					5	a
AREASOURCE		CAR15	87.8	87.8	87.8	62.5	62.5	62.5	Lw	87.8					5	a
AREASOURCE		CAR16	87.8	87.8	87.8	61.3	61.3	61.3	Lw	87.8					5	a
AREASOURCE		CAR17	87.8	87.8	87.8	62.4	62.4	62.4	Lw	87.8					5	a
AREASOURCE		CAR18	87.8	87.8	87.8	64.9	64.9	64.9	Lw	87.8					5	a
AREASOURCE		CAR19	87.8	87.8	87.8	62.6	62.6	62.6	Lw	87.8					5	a
AREASOURCE		CAR20	87.8	87.8	87.8	67.5	67.5	67.5	Lw	87.8					5	a
AREASOURCE		CAR21	87.8	87.8	87.8	66.6	66.6	66.6	Lw	87.8					5	a
AREASOURCE		CAR22	87.8	87.8	87.8	62.6	62.6	62.6	Lw	87.8					5	a
AREASOURCE		CAR23	87.8	87.8	87.8	63.2	63.2	63.2	Lw	87.8					5	a
AREASOURCE		CAR24	87.8	87.8	87.8	61.4	61.4	61.4	Lw	87.8					5	a
AREASOURCE		CAR25	87.8	87.8	87.8	59.4	59.4	59.4	Lw	87.8					5	a
AREASOURCE		CAR26	87.8	87.8	87.8	67.9	67.9	67.9	Lw	87.8					5	a
AREASOURCE		CAR27	87.8	87.8	87.8	65.1	65.1	65.1	Lw	87.8					5	a
AREASOURCE		CAR28	87.8	87.8	87.8	65.6	65.6	65.6	Lw	87.8					5	a
AREASOURCE		CAR29	87.8	87.8	87.8	66.1	66.1	66.1	Lw	87.8					5	a
AREASOURCE		CAR30	87.8	87.8	87.8	73.0	73.0	73.0	Lw	87.8					5	a
AREASOURCE		CAR31	87.8	87.8	87.8	69.0	69.0	69.0	Lw	87.8					5	a
AREASOURCE		CAR32	87.8	87.8	87.8	65.6	65.6	65.6	Lw	87.8					5	a
AREASOURCE		CAR33	87.8	87.8	87.8	69.1	69.1	69.1	Lw	87.8					5	a
AREASOURCE		CAR34	87.8	87.8	87.8	69.9	69.9	69.9	Lw	87.8					5	a
AREASOURCE		CAR35	87.8	87.8	87.8	68.1	68.1	68.1	Lw	87.8					5	a
AREASOURCE		CAR36	87.8	87.8	87.8	63.3	63.3	63.3	Lw	87.8					5	a
AREASOURCE		CAR37	87.8	87.8	87.8	60.7	60.7	60.7	Lw	87.8					5	a
AREASOURCE		CAR38	87.8	87.8	87.8	57.9	57.9	57.9	Lw	87.8					5	a
AREASOURCE		CAR39	87.8	87.8	87.8	57.5	57.5	57.5	Lw	87.8					5	a
AREASOURCE		CLD01	111.5	111.5	111.5	74.1	74.1	74.1	Lw	111.5					8	a
AREASOURCE		DRY01	103.4	103.4	103.4	63.0	63.0	63.0	Lw	103.4					8	a
AREASOURCE		RV01	103.4	103.4	103.4	69.4	69.4	69.4	Lw	103.4		900.00	0.00	0.00	5	a
AREASOURCE		RV02	103.4	103.4	103.4	68.8	68.8	68.8	Lw	103.4		900.00	0.00	0.00	5	a

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		RV03	103.4	103.4	103.4	71.5	71.5	71.5	Lw	103.4		900.00	0.00	0.00	5	a
AREASOURCE		RV04	103.4	103.4	103.4	70.3	70.3	70.3	Lw	103.4		900.00	0.00	0.00	5	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	CAR01	5.00	a			6274652.55	2215609.15	5.00	0.00
						6274697.96	2215608.06	5.00	0.00
						6274697.96	2215588.91	5.00	0.00
						6274653.10	2215589.46	5.00	0.00
AREASOURCE	CAR02	5.00	a			6274560.63	2215608.61	5.00	0.00
						6274616.44	2215609.15	5.00	0.00
						6274615.35	2215589.46	5.00	0.00
						6274562.82	2215590.55	5.00	0.00
AREASOURCE	CAR03	5.00	a			6274419.47	2215609.70	5.00	0.00
						6274448.47	2215608.61	5.00	0.00
						6274449.01	2215592.74	5.00	0.00
						6274420.56	2215593.29	5.00	0.00
AREASOURCE	CAR04	5.00	a			6274661.85	2215673.72	5.00	0.00
						6274724.23	2215672.62	5.00	0.00
						6274725.32	2215635.42	5.00	0.00
						6274663.49	2215635.42	5.00	0.00
AREASOURCE	CAR05	5.00	a			6274562.27	2215673.72	5.00	0.00
						6274616.44	2215673.72	5.00	0.00
						6274616.44	2215635.96	5.00	0.00
						6274560.63	2215635.42	5.00	0.00
AREASOURCE	CAR06	5.00	a			6274446.28	2215675.36	5.00	0.00
						6274516.31	2215675.36	5.00	0.00
						6274518.50	2215634.87	5.00	0.00
						6274446.28	2215635.96	5.00	0.00
AREASOURCE	CAR07	5.00	a			6274390.47	2215703.26	5.00	0.00
						6274409.07	2215701.62	5.00	0.00
						6274411.81	2215647.45	5.00	0.00
						6274389.37	2215645.81	5.00	0.00
AREASOURCE	CAR08	5.00	a			6274578.69	2215846.07	5.00	0.00
						6274597.29	2215844.97	5.00	0.00
						6274596.20	2215836.22	5.00	0.00
						6274620.82	2215834.58	5.00	0.00
						6274621.36	2215752.51	5.00	0.00
						6274597.29	2215756.34	5.00	0.00
						6274597.29	2215744.85	5.00	0.00
						6274579.78	2215745.94	5.00	0.00
AREASOURCE	CAR09	5.00	a			6274507.56	2215845.52	5.00	0.00
						6274549.14	2215845.52	5.00	0.00
						6274551.33	2215745.94	5.00	0.00
						6274508.11	2215745.39	5.00	0.00
AREASOURCE	CAR10	5.00	a			6274460.50	2215846.61	5.00	0.00
						6274477.47	2215845.52	5.00	0.00
						6274479.65	2215745.94	5.00	0.00
						6274459.96	2215747.03	5.00	0.00
AREASOURCE	CAR11	5.00	a			6274436.43	2215838.41	5.00	0.00
						6274453.94	2215836.77	5.00	0.00
						6274455.03	2215748.13	5.00	0.00
						6274434.79	2215747.03	5.00	0.00
AREASOURCE	CAR12	5.00	a			6274676.08	2215754.69	5.00	0.00
						6274720.94	2215753.60	5.00	0.00
						6274722.59	2215734.45	5.00	0.00
						6274677.17	2215735.54	5.00	0.00
AREASOURCE	CAR13	5.00	a			6274764.17	2215985.04	5.00	0.00
						6274784.41	2215985.04	5.00	0.00
						6274788.24	2215704.36	5.00	0.00
						6274766.90	2215703.81	5.00	0.00
AREASOURCE	CAR14	5.00	a			6274647.63	2215880.54	5.00	0.00
						6274670.61	2215879.44	5.00	0.00
						6274671.15	2215762.90	5.00	0.00
						6274653.10	2215764.00	5.00	0.00
AREASOURCE	CAR15	5.00	a			6274455.58	2215901.88	5.00	0.00
						6274644.89	2215899.69	5.00	0.00
						6274644.34	2215880.54	5.00	0.00
						6274455.58	2215882.73	5.00	0.00
AREASOURCE	CAR16	5.00	a			6274387.19	2216002.55	5.00	0.00
						6274404.69	2216002.00	5.00	0.00
						6274409.07	2215755.79	5.00	0.00
						6274387.73	2215757.98	5.00	0.00
AREASOURCE	CAR17	5.00	a			6274742.28	2216142.07	5.00	0.00
						6274739.55	2216323.18	5.00	0.00
						6274761.43	2216323.73	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6274761.43	2216140.43	5.00	0.00
AREASOURCE	CAR18	5.00	a			6274677.17	2216086.81	5.00	0.00
						6274785.51	2216086.81	5.00	0.00
						6274787.70	2216067.66	5.00	0.00
						6274678.81	2216067.66	5.00	0.00
AREASOURCE	CAR19	5.00	a			6274404.69	2216089.00	5.00	0.00
						6274610.97	2216085.72	5.00	0.00
						6274610.42	2216069.85	5.00	0.00
						6274403.60	2216070.40	5.00	0.00
AREASOURCE	CAR20	5.00	a			6274677.17	2216131.68	5.00	0.00
						6274741.74	2216130.04	5.00	0.00
						6274740.64	2216111.98	5.00	0.00
						6274678.81	2216113.62	5.00	0.00
AREASOURCE	CAR21	5.00	a			6274455.03	2216203.35	5.00	0.00
						6274536.56	2216202.81	5.00	0.00
						6274537.10	2216185.30	5.00	0.00
						6274456.13	2216185.84	5.00	0.00
AREASOURCE	CAR22	5.00	a			6274521.24	2216158.49	5.00	0.00
						6274601.12	2216157.94	5.00	0.00
						6274600.57	2216132.77	5.00	0.00
						6274609.87	2216132.77	5.00	0.00
						6274610.97	2216115.26	5.00	0.00
						6274520.69	2216115.81	5.00	0.00
AREASOURCE	CAR23	5.00	a			6274438.07	2216157.94	5.00	0.00
						6274511.39	2216157.94	5.00	0.00
						6274511.39	2216115.26	5.00	0.00
						6274437.52	2216115.81	5.00	0.00
AREASOURCE	CAR24	5.00	a			6274381.71	2216324.82	5.00	0.00
						6274400.32	2216325.91	5.00	0.00
						6274404.69	2216088.45	5.00	0.00
						6274383.36	2216089.00	5.00	0.00
AREASOURCE	CAR25	5.00	a			6274405.79	2216393.76	5.00	0.00
						6274784.96	2216387.19	5.00	0.00
						6274784.96	2216369.14	5.00	0.00
						6274405.79	2216372.42	5.00	0.00
AREASOURCE	CAR26	5.00	a			6274377.88	2216520.15	5.00	0.00
						6274399.22	2216525.62	5.00	0.00
						6274411.81	2216473.64	5.00	0.00
						6274395.94	2216467.62	5.00	0.00
AREASOURCE	CAR27	5.00	a			6274328.09	2216526.17	5.00	0.00
						6274345.06	2216525.62	5.00	0.00
						6274347.24	2216510.85	5.00	0.00
						6274355.45	2216484.04	5.00	0.00
						6274369.68	2216441.91	5.00	0.00
						6274378.98	2216422.76	5.00	0.00
						6274365.30	2216410.72	5.00	0.00
						6274356.55	2216422.21	5.00	0.00
						6274328.64	2216516.32	5.00	0.00
AREASOURCE	CAR28	5.00	a			6274377.34	2216629.03	5.00	0.00
						6274396.49	2216629.03	5.00	0.00
						6274397.58	2216533.83	5.00	0.00
						6274378.98	2216536.02	5.00	0.00
AREASOURCE	CAR29	5.00	a			6274325.91	2216624.66	5.00	0.00
						6274344.51	2216624.11	5.00	0.00
						6274345.06	2216536.56	5.00	0.00
						6274327.55	2216535.47	5.00	0.00
AREASOURCE	CAR30	5.00	a			6274544.22	2216957.32	5.00	0.00
						6274561.18	2216957.87	5.00	0.00
						6274561.18	2216939.26	5.00	0.00
						6274542.58	2216939.26	5.00	0.00
AREASOURCE	CAR31	5.00	a			6274509.75	2216932.70	5.00	0.00
						6274553.52	2216931.60	5.00	0.00
						6274553.52	2216913.00	5.00	0.00
						6274510.29	2216913.55	5.00	0.00
AREASOURCE	CAR32	5.00	a			6274547.50	2216989.05	5.00	0.00
						6274556.80	2216973.19	5.00	0.00
						6274479.65	2216915.74	5.00	0.00
						6274468.16	2216930.51	5.00	0.00
AREASOURCE	CAR33	5.00	a			6274285.42	2216761.44	5.00	0.00
						6274325.91	2216779.50	5.00	0.00
						6274333.57	2216763.63	5.00	0.00
						6274293.08	2216744.48	5.00	0.00
AREASOURCE	CAR34	5.00	a			6274324.81	2216819.44	5.00	0.00
						6274342.87	2216819.44	5.00	0.00
						6274343.41	2216784.42	5.00	0.00
						6274324.26	2216783.33	5.00	0.00
AREASOURCE	CAR35	5.00	a			6274312.77	2216815.61	5.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6274323.72	2216800.84	5.00	0.00
						6274280.49	2216769.65	5.00	0.00
						6274267.91	2216783.33	5.00	0.00
AREASOURCE	CAR36	5.00	a			6275676.70	2217132.92	5.00	0.00
						6275846.88	2217130.50	5.00	0.00
						6275845.26	2217112.76	5.00	0.00
						6275678.31	2217114.37	5.00	0.00
AREASOURCE	CAR37	5.00	a			6275297.62	2217136.15	5.00	0.00
						6275605.72	2217132.92	5.00	0.00
						6275606.53	2217115.98	5.00	0.00
						6275297.62	2217117.60	5.00	0.00
AREASOURCE	CAR38	5.00	a			6274669.33	2217144.21	5.00	0.00
						6275216.97	2217139.37	5.00	0.00
						6275215.36	2217119.21	5.00	0.00
						6274667.72	2217125.66	5.00	0.00
AREASOURCE	CAR39	5.00	a			6274637.00	2217735.36	5.00	0.00
						6274655.05	2217735.36	5.00	0.00
						6274661.42	2217144.96	5.00	0.00
						6274640.19	2217144.96	5.00	0.00
AREASOURCE	CLD01	8.00	a			6274788.72	2217670.66	8.00	0.00
						6275747.66	2217662.52	8.00	0.00
						6275745.62	2217599.47	8.00	0.00
						6274787.70	2217609.64	8.00	0.00
AREASOURCE	DRY01	8.00	a			6275040.91	2217897.43	8.00	0.00
						6275773.08	2217890.31	8.00	0.00
						6275774.09	2217727.60	8.00	0.00
						6275042.94	2217738.79	8.00	0.00
AREASOURCE	RV01	5.00	a			6274614.76	2217103.79	5.00	0.00
						6274655.64	2217104.76	5.00	0.00
						6274661.48	2216446.76	5.00	0.00
						6274620.60	2216452.60	5.00	0.00
AREASOURCE	RV02	5.00	a			6274693.60	2217057.07	5.00	0.00
						6274746.16	2217056.09	5.00	0.00
						6274749.08	2216449.68	5.00	0.00
						6274700.42	2216448.71	5.00	0.00
AREASOURCE	RV03	5.00	a			6274783.15	2216970.44	5.00	0.00
						6274821.11	2216972.38	5.00	0.00
						6274821.11	2216534.36	5.00	0.00
						6274782.18	2216535.34	5.00	0.00
AREASOURCE	RV04	5.00	a			6274857.13	2217018.13	5.00	0.00
						6274899.96	2217017.16	5.00	0.00
						6274903.85	2216498.35	5.00	0.00
						6274862.00	2216498.35	5.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIERPLANNED			0						14.00	a		6274707.64	2217671.49	14.00	0.00
												6274708.51	2217702.39	14.00	0.00
BARRIERPLANNED			0						14.00	a		6274704.18	2217743.96	14.00	0.00
												6274704.18	2217750.03	14.00	0.00
												6274915.05	2217745.75	14.00	0.00
BARRIERPLANNED			0						14.00	a		6274998.65	2217759.55	14.00	0.00
												6275035.90	2217758.69	14.00	0.00
												6275035.90	2217906.79	14.00	0.00
												6275818.85	2217895.53	14.00	0.00
												6275819.72	2217844.43	14.00	0.00
												6275840.50	2217846.16	14.00	0.00
												6275841.37	2217763.88	14.00	0.00
												6275864.75	2217762.15	14.00	0.00
												6275866.48	2217727.51	14.00	0.00
BARRIERPLANNED			0						14.00	a		6275864.75	2217691.13	14.00	0.00
												6275864.75	2217657.35	14.00	0.00
												6275841.13	2217658.63	14.00	0.00
BARRIERPLANNED			0						0.00	a		6274707.64	2217671.49	0.00	0.00
												6274708.51	2217702.39	0.00	0.00
BARRIERPLANNED			0						0.00	a		6274704.18	2217743.96	0.00	0.00
												6274704.18	2217750.03	0.00	0.00
												6274915.05	2217745.75	0.00	0.00
BARRIERPLANNED			0						0.00	a		6274998.65	2217759.55	0.00	0.00
												6275035.90	2217758.69	0.00	0.00
												6275035.90	2217906.79	0.00	0.00
												6275818.85	2217895.53	0.00	0.00
												6275819.72	2217844.43	0.00	0.00
												6275840.50	2217846.16	0.00	0.00

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
												6275841.37	2217763.88	0.00	0.00
												6275864.75	2217762.15	0.00	0.00
												6275866.48	2217727.51	0.00	0.00
BARRIERPLANNED			0						0.00	a		6275864.75	2217691.13	0.00	0.00
												6275864.75	2217657.35	0.00	0.00
												6275841.13	2217658.63	0.00	0.00
BARRIERPLANNED			0						6.00	a		6273976.42	2217899.61	6.00	0.00
												6274527.94	2217888.22	6.00	0.00
												6274532.69	2217108.88	6.00	0.00
BARRIERPLANNED			0						0.00	a		6274532.69	2217108.88	0.00	0.00
												6274154.89	2216830.74	0.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		45.00	a	6274690.08	2217671.68	45.00	0.00
									6274788.72	2217670.66	45.00	0.00
									6274787.70	2217609.64	45.00	0.00
									6275745.62	2217599.47	45.00	0.00
									6275747.66	2217662.52	45.00	0.00
									6275845.28	2217658.46	45.00	0.00
									6275850.36	2217210.00	45.00	0.00
									6275842.23	2217182.54	45.00	0.00
									6275818.84	2217175.43	45.00	0.00
									6274726.68	2217187.63	45.00	0.00
									6274700.24	2217193.73	45.00	0.00
									6274696.18	2217220.17	45.00	0.00
BUILDING			BUILDING00002	x	0		25.00	a	6274190.76	2216816.16	25.00	0.00
									6274554.07	2217084.26	25.00	0.00
									6274595.65	2217084.26	25.00	0.00
									6274596.74	2217055.81	25.00	0.00
									6274566.65	2217056.35	25.00	0.00
									6274208.82	2216793.72	25.00	0.00
BUILDING			BUILDING00003	x	0		40.00	a	6274399.22	2216879.08	40.00	0.00
									6274562.82	2216876.89	40.00	0.00
									6274564.46	2216699.61	40.00	0.00
									6274386.09	2216701.26	40.00	0.00
									6274384.45	2216869.23	40.00	0.00
									6274398.68	2216868.13	40.00	0.00
BUILDING			BUILDING00004	x	0		40.00	a	6274415.64	2216650.37	40.00	0.00
									6274563.91	2216648.73	40.00	0.00
									6274566.10	2216446.83	40.00	0.00
									6274416.73	2216449.02	40.00	0.00
BUILDING			BUILDING00005	x	0		60.00	a	6274462.15	2216316.61	60.00	0.00
									6274571.57	2216314.97	60.00	0.00
									6274572.67	2216324.82	60.00	0.00
									6274623.55	2216324.82	60.00	0.00
									6274624.10	2216310.59	60.00	0.00
									6274727.51	2216308.41	60.00	0.00
									6274728.60	2216157.39	60.00	0.00
									6274686.47	2216157.94	60.00	0.00
									6274683.74	2216281.60	60.00	0.00
									6274660.21	2216282.14	60.00	0.00
									6274660.21	2216259.16	60.00	0.00
									6274646.53	2216259.71	60.00	0.00
									6274645.44	2216215.39	60.00	0.00
									6274583.06	2216217.03	60.00	0.00
									6274581.42	2216267.92	60.00	0.00
									6274463.79	2216271.20	60.00	0.00
BUILDING			BUILDING00006	x	0		40.00	a	6274446.28	2215978.48	40.00	0.00
									6274710.55	2215975.19	40.00	0.00
									6274710.00	2215945.65	40.00	0.00
									6274736.81	2215945.10	40.00	0.00
									6274737.91	2215771.66	40.00	0.00
									6274689.76	2215770.56	40.00	0.00
									6274687.02	2215915.56	40.00	0.00
									6274446.83	2215919.39	40.00	0.00
BUILDING			BUILDING00007	x	0		25.00	a	6274472.54	2215596.02	25.00	0.00
									6274537.10	2215594.93	25.00	0.00
									6274537.65	2215548.97	25.00	0.00
									6274474.18	2215548.42	25.00	0.00
BUILDING			BUILDING00008	x	0		25.00	a	6274706.17	2215591.65	25.00	0.00
									6274768.00	2215591.65	25.00	0.00
									6274769.09	2215546.23	25.00	0.00
									6274706.17	2215548.42	25.00	0.00

APPENDIX 8.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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15360 - Green Valley SPA

CadnaA Noise Prediction Model: 15360_02_Construction.cna
Date: 18.09.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	54.5	-52.5	51.5	80.0	60.0	0.0				5.00	a	6277577.44	2216536.49	5.00
R2		R2	53.5	-53.4	50.5	80.0	60.0	0.0				5.00	a	6272466.54	2215079.18	5.00
R3		R3	69.4	-37.6	66.4	80.0	60.0	0.0				5.00	a	6274293.80	2216372.58	5.00
R4		R4	68.5	-38.5	65.4	80.0	60.0	0.0				5.00	a	6274487.85	2217862.50	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	125.4	18.4	18.4	72.7	-34.3	-34.3	PWL-Pt	118.4					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	CONSTRUCTION	8.00	a			6274536.28	2217928.55	8.00	0.00
						6275878.44	2217904.65	8.00	0.00
						6275902.30	2217877.38	8.00	0.00
						6275897.75	2217134.16	8.00	0.00
						6275870.53	2217099.56	8.00	0.00
						6275609.04	2217104.47	8.00	0.00
						6275606.44	2217088.32	8.00	0.00
						6275243.94	2217098.22	8.00	0.00
						6274915.72	2217105.86	8.00	0.00
						6274925.10	2216993.70	8.00	0.00
						6274912.73	2216479.74	8.00	0.00

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6274801.18	2216481.48	8.00	0.00
				6274794.88	2215365.48	8.00	0.00
				6274768.83	2215354.81	8.00	0.00
				6274591.23	2215359.50	8.00	0.00
				6274377.95	2215365.22	8.00	0.00
				6274367.53	2215375.90	8.00	0.00
				6274368.83	2215583.45	8.00	0.00
				6274369.88	2215761.32	8.00	0.00
				6274372.51	2216118.14	8.00	0.00
				6274372.99	2216167.66	8.00	0.00
				6274371.30	2216217.15	8.00	0.00
				6274367.44	2216266.52	8.00	0.00
				6274361.42	2216315.67	8.00	0.00
				6274353.25	2216364.51	8.00	0.00
				6274342.95	2216412.94	8.00	0.00
				6274330.53	2216460.88	8.00	0.00
				6274316.02	2216508.22	8.00	0.00
				6274299.45	2216554.89	8.00	0.00
				6274280.85	2216600.78	8.00	0.00
				6274259.46	2216645.78	8.00	0.00
				6274235.85	2216689.66	8.00	0.00
				6274210.08	2216732.30	8.00	0.00
				6274182.21	2216773.60	8.00	0.00
				6274152.30	2216813.46	8.00	0.00
				6274537.79	2217103.56	8.00	0.00

APPENDIX 8.2:

CADNAA CONCRETE POUR NOISE MODEL INPUTS

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15496 - Ramona and Webster

CadnaA Noise Prediction Model: 15496_03_Pour.cna
Date: 31.08.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	47.6	47.6	54.3	80.0	60.0	0.0				5.00	a	6259935.79	2252783.77	5.00
R2		R2	49.7	49.7	56.4	80.0	60.0	0.0				5.00	a	6260312.89	2252776.03	5.00
R3		R3	54.1	54.1	60.8	80.0	60.0	0.0				5.00	a	6260741.84	2252765.02	5.00
R4		R4	57.5	57.5	64.2	80.0	60.0	0.0				5.00	a	6259825.35	2250569.24	5.00
R5		R5	53.7	53.7	60.4	80.0	60.0	0.0				5.00	a	6259205.61	2250557.91	5.00
R6		R6	55.7	55.7	62.4	80.0	60.0	0.0				5.00	a	6261100.79	2251006.60	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
BUILDING		POUR	118.0	118.0	118.0	71.0	71.0	71.0	Lw	118					8	a

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING	POUR	8.00	a			6259984.85	2252201.46	8.00	0.00
						6260430.82	2252203.63	8.00	0.00
						6260435.16	2252045.21	8.00	0.00
						6260373.31	2252046.29	8.00	0.00
						6260365.71	2250979.67	8.00	0.00
						6260425.39	2250979.67	8.00	0.00
						6260427.56	2250873.33	8.00	0.00
						6259964.24	2250882.01	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates				
							Begin		x	y	z	Ground	
							(ft)		(ft)	(ft)	(ft)	(ft)	
BUILDING			BUILDING00007	x	0		25.00	a	6259941.67	2252710.28	25.00	0.00	
									6260067.32	2252704.16	25.00	0.00	
									6260066.55	2252654.36	25.00	0.00	
									6259943.21	2252657.42	25.00	0.00	
BUILDING			BUILDING00008	x	0		25.00	a	6260147.00	2252661.25	25.00	0.00	
									6260314.02	2252660.49	25.00	0.00	
									6260316.31	2252571.61	25.00	0.00	
									6260145.47	2252572.38	25.00	0.00	
BUILDING			BUILDING00009	x	0		25.00	a	6260376.07	2252734.80	25.00	0.00	
									6260516.27	2252734.80	25.00	0.00	
									6260516.27	2252682.70	25.00	0.00	
									6260377.60	2252682.70	25.00	0.00	
BUILDING			BUILDING00010	x	0		25.00	a	6260474.90	2252607.62	25.00	0.00	
									6260514.74	2252608.39	25.00	0.00	
									6260513.98	2252514.92	25.00	0.00	
									6260470.31	2252514.15	25.00	0.00	
BUILDING			BUILDING00011	x	0		25.00	a	6260794.38	2252583.87	25.00	0.00	
									6260833.45	2252583.87	25.00	0.00	
									6260831.16	2252507.26	25.00	0.00	
									6260793.62	2252509.56	25.00	0.00	
BUILDING			BUILDING00012	x	0		25.00	a	6260050.38	2250726.95	25.00	0.00	
									6260283.64	2250728.71	25.00	0.00	
									6260287.17	2250608.55	25.00	0.00	
									6260048.61	2250610.32	25.00	0.00	
BUILDING			BUILDING00013	x	0		40.00	a	6260644.13	2250608.55	40.00	0.00	
									6260967.51	2250610.32	40.00	0.00	
									6260967.51	2250559.07	40.00	0.00	
									6261110.65	2250555.54	40.00	0.00	
									6261108.88	2250253.36	40.00	0.00	
									6260955.14	2250253.36	40.00	0.00	
									6260958.68	2250180.91	40.00	0.00	
									6260637.06	2250186.21	40.00	0.00	