Pioneertown Motel Expansion

NOISE IMPACT ANALYSIS

COUNTY OF SAN BERNARDINO

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JUNE 26, 2025

TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

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	Pioneertown Motel Expansion
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

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EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Pioneertown Motel Expansion development ("Project"). The Project site is located 5240 Curtis Road in the County of San Bernardino. The Project is to include forty-seven (47) new motel rooms, horseback riding facilities, a day spa, an outdoor pool, a restaurant, an event venue, and retail. This noise study has been prepared to satisfy applicable County of San Bernardino noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Pioneertown Motel Expansion Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) 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
On-Site Traffic Noise	5	*Less Than Significant*	-
Operational Noise	7	*Less Than Significant*	-
Construction Noise	8	*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 Pioneertown Motel Expansion ("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 for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The Pioneertown Motel Expansion Project is located at 5240 Curtis Road in the County of San Bernardino, as shown on Exhibit 1-A. The area surrounding the Project Site includes residential dwellings to the north, retail shops and a restaurant located on Mane street and Pioneertown road to the south. Vacant land and residential homes are located east of the Project site with addition rural residential homes located to the west.

1.2 PROJECT DESCRIPTION

The Project includes the construction of forty-seven (47) new motel rooms, horseback riding facilities, a day spa, an outdoor pool, a restaurant, an event venue, and retail, as shown in Exhibit 1-B. The Project consists of 17,088 square feet (sf). of additional lodging in the form of thirty-six (36) cabins, one (1) bunkhouse with ten (10) units, and one (1) private suite located above the event venue. The Project includes 4,036 sf of amenities, 1,787 sf of back of house/administration uses, 785 sf of retail uses, a 3,447-sf guest-only event venue, and a 2,995-sf restaurant. The Project will be completed in two (2) phases. Phase 1 is anticipated to begin in Quarter 1 of 2027, and Phase 2 is anticipated to begin in Quarter 4 2028 with Project completion anticipated to occur by Quarter 4 2029. The facility will be staffed twenty-four (24) hours a day, seven days a week.

EXHIBIT 1-A: LOCATION MAP

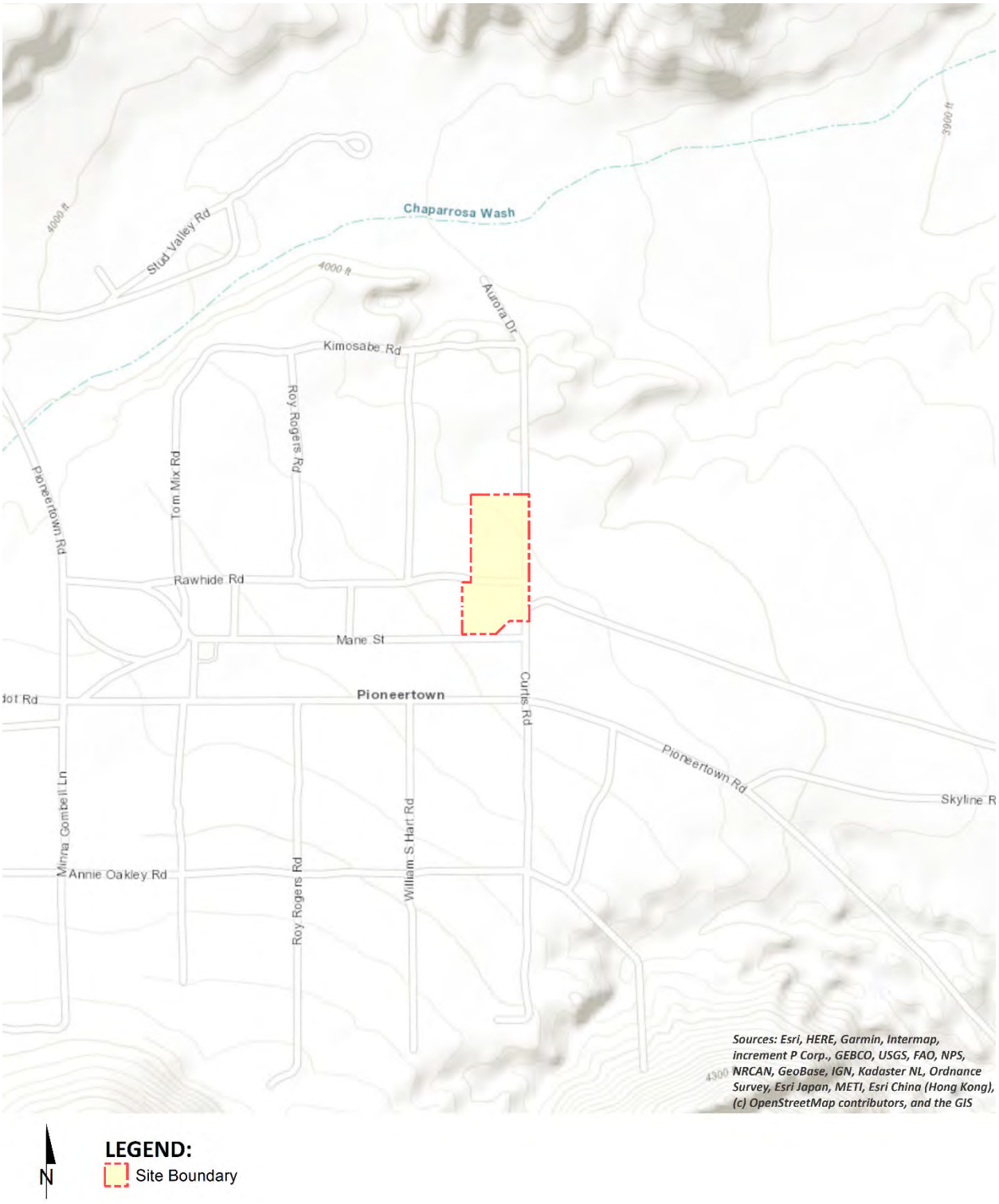
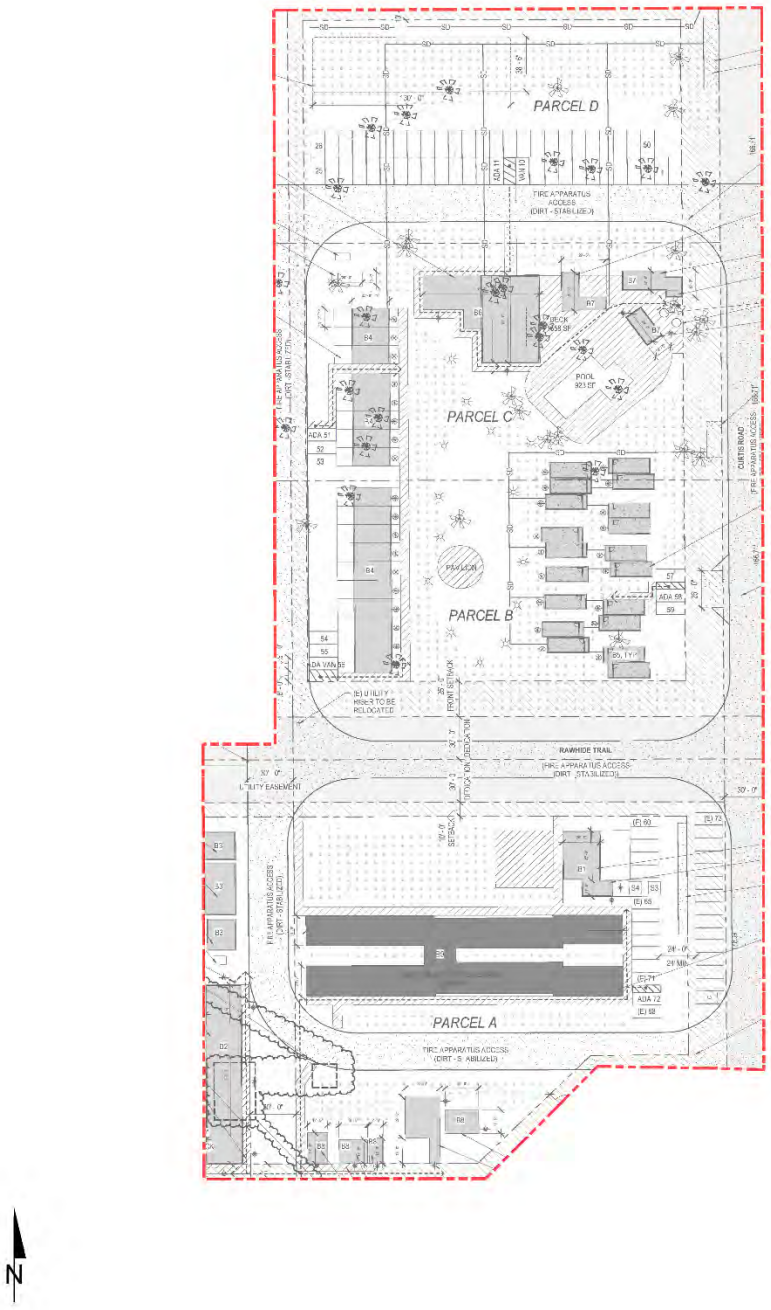


EXHIBIT 1-B: SITE PLAN



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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 100 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 figure 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.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50}, L_{25}, L_8 and L_2, are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. The relies on the percentile noise levels to describe the stationary source noise level limits. While the L_{50} describes the noise levels occurring 50 percent of the time, the L_{eq} accounts for the total energy (average) observed for the entire hour.

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 sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The County of San Bernardino 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.

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 be high enough and long enough to block the path of the noise source. (4)

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. (5)

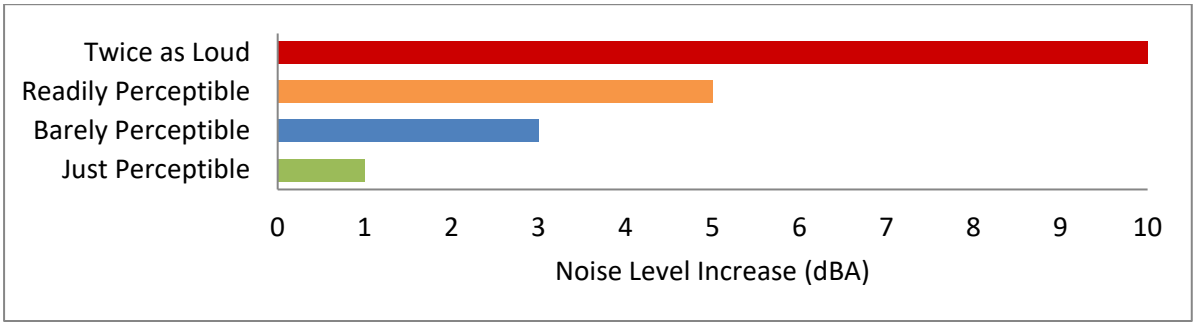
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten 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 will occur. Twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (6) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (6) 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 are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



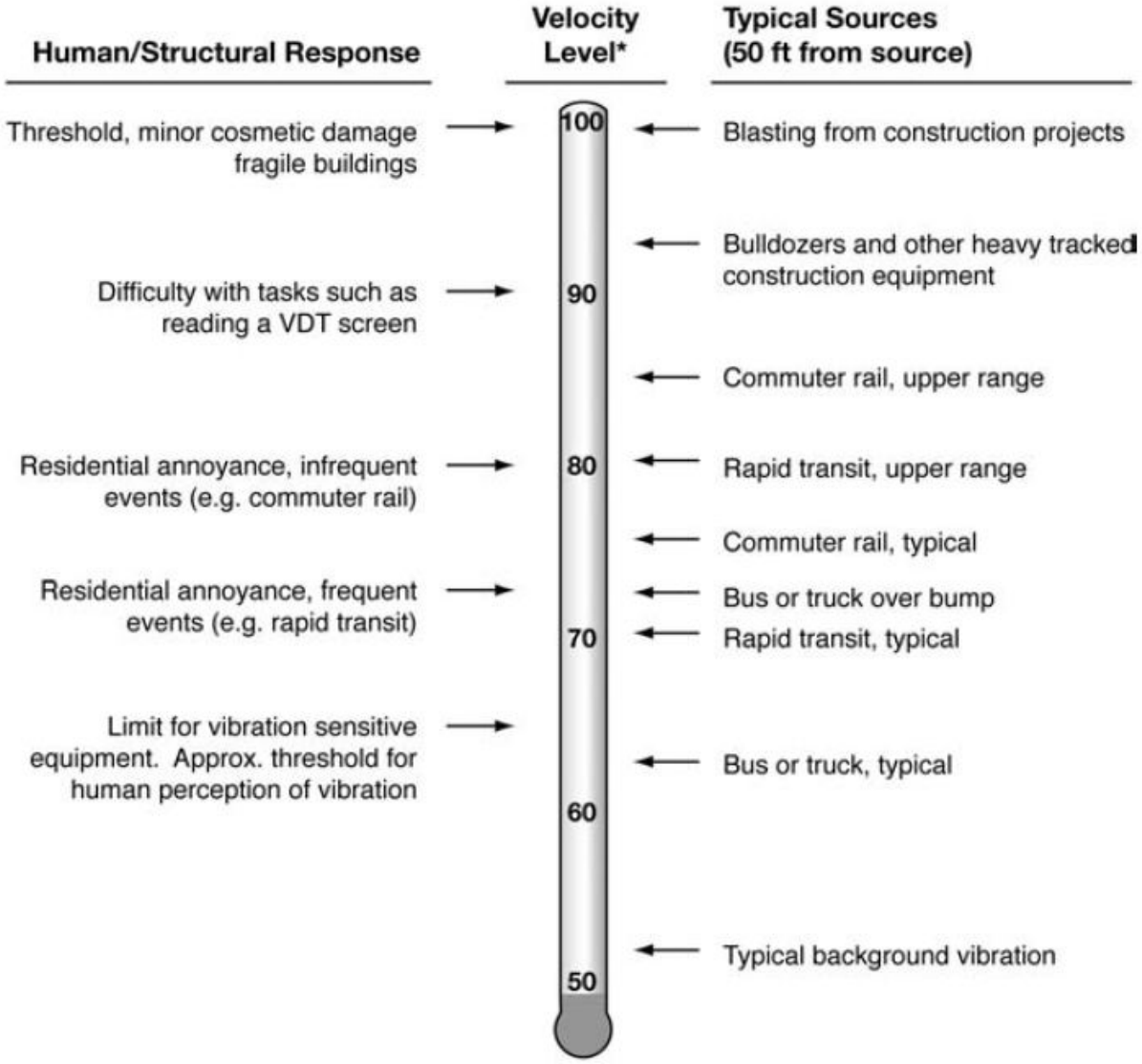
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (7), 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.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings 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. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities

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 Impact and Vibration Assessment.

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 CALIFORNIA NOISE REQUIREMENTS

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). (8) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CALIFORNIA BUILDING CODE

California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.3 COUNTY OF SAN BERNARDINO GENERAL PLAN NOISE ELEMENT

The County of San Bernardino has adopted a Noise Element of the General Plan to limit the exposure of the community to excessive noise levels. (9) The most common sources of environmental noise in San Bernardino County are associated with roads, airports, railroad operations, and industrial activities. The facilities are used to transport residents, consumer products and provide basic infrastructure for the community. (9) To address these noise sources found in the County of San Bernardino, the following goals have been identified in the General Plan Noise Element:

N 1 The County will abate and avoid excessive noise exposures through noise mitigation measures incorporated into the design of new noise-generating and new noise-sensitive land uses, while protecting areas within the County where the present noise environment is within acceptable limits.

N 1.5 Limit truck traffic in residential and commercial areas to designated truck routes; limit construction, delivery, and through-truck traffic to designated routes; and distribute maps of approved truck routes to County traffic officers.

N 2 The County will strive to preserve and maintain the quiet environment of mountain, desert and other rural areas.

3.4 COUNTY OF SAN BERNARDINO DEVELOPMENT CODE

While the County of San Bernardino General Plan Noise Element provides guidelines and criteria to assess transportation noise on sensitive land uses, the County Code, Title 8 Development Code contains the noise level limits for mobile, stationary, and construction-related noise sources. (10)

3.4.1 TRANSPORTATION NOISE STANDARDS

Section 83.01.080(d), Table 83-3, contains the County of San Bernardino's mobile noise source-related standards, shown on Exhibit 3-A. Based on the County's mobile noise source standards, the interior noise level standard is 45 dBA CNEL and the exterior noise level standard is 60 dBA CNEL for the commercial (hotel, motel, transient housing) land uses.

3.4.2 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Pioneertown Motel Expansion, stationary-source (operational) noise such as the expected air conditioning units, parking lot vehicle movements, pool activity, outdoor activity areas, equestrian activity, special event activity, and trash enclosure activity are typically evaluated against standards established under a jurisdiction's Municipal Code. Therefore, to accurately describe the potential Project-related operational noise levels, this analysis presents the appropriate stationary-source noise level standards from the County of San Bernardino County Code, Title 8 Development Code.

The County of San Bernardino County Code, Title 8 Development Code, Section 83.01.080(c) establishes the noise level standards for stationary noise sources. Since the Project's commercial land use will potentially impact adjacent noise-sensitive uses in the Project study area, this noise study relies on the more conservative residential noise level standards to describe potential operational noise impacts. For residential properties, the exterior noise level shall not exceed 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.) for both the whole hour, and for not more than 30 minutes in any hour. (10)

EXHIBIT 3-A: COUNTY OF SAN BERNARDINO MOBILE NOISE LEVEL STANDARDS

Noise Standards for Adjacent Mobile Noise Sources			
Land Use		*Ldn (or CNEL) dB(A)*	
Categories	*Uses*	*Interior (1)*	*Exterior (2)*
Residential	Single and multi-family, duplex, mobile homes	45	60(3)
Commercial	Hotel, motel, transient housing	45	60(3)
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65

Notes:

(1) The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.

(2) The outdoor environment shall be limited to:

- Hospital/office building patios
- Hotel and motel recreation areas
- Mobile home parks
- Multi-family private patios or balconies
- Park picnic areas
- Private yard of single-family dwellings
- School playgrounds

(3) An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.

CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.

Source: County of San Bernardino County Code, Title 8 Development Code, Table 83-3.

The exterior noise level standards shall apply for a cumulative period of 30 minutes in any hour, as well as the standard plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time. The County of San Bernardino operational noise level standards are shown on Table 3-1 and included in Appendix 3.1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Time Period	Exterior Noise Level Standards[1]					
	L_{eq} (Hourly)	L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (<1 min)
Daytime (7:00 a.m. to 10:00 p.m.)	55	55	60	65	70	75
Nighttime (10:00 p.m. to 7:00 a.m.)	45	45	50	55	60	65

[1] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{25} is the noise level exceeded 25% of the time.

[2]Source: County of San Bernardino Development Code, Title 8, Section 83.01.080 (Appendix 3.1).

The percentile noise descriptors are provided to ensure that the duration of the noise source is fully considered. However, due to the relatively constant intensity of the Project operational activities, the L_{50} or average L_{eq} noise level metrics best describe the air conditioning units, parking lot vehicle movements, pool activity, outdoor activity areas, equestrian activity, special event activity, and trash enclosure activity. In addition, the L_{eq} noise level metric accounts for noise fluctuations over time by averaging the louder and quieter events and giving more weight to the louder events. In addition, due to the mathematical relationship between the median (L_{50}) and the mean (L_{eq}), the L_{eq} will always be larger than or equal to the L_{50}. The more variable the noise becomes, the larger the L_{eq} becomes in comparison to the L_{50}. Therefore, this noise study conservatively relies on the average L_{eq} sound level limits to describe the Project operational noise levels.

3.4.3 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Pioneertown Motel Expansion, noise from construction activities are typically limited to the hours of operation established under a jurisdiction's Municipal Code. Section 83.01.080(g)(3) of the County of San Bernardino Development Code, provided in Appendix 3.1, indicates that construction activity is considered exempt from the noise level standards between the hours of 7:00a.m. to 7:00 p.m. except on Sundays and Federal holidays. (10) In addition, neither the County of San Bernardino General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (11 p. 179)

3.4.4 CONSTRUCTION VIBRATION STANDARDS

To analyze vibration impacts originating from the operation and construction of the Pioneertown Motel Expansion, vibration-generating activities are typically evaluated against standards established under a jurisdiction's Municipal Code. Therefore, the County of San Bernardino Development Code vibration level standards are used in this analysis to assess potential impacts at nearby sensitive receiver locations. The County of San Bernardino Development Code, Section 83.01.090(a) states that vibration shall be no *greater than or equal to two-tenths inches per second measured at or beyond the lot line*. (10) Therefore, to determine if the vibration levels due to the operation and construction of the Project, the peak particle velocity (PPV) vibration level standard of 0.2 inches per second (in/sec) is used.

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. (12) 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?

While the County of San Bernardino General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Project site is not located within two miles of a public airport or within an airport land use plan. The closest airport is the Yucca Valley Airport located approximately 5 miles southeast of the Project site and the Palm Springs International Airport is located approximately 21 miles south of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Guideline C.

4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the nearest sensitive receiver locations. Under CEQA, consideration must 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 level increase represents a significant adverse environmental impact. In effect, *there is no single noise increase that renders the noise impact significant.* (13) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. Since neither the County of San Bernardino General Plan Noise Element or Municipal Code identify any noise level increase thresholds, the substantial noise

level increase criteria are derived from the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual.*

To describe the amount to which a given noise level increase is considered acceptable, the FTA criteria is used to evaluate the incremental noise level increase and establishes a method for comparing future project noise with existing ambient conditions under CEQA Significance Threshold A. The amount to which a given noise level increase is considered acceptable is reduced based on existing ambient noise conditions.

4.3 NON-NOISE-SENSITIVE RECEIVERS

The County of San Bernardino Development Code, Section 83.01.080(d), Table 83-3 identifies transportation-related noise level standards. As previously shown on Exhibit 3-A, non-noise-sensitive land uses such as commercial and office uses, require exterior noise levels of 65 dBA CNEL per the County's Table 83-3 mobile noise source standards. To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria are used. When the without Project noise levels at the non-noise-sensitive land uses are below the 65 dBA CNEL exterior noise level standard, a *readily perceptible* 5 dBA or greater noise level increase is considered a significant impact. When the without Project noise levels are greater than the 65 dBA CNEL exterior noise level standard, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses rely on the County of San Bernardino Development Code, Section 83.01.080(d), Table 83-3 exterior noise level standards.

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	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Operational	Residential	Exterior Noise Level Standards	See Table 3-1.	
	Noise-Sensitive[1]	If ambient is < 50 dBA L_{eq}	≥ 7 dBA L_{eq} Project increase	
		If ambient is 50 - 55 dBA L_{eq}	≥ 5 dBA L_{eq} Project increase	
		If ambient is 55 - 60 dBA L_{eq}	≥ 3 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA L_{eq}	≥ 2 dBA L_{eq} Project increase	
		If ambient is 65 - 75 dBA L_{eq}	≥ 1 dBA L_{eq} Project increase	
		If ambient is > 75 dBA L_{eq}	0 dBA L_{eq} Project increase	
	Non-Noise-Sensitive[2]	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Construction	Noise-Sensitive	Permitted between 7:00 a.m. to 7:00 p.m.; except Sundays and Federal holidays.[3]		
		Noise Level Threshold[1]	80 dBA L_{eq}	n/a
		Vibration Level Threshold[4]	0.2 PPV in/sec	n/a

[1] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[2] Section 83.01.080(d), of the County of San Bernardino County Code Table 83-3 exterior noise level standards.
[3] Section 83.01.080(g)(3) of the County of San Bernardino County Code.
[4] Section 83.01.090(a) of the County of San Bernardino County Code.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "n/a" = construction activities are not planned during the nighttime hours; "PPV" = peak particle velocity.

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5 ON-SITE TRAFFIC NOISE IMPACTS

It is expected that the primary source of noise impacts to the Project site will be traffic noise from Curtis Road and Mane Street. However, due to the distance, topography and low traffic volume/speed, traffic noise from these roads will not make a significant contribution to the Project's noise environment and no further analysis is needed. Therefore, no exterior noise mitigation is required to satisfy the County of San Bernardino General Plan Noise Element exterior land use compatibility criteria for the Project uses.

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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 schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, seven receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. 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 each receiver location.

R1: Location R1 represents the existing noise sensitive Church in Pioneertown, approximately 702 feet west of the Project site.

R2: Location R2 represents the existing noise sensitive Camp Pioneertown, approximately 361 feet west of the Project site.

R3: Location R3 represents the existing noise sensitive residence at 5185 William S Hart Road, approximately 71 west of the Project site.

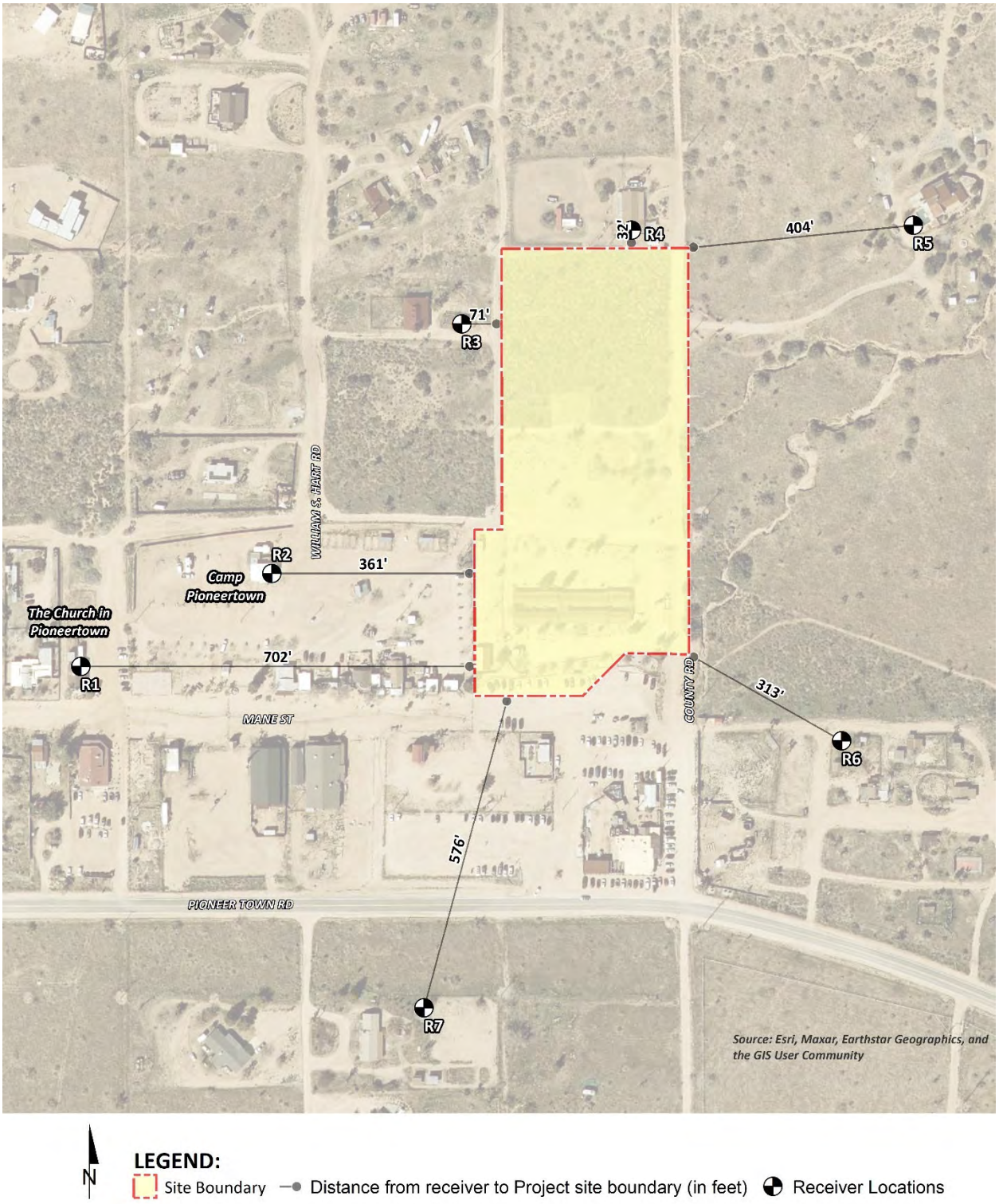
R4: Location R4 represents the existing noise sensitive residence at 5168 Curtis Road, approximately 32 feet north of the Project site.

R5: Location R5 represents the existing noise sensitive residence approximately 404 feet northeast of the Project site.

R6: Location R6 represents the existing noise sensitive Desert Willow Ranch at 53722 Pioneertown Road, approximately 313 feet southeast of the Project site.

R7: Location R7 represents the existing noise sensitive residence at 5395 William S Hart Road, approximately 576 feet southwest of the Project site.

EXHIBIT 6-A: RECEIVER LOCATIONS



7 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 6, resulting from the operation of the proposed Pioneertown Motel Expansion Project. Exhibit 7-A identifies the representative noise source locations used to assess the operational noise levels.

7.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical daytime and nighttime motel activities at the Project site. The on-site Project-related noise sources are expected to include: air conditioning units, parking lot vehicle movements, pool activity, outdoor activity areas, equestrian activity, special event activity, and trash enclosure activity.

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. It is important to note that the following projected noise levels assume the worst-case noise environment with the air conditioning units, parking lot vehicle movements, pool activity, outdoor activity areas, equestrian activity, special event activity, and trash enclosure activity all operating at the same time. These sources of noise activity will likely vary throughout the day.

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. (14)

TABLE 7-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./Hour[4]		Reference Noise Level @ 50' (dBA L_{eq})	Sound Power Level (dBA)[5]
		Day	Night		
Air Conditioning Units	4'	60'	60'	43.3	75.0
Parking Lot Vehicle Movements	5'	60'	60'	41.7	73.4
Pool Activity	5'	60'	0'	54.7	86.4
Outdoor Activity	5'	60'	0'	59.8	91.5
Equestrian Activity	8'	60'	0'	41.8	76.6
Trash Enclosure Activity	5'	10'	10'	56.8	89.0

[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. "Day" = 7:00 a.m. to 10:00 p.m.; "Night" = 10:00 p.m. to 7:00 a.m.
[3] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

7.2.2 AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise levels were taken from the Carrier model 24ACC4 product data sheet. The product data sheet for Carrier model 24ACC4 planned for the Project will produce a maximum sound power level of 75 dBA. For this noise analysis, the air conditioning units are expected operate continuously for 60 minutes per hour and will be located four feet above the roof elevation of the Project buildings.

7.2.3 PARKING LOT VEHICLE MOVEMENTS

To determine the noise levels associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements over a 24-hour period at the parking lot. During the peak hour of activity, parking lot vehicle movements were measured at 41.7 dBA L_{eq} at 50 feet. Noise associated with parking lot vehicle movements is expected for 60 minutes per hour during all hours.

7.2.4 POOL ACTIVITY

To represent the noise levels associated with 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 measured reference noise level at the uniform 50-foot reference distance is 54.7 dBA L_{eq} for pool activity. The pool activity noise levels include kids playing, running, screaming, splashing, playing with a ball, and parents talking. Noise associated with pool activities is expected to occur for the entire hour (60 minutes).

7.2.5 OUTDOOR ACTIVITY

To describe the outdoor common area courtyards activity areas, a reference noise level measurement was taken at the Louie's by the Bay in Newport Beach. At 50 feet, the reference

noise level is 59.8 dBA L_{eq} at a noise source height of 5 feet. The reference noise level measurement includes outdoor eating, drinking, with patrons laughing and talking. Outdoor activities are limited to the daytime hours.

7.2.6 EQUESTRIAN ACTIVITIES

A reference noise level measurements was collected by Urban Crossroads, Inc. at the Lazy T Ranch in the census-designated place Leona Valley, within the County of Los Angeles, to represent the equestrian activities in the equestrian lot and horse loafing shed on the Project site. The reference noise level measurement represents equestrian activities observed over a 16 second period at a trail adjacent to the Lazy T Ranch. The noise sources included in the reference noise level measurement consist of a single horse pass-by event with rider and an instructor walking next to the horse and talking with the rider. At 50 feet from the source, a reference noise level of 41.8 dBA L_{eq} was measured.

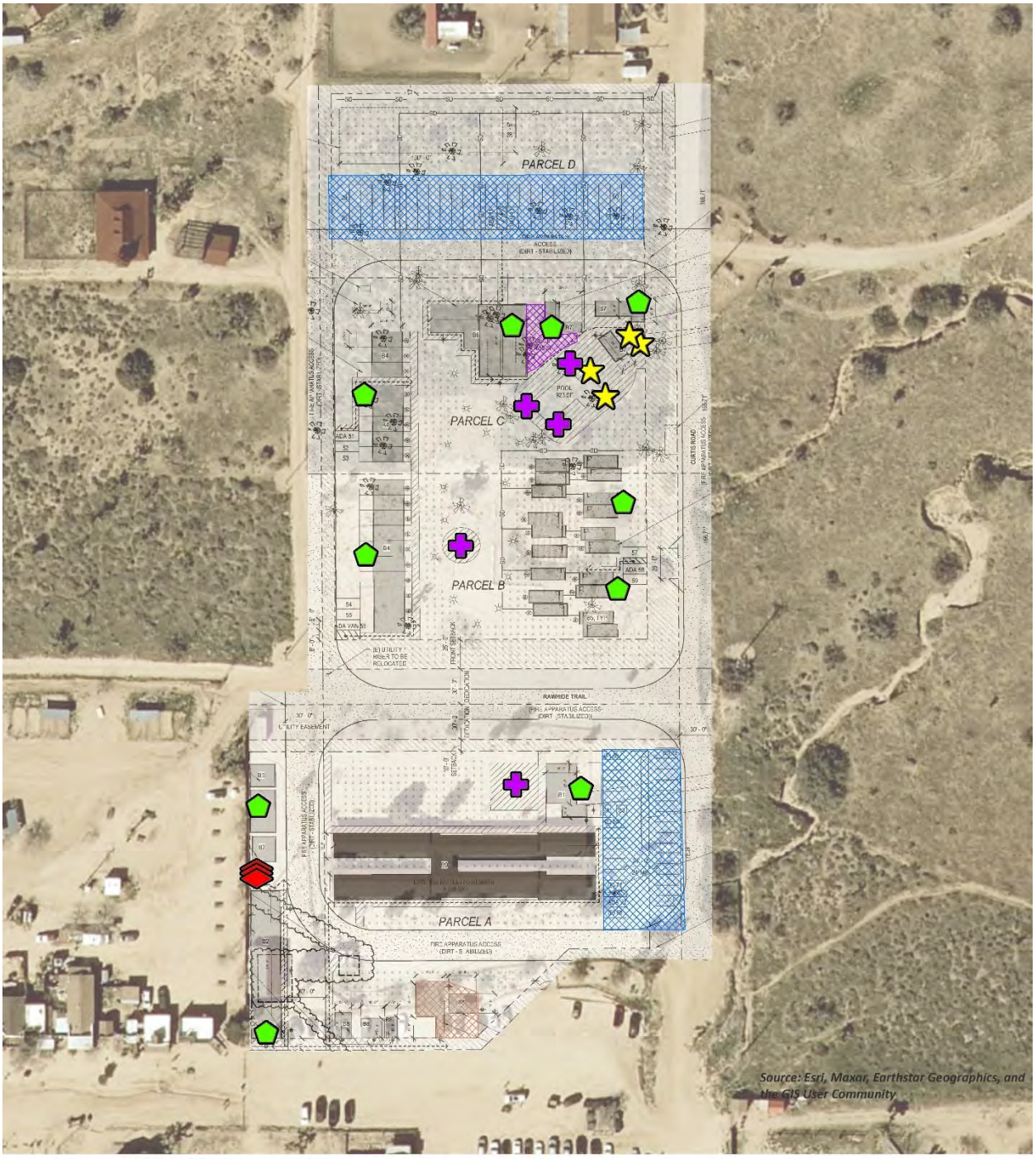
7.2.7 SPECIAL EVENTS ACTIVITY

To represent the noise levels associated with event activities, Urban Crossroads collected a reference noise level measurement at the Lake Oak Meadows wedding facility in the County of Riverside. The reference noise levels represent noise activity associated with wedding and includes, DJ speaker over the sound system, music, cheering, group conversations and other related noise. At 50 feet from the source, a reference noise level of 61.1 dBA L_{eq} was measured.

7.2.8 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. At a uniform reference distance of 50 feet, trash enclosure activity produces a reference noise level of 56.8 dBA L_{eq}.

EXHIBIT 7-A: OPERATIONAL NOISE SOURCE LOCATIONS



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 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 protocol, the CadnaA noise prediction model relies on the reference sound power level (PWL) 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 (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish from 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 0.0 was used in the CadnaA noise analysis to account for hard site conditions. Appendix 7.1 includes the detailed noise model inputs.

7.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include air conditioning units, parking lot vehicle movements, pool activity, outdoor activity areas, equestrian activity, special event activity, and trash enclosure activity, 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 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 39.1 to 53.1 dBA L_{eq}.

TABLE 7-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)						
	R1	R2	R3	R4	R5	R6	R7
Air Conditioning Units	27.2	32.0	36.8	35.1	30.2	30.4	25.3
Parking Lot Vehicle Movements	16.7	19.7	31.2	31.6	24.4	25.4	19.2
Pool Activity	29.0	31.5	36.7	44.0	41.2	40.7	25.4
Outdoor Activity	36.9	40.5	43.5	48.5	42.6	43.6	36.8
Equestrian Activity	16.1	18.9	16.5	15.7	15.4	26.2	24.5
Special Events Activity	22.7	25.4	41.2	50.2	37.5	35.5	31.9
Trash Enclosure Activity	33.5	38.2	25.6	14.0	11.3	31.5	28.6
Total (All Noise Sources)	**39.4**	**43.3**	**46.7**	**53.1**	**45.8**	**46.2**	**39.1**

[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 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 29.6 to 38.2 dBA Leq. The differences between the daytime and nighttime noise levels is 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 Leq)						
	R1	R2	R3	R4	R5	R6	R7
Air Conditioning Units	26.3	31.0	35.8	34.1	29.3	29.4	24.3
Parking Lot Vehicle Movements	15.7	18.7	30.2	30.6	23.4	24.4	18.2
Pool Activity	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Outdoor Activity	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equestrian Activity	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Special Events Activity	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trash Enclosure Activity	32.5	37.2	24.7	13.0	10.4	30.5	27.6
Total (All Noise Sources)	**33.5**	**38.2**	**37.1**	**35.7**	**30.4**	**33.6**	**29.6**

[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 County of San Bernardino exterior noise level standards at nearby noise-sensitive receiver locations. Table 7-4 shows the operational noise levels associated with Pioneertown Motel Expansion Project will satisfy the County of San Bernardino 55 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime exterior noise level standards at all nearby 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]	Use	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
		Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	Church	39.4	33.5	55.0	45.0	No	No
R2	Camp	43.3	38.2	55.0	45.0	No	No
R3	Residential	46.7	37.1	55.0	45.0	No	No
R4	Residential	53.1	35.7	55.0	45.0	No	No
R5	Residential	45.8	30.4	55.0	45.0	No	No
R6	Ranch	46.2	33.6	55.0	45.0	No	No
R7	Residential	39.1	29.6	55.0	45.0	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 adjusted to reflect the ambient noise levels per the County of San Bernardino Development Code, Title 8, Section 83.01.080 (Appendix 3.1).
[4] Do the estimated Project operational noise source activities exceed the noise level standards? "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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8 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 8-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 7. To prevent high levels of construction noise from impacting noise-sensitive land uses, County of San Bernardino Development Code Section 83.01.080(g)(3), states that construction activities are limited to the hours of 7:00 a.m. to 7:00 p.m. on any day and at any time on Sundays and federal holidays.

10.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators operating simultaneously that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA 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 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver.

EXHIBIT 8-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS

8.2 TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project typical construction noise levels, measurements were collected for similar activities at several construction sites. Table 8-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 8-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet. Construction noise generated from concrete crushing activities and nighttime concrete pours are addressed separately, below.

TABLE 8-1: TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Highest Reference Noise Level (dBA L_{eq})
Site Preparation	Scraper, Water Truck, & Dozer Activity	75.3	75.3
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Grading	Rough Grading Activities	73.5	73.5
	Water Truck Pass-By & Backup Alarm	71.9	
	Construction Vehicle Maintenance Activities	67.5	
Building Construction	Foundation Trenching	68.2	71.6
	Framing	62.3	
	Concrete Mixer Backup Alarms & Air Brakes	71.6	
Paving	Concrete Mixer Truck Movements	71.2	71.2
	Concrete Paver Activities	65.6	
	Concrete Mixer Pour & Paving Activities	65.9	
Architectural Coating	Air Compressors	65.2	65.2
	Generator	64.9	
	Crane	62.3	

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.

8.3 TYPICAL CONSTRUCTION NOISE ANALYSIS

Using the reference 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 sensitive receiver locations were completed. This includes the additional noise attenuation provided by the existing intervening building structures and noise barriers located between the Project site and the nearest receiver locations.

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 52.7 to 74.2 dBA L_{eq}, and the highest construction levels are expected to range from 63.0 to 74.2 dBA L_{eq} at the nearby receiver locations. Appendix 8.1 includes the detailed CadnaA construction noise model inputs.

TABLE 8-2: TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	62.8	61.0	59.1	58.7	52.7	68.7
R2	66.5	64.7	62.8	62.4	56.4	66.5
R3	72.8	71.0	69.1	68.7	62.7	72.8
R4	74.2	72.4	70.5	70.1	64.1	74.2
R5	65.2	63.4	61.5	61.1	55.1	66.4
R6	65.8	64.0	62.1	61.7	55.7	65.8
R7	63.0	61.2	59.3	58.9	52.9	63.0

[1] Noise receiver locations are shown on Exhibit 10-A.

[2] Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

8.4 TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 8-3. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all receiver locations.

TABLE 8-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	68.7	80	No
R2	66.5	80	No
R3	72.8	80	No
R4	74.2	80	No
R5	66.4	80	No
R6	65.8	80	No
R7	63.0	80	No

[1] Noise 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] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

8.6 TYPICAL CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (11) However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used.

Ground vibration levels associated with various types of construction equipment are summarized on Table 8-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 8-4: 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

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 8-5 presents the expected typical construction equipment vibration levels at the nearest receiver locations. At distances ranging from 32 feet to 701 feet from typical Project construction activities (at the Project site boundary), construction vibration velocity levels are estimated at 0.06 PPV (in/sec). Based on the County of San Bernardino vibration standards, the unmitigated Project construction vibration levels will satisfy the 0.20 PPV (in/sec) threshold at all the nearby sensitive receiver locations. Therefore, the vibration impacts due to Project construction are considered *less than significant*.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter. Moreover, construction at the Project site will be restricted to daytime hours consistent with City requirements thereby eliminating potential vibration impacts during the sensitive nighttime hours.

TABLE 8-5: TYPICAL CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					Threshold PPV (in/sec)[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration		
R1	701'	0.00	0.00	0.00	0.00	0.00	0.20	No
R2	361'	0.00	0.00	0.00	0.00	0.00	0.20	No
R3	71'	0.00	0.01	0.02	0.02	0.02	0.20	No
R4	32'	0.00	0.02	0.05	0.06	0.06	0.20	No
R5	404'	0.00	0.00	0.00	0.00	0.00	0.20	No
R6	313'	0.00	0.00	0.00	0.00	0.00	0.20	No
R7	576'	0.00	0.00	0.00	0.00	0.00	0.20	No

[1] Receiver locations are shown on Exhibit 8-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 8-4.
[3] County of San Bernardino Development Code, Section 83.01.090(a) (Appendix 3.1)
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

9 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
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.
5. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
6. **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.
7. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
8. **Office of Planning and Research.** *State of California General Plan Guidlines.* 2017.
9. **County of San Bernardino.** *General Plan Noise Element.* April 2007.
10. —. *Code of Ordinances, Title 8 Development Code, Chapter 83.01 General Performance Standards.*
11. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
12. **State of California.** *California Environmental Quality Act, Environmental Checklist Form Appendix G.* 2019.
13. **California Court of Appeal.** *King and Gardiner Farms, LLC v. County of Kern (2020) .* 45 Cal.App.5th 814, 893,
14. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
15. **City of Murrieta.** *General Plan Noise Element.* July 2011.
16. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
17. —. *Traffic Noise Analysis Protocol.* May 2011.
18. **Loescher Meachem Architects.** *Pioneertown Motel Site Plan.* 2020.
19. **County of San Bernardino.** *Transportation & Mobility Element.* May 2019.

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10 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the 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 (619) 788-1971.

William Maddux, INCE
Senior Associate
URBAN CROSSROADS, INC.

(619) 788-1971
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EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
INCE – Institute of Noise Control Engineers

PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
FHWA Traffic Noise Model of Training • November 2004
CadnaA Basic and Advanced Training Certificate • October 2008

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APPENDIX 3.1:

COUNTY OF RIVERSIDE DEVELOPMENT CODE

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Chapter 9.52 - NOISE REGULATION

Sections:

9.52.010 - Intent.

At certain levels, sound becomes noise and may jeopardize the health, safety or general welfare of Riverside County residents and degrade their quality of life. Pursuant to its police power, the board of supervisors declares that noise shall be regulated in the manner described in this chapter. This chapter is intended to establish county-wide standards regulating noise. This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act and no such thresholds are established.

(Ord. 847 § 1, 2006)

9.52.020 - Exemptions.

Sound emanating from the following sources is exempt from the provisions of this chapter:

A. Facilities owned or operated by or for a governmental agency;

B. Capital improvement projects of a governmental agency;

C. The maintenance or repair of public properties;

D. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile;

E. Public or private schools and school-sponsored activities;

F. Agricultural operations on land designated "Agriculture" in the Riverside County general plan, or land zoned A-l (light agriculture), A-P (light agriculture with poultry), A-2 (heavy agriculture), A-D (agriculture-dairy) or C/V (citrus/vineyard), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile;

G. Wind energy conversion systems (WECS), provided such systems comply with the WECS noise provisions of Riverside County Ordinance No. 348;

H. Private construction projects located one-quarter of a mile or more from an inhabited dwelling;

I. Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that:

1. Construction does not occur between the hours of six p.m. and six a.m. during the months of June through September, and
2. Construction does not occur between the hours of six p.m. and seven a.m. during the months of October through May;

J. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of seven a.m. and eight p.m.;

K. Motor vehicles, other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems;

L. Heating and air conditioning equipment;

M. Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety, and welfare;

N. The discharge of firearms consistent with all state laws.

(Ord. 847 § 2, 2006)

9.52.030 - Definitions.

As used in this chapter, the following terms shall have the following meanings:

"Audio equipment" means a television, stereo, radio, tape player, compact disc player, mp3 player, I-POD or other similar device.

"Decibel (dB)" means a unit for measuring the relative amplitude of a sound equal approximately to the smallest difference normally detectable by the human ear, the range of which includes approximately one hundred thirty (130) decibels on a scale beginning with zero decibels for the faintest detectable sound. Decibels are measured with a sound level meter using different methodologies as defined below:

1. "A-weighting (dBA)" means the standard A-weighted frequency response of a sound level meter, which de-emphasizes low and high frequencies of sound in a manner similar to the human ear for moderate sounds.
2. "Maximum sound level (L_{max})" means the maximum sound level measured on a sound level meter.

"Governmental agency" means the United States, the state of California, Riverside County, any city within Riverside County, any special district within Riverside County or any combination of these agencies.

"Land use permit" means a discretionary permit issued by Riverside County pursuant to Riverside County Ordinance No. 348.

"Motor vehicle" means a vehicle that is self-propelled.

"Motor vehicle sound system" means a stereo, radio, tape player, compact disc player, mp3 player, I-POD or other similar device.

"Noise" means any loud, discordant or disagreeable sound.

"Occupied property" means property upon which is located a residence, business or industrial or manufacturing use.

"Off-highway vehicle" means a motor vehicle designed to travel over any terrain.

"Public or private school" means an institution conducting academic instruction at the preschool, elementary school, junior high school, high school, or college level.

"Public property" means property owned by a governmental agency or held open to the public, including, but not limited to, parks, streets, sidewalks, and alleys.

"Sensitive receptor" means a land use that is identified as sensitive to noise in the noise element of the Riverside County general plan, including, but not limited to, residences, schools, hospitals, churches, rest homes, cemeteries or public libraries.

"Sound-amplifying equipment" means a loudspeaker, microphone, megaphone or other similar device.

"Sound level meter" means an instrument meeting the standards of the American National Standards Institute for Type 1 or Type 2 sound level meters or an instrument that provides equivalent data.

(Ord. 847 § 3, 2006)

9.52.040 - General sound level standards.

No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 1.

TABLE 1

Sound Level Standards (Db L_{max})

GENERAL PLAN FOUNDATION COMPONENT	GENERAL PLAN LAND USE DESIGNATION	GENERAL PLAN LAND USE DESIGNATION NAME	DENSITY	MAXIMUM DECIBEL LEVEL

				7 am—10 pm	10 pm—7 am
Community Development	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
	MDR	Medium Density Residential	2—5	55	45
	MHDR	Medium High Density Residential	5—8	55	45
	HDR	High Density Residential	8—14	55	45
	VHDR	Very High Density Residential	14—20	55	45
	H'TDR	Highest Density Residential	20+	55	45
	CR	Retail Commercial		65	55

	CO	Office Commercial		65	55
	CT	Tourist Commercial		65	55
	CC	Community Center		65	55
	LI	Light Industrial		75	55
	HI	Heavy Industrial		75	75
	BP	Business Park		65	45
	PF	Public Facility		65	45
	SP	Specific Plan-Residential		55	45
		Specific Plan-Commercial		65	55
		Specific Plan-Light Industrial		75	55
		Specific Plan-Heavy Industrial		75	75
Rural Community	EDR	Estate Density Residential	2 AC	55	45

	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
Rural	RR	Rural Residential	5 AC	45	45
	RM	Rural Mountainous	10 AC	45	45
	RD	Rural Desert	10 AC	45	45
Agriculture	AG	Agriculture	10 AC	45	45
Open Space	C	Conservation		45	45
	CH	Conservation Habitat		45	45
	REC	Recreation		45	45
	RUR	Rural	20 AC	45	45
	W	Watershed		45	45
	MR	Mineral Resources		75	45

(Ord. 847 § 4, 2006)

9.52.050 - Sound level measurement methodology.

Sound level measurements may be made anywhere within the boundaries of an occupied property. The actual location of a sound level measurement shall be at the discretion of the enforcement officials identified in Section 9.52.080 of this chapter. Sound level measurements shall be made with a sound level meter. Immediately before a measurement is made, the sound level meter shall be calibrated utilizing an acoustical calibrator meeting the standards of the American National Standards Institute. Following a sound level measurement, the calibration of the sound level meter shall be re-verified. Sound level meters and calibration equipment shall be certified annually.

(Ord. 847 § 5, 2006)

9.52.060 - Special sound sources standards.

The general sound level standards set forth in Section 9.52.040 of this chapter apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards, the failure to comply with which constitutes separate violations of this chapter:

A. Motor Vehicles.
    1. Off-Highway Vehicles.
        a. No person shall operate an off-highway vehicle unless it is equipped with a USDA-qualified spark arrester and a constantly operating and properly maintained muffler. A muffler is not considered constantly operating and properly maintained if it is equipped with a cutout, bypass or similar device.
        b. No person shall operate an off-highway vehicle unless the noise emitted by the vehicle is not more than ninety-six (96) dBA if the vehicle was manufactured on or after January 1, 1986 or is not more than one hundred one (101) dBA if the vehicle was manufactured before January 1, 1986. For purposes of this subsection, emitted noise shall be measured a distance of twenty (20) inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.
    2. Sound Systems. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of ten p.m. and eight a.m., such that the sound system is audible to the human ear inside any inhabited dwelling. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, at any other time such that the sound system is audible to the human ear at a distance greater than one hundred (100) feet from the vehicle.

B. Power Tools and Equipment. No person shall operate any power tools or equipment between the hours of ten p.m. and eight a.m. such that the power tools or equipment

are audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than one hundred (100) feet from the power tools or equipment.

C. Audio Equipment. No person shall operate any audio equipment, whether portable or not, between the hours of ten p.m. and eight a.m. such that the equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the equipment may be located. No person shall operate any audio equipment, whether portable or not, at any other time such that the equipment is audible to the human ear at a distance greater than one hundred (100) feet from the equipment.

D. Sound-Amplifying Equipment and Live Music. No person shall install, use or operate sound-amplifying equipment, or perform, or allow to be performed, live music unless such activities comply with the following requirements. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control:

1. Sound-amplifying equipment or live music is prohibited between the hours of ten p.m. and eight a.m.
2. Sound emanating from sound-amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than two hundred (200) feet from the equipment or music.

(Ord. 847 § 6, 2006)

9.52.070 - Exceptions.

Exceptions may be requested from the standards set forth in Section 9.52.040 or 9.52.060 of this chapter and may be characterized as construction-related, single-event or continuous-events exceptions.

A. Application and Processing.

1. Construction-Related Exceptions. An application for a construction-related exception shall be made to and considered by the director of building and safety on forms provided by the building and safety department and shall be accompanied by the appropriate filing fee. No public hearing is required.
2. Single-Event Exceptions. An application for a single-event exception shall be made to and considered by the planning director on forms provided by the planning department and shall be accompanied by the appropriate filing fee. No public hearing is required.
3. Continuous-Events Exceptions. An application for a continuous-events exception

shall be made to the planning director on forms provided by the planning department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous-events exception, the planning director shall set the matter for public hearing before the planning commission, notice of which shall be given as provided in Section 18.26c of Riverside County Ordinance No. 348. Notwithstanding the above, an application for a continuous-events exception that is associated with an application for a land use permit shall be processed concurrently with the land use permit in the same manner that the land use permit is required to be processed.

B. Requirements for Approval. The appropriate decisionmaking body or officer shall not approve an exception application unless the applicant demonstrates that the activities described in the application would not be detrimental to the health, safety or general welfare of the community. In determining whether activities are detrimental to the health, safety or general welfare of the community, the appropriate decisionmaking body or officer shall consider such factors as the proposed duration of the activities and their location in relation to sensitive receptors. If an exception application is approved, reasonable conditions may be imposed to minimize the public detriment, including, but not limited to, restrictions on sound level, sound duration and operating hours.

C. Appeals. The director of building and safety's decision on an application for a construction-related exception is considered final. The planning director's decision on an application for a single-event exception is considered final. After making a decision on an application for a continuous-events exception, the appropriate decisionmaking body or officer shall mail notice of the decision to the applicant. Within ten (10) calendar days after the mailing of such notice, the applicant or an interested person may appeal the decision to the board of supervisors. Upon receipt of an appeal and payment of the appropriate appeal fee, the clerk of the board shall set the matter for hearing not less than five days nor more than thirty (30) days thereafter and shall give written notice of the hearing in the same manner as notice of the hearing was given by the appropriate hearing officer or body. The board of supervisors shall render its decision within thirty (30) days after the appeal hearing is closed.

D. Effect of a Pending Continuous-Events Exception Application. For a period of one hundred eighty (180) days from the effective date of this chapter, no person creating any sound prohibited by this chapter shall be considered in violation of this chapter if the sound is related to a use that is operating pursuant to an approved land use permit, if an application for a continuous-events exception has been filed to sanction the sound and if a decision on the application is pending.

(Ord. 847 § 7, 2006)

9.52.080 - Enforcement.

The Riverside County sheriff and code enforcement shall have the primary responsibility for enforcing this chapter; provided, however, the sheriff and code enforcement may be assisted by the public health department. Violations shall be prosecuted as described in Section 9.52.100 of this chapter, but nothing in this chapter shall prevent the sheriff, code enforcement or the department of public health from engaging in efforts to obtain voluntary compliance by means of warnings, notices, or educational programs.

(Ord. 847.1 § 1, 2007: Ord. 847 § 8, 2006)

9.52.090 - Duty to cooperate.

No person shall refuse to cooperate with, or obstruct, the enforcement officials identified in Section 9.52.080 of this chapter when they are engaged in the process of enforcing the provisions of this chapter. This duty to cooperate may require a person to extinguish a sound source so that it can be determined whether sound emanating from the source violates the provisions of this chapter.

(Ord. 847 § 9, 2006)

9.52.100 - Violations and penalties.

Any person who violates any provision of this chapter once or twice within a one hundred eighty (180) day period shall be guilty of an infraction. Any person who violates any provision of this chapter more than twice within a one hundred eighty (180) day period shall be guilty of a misdemeanor. Each day a violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. Penalties shall not exceed the following amounts:

A. For the first violation within a one hundred eighty (180) day period, the minimum mandatory fine shall be five hundred dollars ($500.00).
B. For the second violation within a one hundred eighty (180) day period, the minimum mandatory fine shall be seven hundred fifty dollars ($750.00).
C. For any further violations within a one hundred eighty (180) day period, the minimum mandatory fine shall be one thousand dollars ($1,000.00) or imprisonment in the county jail for a period not exceeding six months, or both.

(Ord. 847 § 10, 2006)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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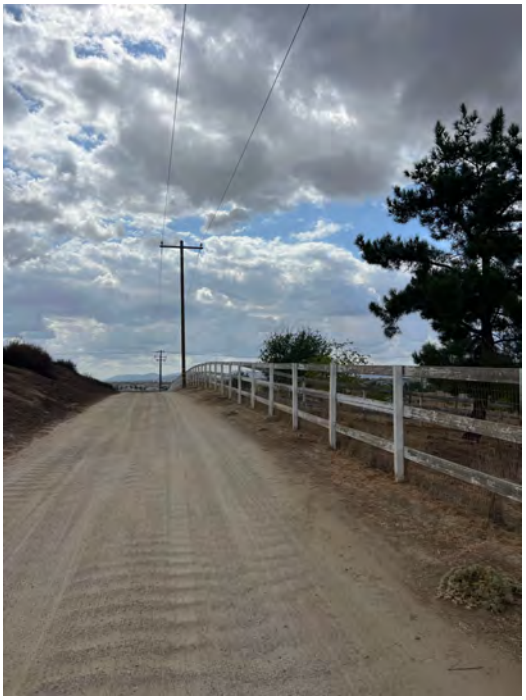
16189 - French Valley

16189_L1_A 1.North
33, 37' 42.810000",117, 6' 44.430000"

16189_L1_A 2.South
33, 37' 42.620000",117, 6' 44.460000"



16189_L1_A 3.East
33, 37' 42.590000",117, 6' 44.380000"

16189_L1_A 4.West
33, 37' 42.610000",117, 6' 44.430000"

16189 - French Valley

16189_L2_B 1.North
33, 37' 32.180000",117, 6' 36.060000"

16189_L2_B 2.South
33, 37' 32.170000",117, 6' 36.190000"

16189_L2_B 3.East
33, 37' 32.170000",117, 6' 36.030000"

16189_L2_B 4.West
33, 37' 32.180000",117, 6' 36.030000"

16189 - French Valley

16189_L3_C 1.North
33, 37' 18.220000",117, 6' 36.030000"

16189_L3_C 2.South
33, 37' 18.110000",117, 6' 36.000000"

16189_L3_C 3.East
33, 37' 18.230000",117, 6' 36.000000"

16189_L3_C 4.West
33, 37' 18.300000",117, 6' 35.920000"

16189 - French Valley

16189_L4_E 1.North
33, 37' 21.470000",117, 6' 51.820000"

16189_L4_E 2.South
33, 37' 21.380000",117, 6' 51.800000"

16189_L4_E 3.East
33, 37' 21.400000",117, 6' 51.710000"

16189_L4_E 4.West
33, 37' 21.510000",117, 6' 51.850000"

16189 - French Valley

16189_L5_G 1.North
33, 37' 31.650000",117, 6' 51.900000"

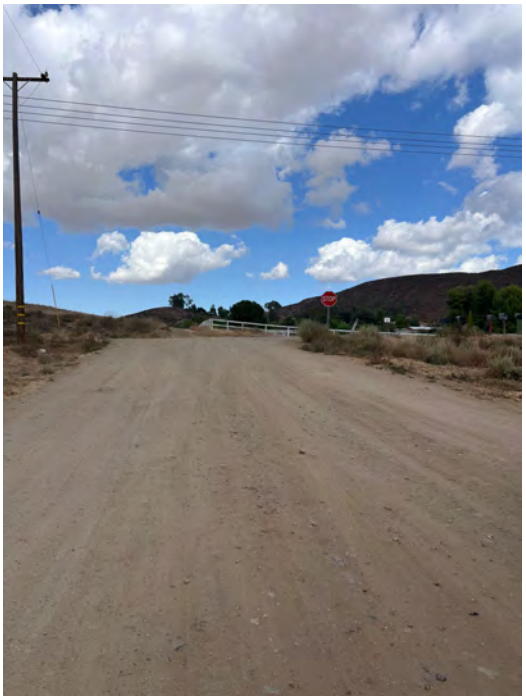
16189_L5_G 2.South
33, 37' 31.440000",117, 6' 51.990000"

16189_L5_G 3.East
33, 37' 31.430000",117, 6' 51.960000"

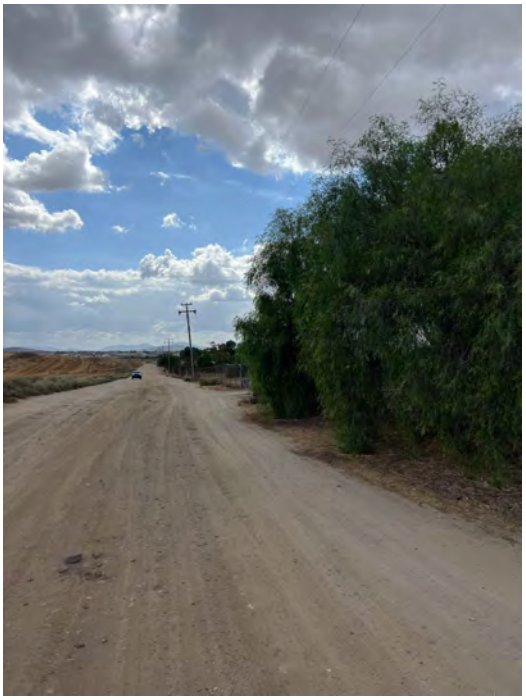
16189_L5_G 4.West
33, 37' 31.460000",117, 6' 51.990000"

16189 - French Valley

16189_L6_H 1.North
33, 37' 36.260000",117, 6' 52.150000"



16189_L6_H 2.South
33, 37' 36.230000",117, 6' 52.180000"



16189_L6_H 3.East
33, 37' 36.180000",117, 6' 51.990000"

16189_L6_H 4.West
33, 37' 36.210000",117, 6' 52.010000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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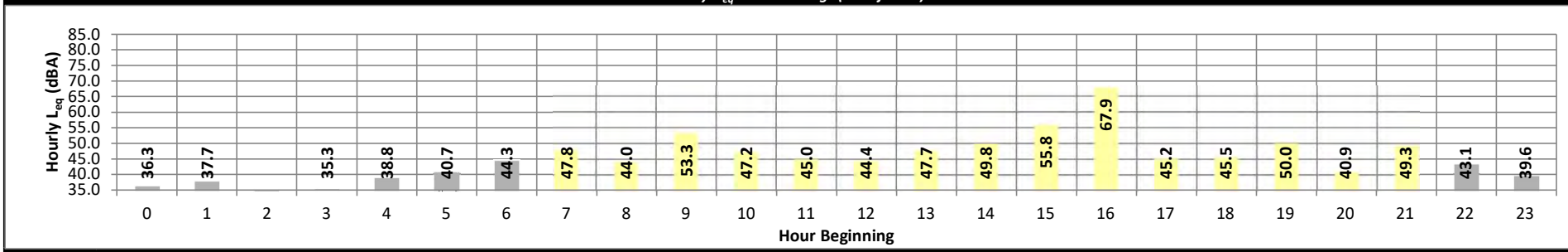
24-Hour Noise Level Measurement Summary

Date: Wednesday, October 30, 2024 *Location:* L1 - Located north of the site near the residence at 31362 *Meter:* Piccolo II *JN:* 16189

Project: French Valley *Source:* Keller 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	36.3	44.2	32.6	42.5	41.5	40.0	39.1	37.0	35.0	33.2	33.0	32.7	36.3	10.0	46.3
	1	37.7	48.4	31.2	47.6	46.8	44.8	43.5	35.7	33.0	31.7	31.5	31.3	37.7	10.0	47.7
	2	34.8	42.4	31.8	41.5	40.6	38.7	37.7	34.9	33.4	32.1	32.0	31.8	34.8	10.0	44.8
	3	35.3	40.6	32.7	40.2	39.8	38.8	37.9	35.6	34.6	33.2	33.0	32.8	35.3	10.0	45.3
	4	38.8	44.2	35.0	43.7	43.2	42.1	41.5	39.5	37.9	35.9	35.6	35.1	38.8	10.0	48.8
	5	40.7	45.2	37.7	44.9	44.5	43.6	43.1	41.3	40.1	38.3	38.0	37.7	40.7	10.0	50.7
	6	44.3	47.3	42.0	47.1	46.8	46.2	45.9	44.8	43.9	42.6	42.4	42.1	44.3	10.0	54.3
Day	7	47.8	54.3	44.7	53.5	52.8	51.1	50.1	48.2	47.0	45.5	45.2	44.8	47.8	0.0	47.8
	8	44.0	52.1	40.4	51.4	50.5	48.1	46.8	44.1	42.6	41.0	40.8	40.6	44.0	0.0	44.0
	9	53.3	62.5	40.4	61.8	61.1	59.9	59.1	53.7	48.8	43.0	42.1	40.8	53.3	0.0	53.3
	10	47.2	56.6	38.5	55.7	54.8	53.3	52.2	47.5	43.7	39.6	39.2	38.7	47.2	0.0	47.2
	11	45.0	51.6	39.3	51.2	50.4	49.4	49.0	45.8	43.1	40.6	40.0	39.5	45.0	0.0	45.0
	12	44.4	52.0	38.5	51.2	50.4	49.0	48.3	45.5	42.6	39.3	39.0	38.6	44.4	0.0	44.4
	13	47.7	55.9	41.4	55.0	54.6	53.5	52.5	47.5	45.1	42.3	41.9	41.5	47.7	0.0	47.7
	14	49.8	58.4	42.8	57.2	56.5	55.3	54.4	50.3	47.7	44.0	43.6	43.0	49.8	0.0	49.8
	15	55.8	67.5	42.4	66.3	65.2	62.1	60.1	55.3	51.8	46.1	44.7	43.0	55.8	0.0	55.8
	16	67.9	80.3	43.8	78.8	77.5	75.0	73.5	66.7	60.2	50.0	47.8	44.7	67.9	0.0	67.9
	17	45.2	55.6	38.6	54.3	53.1	50.5	48.9	45.1	42.8	40.0	39.5	38.9	45.2	0.0	45.2
	18	45.5	57.4	38.2	56.2	54.3	51.1	49.3	44.5	42.0	39.3	38.9	38.4	45.5	0.0	45.5
	19	50.0	60.3	42.0	59.0	57.7	55.5	54.2	50.4	47.0	43.5	43.0	42.3	50.0	5.0	55.0
	20	40.9	46.1	38.8	45.6	44.9	43.6	42.6	41.2	40.2	39.3	39.1	38.9	40.9	5.0	45.9
	21	49.3	61.2	42.7	60.3	59.3	56.2	52.8	47.7	43.7	43.0	42.9	42.8	49.3	5.0	54.3
Night	22	43.1	44.7	42.2	44.4	44.2	43.9	43.7	43.3	43.0	42.5	42.4	42.3	43.1	10.0	53.1
	23	39.6	43.4	37.2	43.1	42.7	42.0	41.5	40.1	39.1	37.7	37.5	37.3	39.6	10.0	49.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	40.9	46.1	38.2	45.6	44.9	43.6	42.6	41.2	40.2	39.3	38.9	38.4
	Max	67.9	80.3	44.7	78.8	77.5	75.0	73.5	66.7	60.2	50.0	47.8	44.8
Energy Average		56.9	Average:		57.2	56.2	54.2	52.9	48.9	45.9	42.4	41.8	41.1
Night	Min	34.8	40.6	31.2	40.2	39.8	38.7	37.7	34.9	33.0	31.7	31.5	31.3
	Max	44.3	48.4	42.2	47.6	46.8	46.2	45.9	44.8	43.9	42.6	42.4	42.3
Energy Average		40.1	Average:		43.9	43.3	42.2	41.5	39.1	37.8	36.4	36.2	35.9

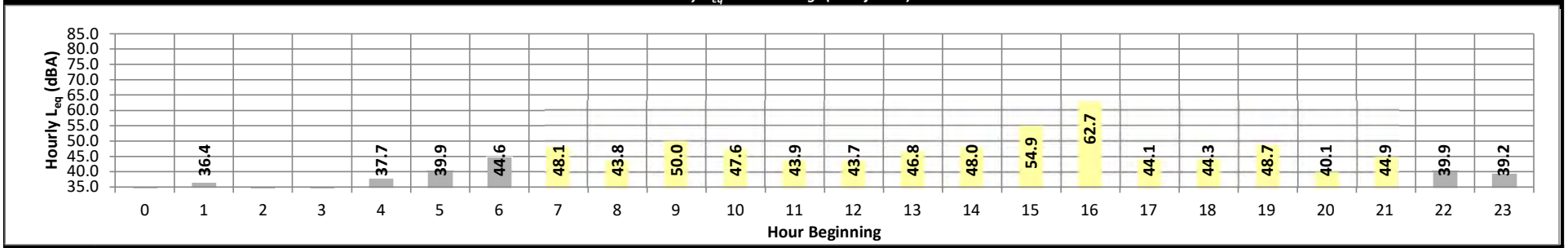
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
55.6	**56.9**	**40.1**

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 30, 2024 *Location:* L2 - Located east of the site near the residence at 34118 Elliot *Meter:* Piccolo II *JN:* 16189

Project: French Valley *Source:* 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	34.7	40.3	31.6	39.4	38.5	37.6	37.1	35.4	34.0	32.2	31.9	31.6	34.7	10.0	44.7
	1	36.4	45.5	30.1	44.8	44.3	42.9	41.4	36.2	31.9	30.5	30.3	30.1	36.4	10.0	46.4
	2	32.9	37.6	30.6	37.1	36.6	35.7	35.2	33.3	32.1	31.0	30.8	30.6	32.9	10.0	42.9
	3	34.1	38.0	31.7	37.6	37.3	36.6	36.1	34.5	33.6	32.3	32.0	31.8	34.1	10.0	44.1
	4	37.7	43.8	34.3	42.8	41.8	40.6	40.0	38.4	37.0	35.2	34.8	34.5	37.7	10.0	47.7
	5	39.9	43.9	36.9	43.7	43.3	42.6	42.1	40.6	39.4	37.6	37.3	37.0	39.9	10.0	49.9
	6	44.6	49.8	42.3	49.2	48.7	47.4	46.5	44.9	44.1	42.9	42.6	42.4	44.6	10.0	54.6
Day	7	48.1	54.8	45.0	54.0	53.3	51.7	50.6	48.4	47.1	45.7	45.4	45.1	48.1	0.0	48.1
	8	43.8	52.1	40.4	51.3	50.4	48.3	46.9	43.5	42.2	40.8	40.7	40.4	43.8	0.0	43.8
	9	50.0	60.3	37.7	59.4	58.7	56.8	55.7	49.7	45.5	40.1	39.2	38.0	50.0	0.0	50.0
	10	47.6	56.9	38.1	55.9	55.1	53.8	52.9	48.2	43.0	38.9	38.6	38.2	47.6	0.0	47.6
	11	43.9	49.8	39.4	49.1	48.5	47.4	46.9	44.3	42.7	40.7	40.1	39.5	43.9	0.0	43.9
	12	43.7	51.0	37.6	50.1	49.3	47.9	47.2	44.8	42.4	38.5	38.1	37.7	43.7	0.0	43.7
	13	46.8	56.7	39.3	55.6	55.2	54.0	51.9	45.8	43.1	40.2	39.9	39.4	46.8	0.0	46.8
	14	48.0	57.7	39.3	57.0	56.6	55.5	53.6	46.8	44.6	40.8	40.2	39.6	48.0	0.0	48.0
	15	54.9	66.3	40.3	65.2	64.3	61.3	59.2	54.5	50.6	44.3	42.8	40.9	54.9	0.0	54.9
	16	62.7	75.7	41.9	74.3	72.9	69.4	67.4	61.3	56.1	47.4	45.4	42.7	62.7	0.0	62.7
	17	44.1	54.7	37.5	53.4	52.3	49.7	48.3	43.6	41.3	38.9	38.4	37.8	44.1	0.0	44.1
	18	44.3	54.8	38.1	53.8	52.4	49.1	47.8	44.1	41.8	39.1	38.7	38.2	44.3	0.0	44.3
	19	48.7	56.9	42.7	56.0	55.1	53.7	52.7	49.2	46.6	43.9	43.5	42.9	48.7	5.0	53.7
	20	40.1	45.2	37.7	44.7	44.2	42.9	42.2	40.6	39.4	38.2	38.0	37.8	40.1	5.0	45.1
	21	44.9	54.9	41.0	54.1	53.2	50.4	47.8	44.0	42.2	41.4	41.3	41.1	44.9	5.0	49.9
Night	22	39.9	43.0	38.4	42.6	42.2	41.3	41.0	40.2	39.6	38.8	38.7	38.5	39.9	10.0	49.9
	23	39.2	43.3	37.1	42.9	42.4	41.4	40.9	39.6	38.7	37.6	37.5	37.2	39.2	10.0	49.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	40.1	45.2	37.5	44.7	44.2	42.9	42.2	40.6	39.4	38.2	38.0	37.7
	Max	62.7	75.7	45.0	74.3	72.9	69.4	67.4	61.3	56.1	47.4	45.4	45.1
Energy Average		52.6	Average:		55.6	54.8	52.8	51.4	47.3	44.6	41.3	40.7	40.0
Night	Min	32.9	37.6	30.1	37.1	36.6	35.7	35.2	33.3	31.9	30.5	30.3	30.1
	Max	44.6	49.8	42.3	49.2	48.7	47.4	46.5	44.9	44.1	42.9	42.6	42.4
Energy Average		39.2	Average:		42.2	41.7	40.7	40.0	38.1	36.7	35.3	35.1	34.8

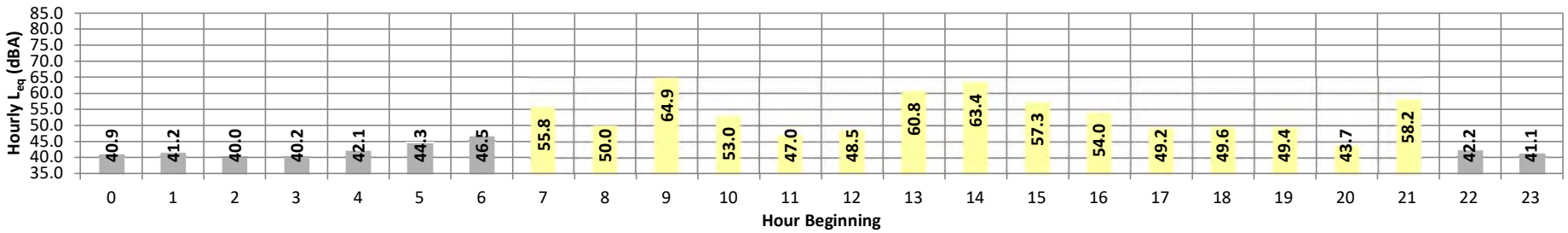
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
51.9	**52.6**	**39.2**

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 30, 2024 *Location:* L3 - Located southeast of the site near the school at 31600 Pat *Meter:* Piccolo II *JN:* 16189

Project: French Valley *Source:* 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	40.9	47.8	39.0	46.7	44.8	43.2	42.5	41.0	40.2	39.2	39.1	38.9	40.9	10.0	50.9
	1	41.2	50.5	38.4	49.1	47.8	45.5	43.9	40.6	39.2	38.6	38.5	38.3	41.2	10.0	51.2
	2	40.0	44.4	38.5	44.0	43.5	42.6	42.0	40.0	39.2	38.6	38.5	38.4	40.0	10.0	50.0
	3	40.2	42.6	38.9	42.3	42.1	41.5	41.2	40.4	39.8	39.1	39.0	38.9	40.2	10.0	50.2
	4	42.1	45.1	40.2	44.9	44.6	43.9	43.6	42.5	41.7	40.6	40.4	40.2	42.1	10.0	52.1
	5	44.3	48.0	42.2	47.7	47.4	46.5	46.1	44.8	43.9	42.6	42.4	42.2	44.3	10.0	54.3
	6	46.5	49.0	44.6	48.8	48.6	48.1	47.9	47.0	46.2	45.1	44.9	44.6	46.5	10.0	56.5
Day	7	55.8	70.2	47.5	68.5	66.3	60.2	56.8	53.5	51.4	48.3	47.9	47.5	55.8	0.0	55.8
	8	50.0	60.0	45.2	58.8	57.8	55.5	53.5	49.6	47.6	45.8	45.5	45.3	50.0	0.0	50.0
	9	64.9	73.0	48.2	72.5	72.1	71.4	70.9	65.4	60.2	52.3	50.9	48.7	64.9	0.0	64.9
	10	53.0	65.3	42.9	63.6	61.7	59.5	57.7	52.2	48.5	44.0	43.6	43.1	53.0	0.0	53.0
	11	47.0	53.1	42.6	52.4	51.7	50.3	49.6	47.9	46.3	43.6	43.2	42.6	47.0	0.0	47.0
	12	48.5	57.9	42.1	57.1	56.0	54.0	52.6	48.6	45.9	43.0	42.6	42.1	48.5	0.0	48.5
	13	60.8	71.4	46.1	70.8	69.9	68.5	67.8	55.8	52.7	47.2	46.6	46.2	60.8	0.0	60.8
	14	63.4	74.1	49.3	72.9	72.1	71.0	69.6	62.7	59.2	52.1	50.6	49.6	63.4	0.0	63.4
	15	57.3	69.0	45.5	67.9	66.7	64.6	62.3	56.2	52.8	48.1	47.1	45.9	57.3	0.0	57.3
	16	54.0	64.8	42.6	63.7	62.4	59.8	58.3	54.0	50.7	45.2	44.2	42.9	54.0	0.0	54.0
	17	49.2	61.8	40.7	60.5	59.0	55.2	53.2	48.1	44.3	41.5	41.2	40.8	49.2	0.0	49.2
	18	49.6	63.2	40.2	62.1	60.5	56.3	53.9	45.3	42.7	40.6	40.4	40.2	49.6	0.0	49.6
	19	49.4	60.7	42.0	59.2	58.0	54.8	53.6	49.3	45.9	43.0	42.6	42.0	49.4	5.0	54.4
	20	43.7	51.5	41.1	51.0	50.3	47.6	45.9	43.5	42.3	41.4	41.2	41.1	43.7	5.0	48.7
	21	58.2	72.8	41.8	71.5	70.4	65.0	62.2	53.2	45.1	42.1	41.9	41.8	58.2	5.0	63.2
Night	22	42.2	45.7	40.5	45.3	45.0	44.1	43.6	42.5	41.7	40.8	40.6	40.5	42.2	10.0	52.2
	23	41.1	45.0	39.5	44.5	44.0	43.0	42.5	41.4	40.6	39.7	39.5	39.4	41.1	10.0	51.1

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	43.7	51.5	40.2	51.0	50.3	47.6	45.9	43.5	42.3	40.6	40.4	40.2
	Max	64.9	74.1	49.3	72.9	72.1	71.4	70.9	65.4	60.2	52.3	50.9	49.6
Energy Average		57.8	Average:		63.5	62.3	59.6	57.9	52.4	49.0	45.2	44.6	44.0
Night	Min	40.0	42.6	38.4	42.3	42.1	41.5	41.2	40.0	39.2	38.6	38.5	38.3
	Max	46.5	50.5	44.6	49.1	48.6	48.1	47.9	47.0	46.2	45.1	44.9	44.6
Energy Average		42.6	Average:		45.9	45.3	44.3	43.7	42.2	41.4	40.5	40.3	40.2

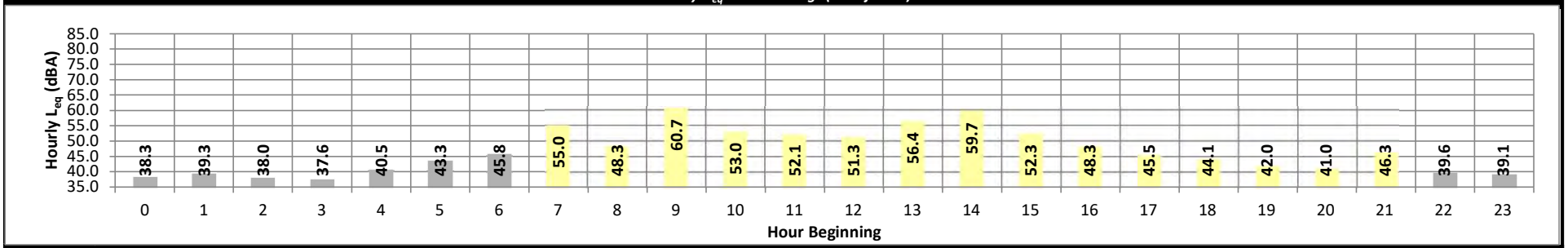
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
57.1	**57.8**	**42.6**

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 30, 2024 *Location:* L4 - Located southwest of the site near the residence at 31492 *Meter:* Piccolo II *JN:* 16189

Project: French Valley *Source:* Flossie Way *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	38.3	43.3	35.2	43.0	42.6	41.6	40.9	38.9	37.6	35.9	35.6	35.3	38.3	10.0	48.3
	1	39.3	47.8	34.6	47.3	47.0	45.2	43.5	38.8	36.6	35.1	34.9	34.7	39.3	10.0	49.3
	2	38.0	44.7	34.9	44.3	43.7	42.3	41.5	37.9	36.6	35.4	35.2	35.0	38.0	10.0	48.0
	3	37.6	41.3	35.5	41.0	40.6	39.9	39.4	38.1	37.2	36.0	35.8	35.6	37.6	10.0	47.6
	4	40.5	44.5	37.8	44.2	43.9	43.1	42.6	41.1	40.1	38.6	38.3	37.9	40.5	10.0	50.5
	5	43.3	47.6	40.4	47.3	46.9	46.0	45.5	44.0	42.8	41.1	40.8	40.5	43.3	10.0	53.3
	6	45.8	48.4	43.8	48.1	47.9	47.5	47.2	46.3	45.6	44.4	44.1	43.9	45.8	10.0	55.8
Day	7	55.0	68.6	47.0	66.7	64.6	59.3	57.4	53.9	51.2	48.0	47.6	47.2	55.0	0.0	55.0
	8	48.3	57.7	42.5	57.0	56.2	54.3	52.8	47.9	45.7	43.2	43.0	42.6	48.3	0.0	48.3
	9	60.7	69.1	47.8	68.0	67.0	65.7	65.0	62.2	58.8	51.6	50.7	48.5	60.7	0.0	60.7
	10	53.0	62.5	44.7	61.3	60.4	58.4	57.3	53.9	50.1	46.1	45.6	44.9	53.0	0.0	53.0
	11	52.1	60.8	45.2	59.7	58.8	56.9	55.8	52.6	49.9	46.7	46.1	45.3	52.1	0.0	52.1
	12	51.3	61.4	43.3	60.1	58.9	56.4	55.3	51.4	48.9	44.9	44.4	43.6	51.3	0.0	51.3
	13	56.4	66.6	45.5	65.6	64.8	63.0	61.8	56.2	51.3	47.0	46.4	45.7	56.4	0.0	56.4
	14	59.7	68.5	47.0	67.8	67.1	65.7	64.4	60.5	57.4	50.4	49.6	48.2	59.7	0.0	59.7
	15	52.3	62.9	43.3	61.6	60.3	57.9	56.4	52.5	49.3	45.2	44.4	43.6	52.3	0.0	52.3
	16	48.3	59.4	38.7	58.3	56.7	53.7	52.1	48.2	45.2	41.1	40.1	39.1	48.3	0.0	48.3
	17	45.5	56.0	37.8	54.8	53.5	51.1	49.5	45.6	42.5	38.8	38.4	37.9	45.5	0.0	45.5
	18	44.1	53.7	37.0	52.5	51.1	49.3	48.3	44.8	41.6	37.7	37.5	37.1	44.1	0.0	44.1
	19	42.0	48.4	38.8	47.6	46.6	44.9	44.3	42.7	41.1	39.4	39.1	38.9	42.0	5.0	47.0
	20	41.0	48.1	38.2	47.6	47.0	44.8	43.4	41.1	39.8	38.7	38.5	38.3	41.0	5.0	46.0
	21	46.3	57.0	38.8	56.3	55.7	53.1	51.0	44.5	41.5	39.3	39.1	38.9	46.3	5.0	51.3
Night	22	39.6	43.9	37.5	43.4	42.9	41.9	41.4	40.2	39.2	38.0	37.8	37.5	39.6	10.0	49.6
	23	39.1	42.8	36.8	42.6	42.3	41.6	41.0	39.7	38.6	37.3	37.1	36.9	39.1	10.0	49.1

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	41.0	48.1	37.0	47.6	46.6	44.8	43.4	41.1	39.8	37.7	37.5	37.1
	Max	60.7	69.1	47.8	68.0	67.1	65.7	65.0	62.2	58.8	51.6	50.7	48.5
Energy Average		54.0	Average:		59.0	57.9	55.6	54.3	50.5	47.6	43.9	43.4	42.7
Night	Min	37.6	41.3	34.6	41.0	40.6	39.9	39.4	37.9	36.6	35.1	34.9	34.7
	Max	45.8	48.4	43.8	48.1	47.9	47.5	47.2	46.3	45.6	44.4	44.1	43.9
Energy Average		41.1	Average:		44.6	44.2	43.2	42.6	40.6	39.4	38.0	37.7	37.5

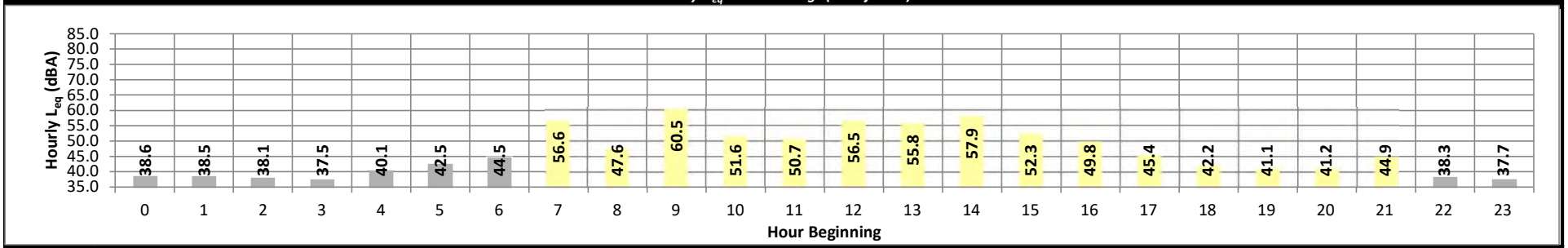
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
53.3	**54.0**	**41.1**

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 30, 2024 *Location:* L5 - Located west of the site near the residence at 34203 *Meter:* Piccolo II *JN:* 16189

Project: French Valley *Source:* Kooden 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	38.6	43.6	35.6	43.3	42.9	42.0	41.2	39.0	37.8	36.3	36.0	35.7	38.6	10.0	48.6
	1	38.5	46.8	34.2	46.2	45.4	43.4	42.1	38.4	36.5	34.9	34.6	34.4	38.5	10.0	48.5
	2	38.1	44.9	34.8	44.4	43.6	42.3	41.5	37.9	36.7	35.4	35.2	35.0	38.1	10.0	48.1
	3	37.5	41.0	35.3	40.7	40.4	39.7	39.3	38.0	37.2	36.0	35.7	35.4	37.5	10.0	47.5
	4	40.1	43.9	37.5	43.6	43.3	42.5	42.1	40.8	39.7	38.2	37.9	37.6	40.1	10.0	50.1
	5	42.5	46.6	39.9	46.3	46.0	45.2	44.7	43.1	41.9	40.5	40.2	39.9	42.5	10.0	52.5
	6	44.5	47.7	42.2	47.5	47.2	46.7	46.3	45.1	44.1	42.8	42.5	42.3	44.5	10.0	54.5
Day	7	56.6	71.1	46.1	69.2	67.0	61.0	58.9	54.3	52.0	47.5	46.9	46.3	56.6	0.0	56.6
	8	47.6	56.8	42.2	56.1	55.3	53.4	51.6	47.2	45.2	42.8	42.6	42.3	47.6	0.0	47.6
	9	60.5	69.4	47.1	68.6	67.8	66.3	65.5	61.4	57.4	50.6	49.6	47.7	60.5	0.0	60.5
	10	51.6	58.2	48.1	57.4	56.6	55.4	54.4	52.2	50.3	48.6	48.5	48.2	51.6	0.0	51.6
	11	50.7	56.3	48.2	55.6	54.9	53.4	52.7	51.1	50.3	48.7	48.5	48.3	50.7	0.0	50.7
	12	56.5	66.7	49.2	65.5	64.4	62.1	60.7	56.5	53.6	50.4	50.0	49.4	56.5	0.0	56.5
	13	55.8	64.5	50.3	63.6	63.0	61.7	60.2	55.6	52.8	50.9	50.6	50.4	55.8	0.0	55.8
	14	57.9	65.6	49.0	65.0	64.4	63.3	61.9	58.9	56.7	50.4	50.0	49.3	57.9	0.0	57.9
	15	52.3	63.8	41.3	62.7	61.8	59.6	57.6	50.8	47.4	43.3	42.4	41.7	52.3	0.0	52.3
	16	49.8	60.8	38.1	59.6	58.6	56.0	54.2	49.5	46.1	41.0	39.7	38.5	49.8	0.0	49.8
	17	45.4	57.6	36.3	56.3	55.0	51.6	49.9	44.4	41.0	37.4	36.9	36.5	45.4	0.0	45.4
	18	42.2	50.8	35.7	49.9	48.9	47.6	46.6	42.9	39.2	36.5	36.2	35.9	42.2	0.0	42.2
	19	41.1	51.4	37.6	49.8	48.1	44.3	42.8	40.9	39.7	38.2	37.9	37.7	41.1	5.0	46.1
	20	41.2	49.5	37.9	49.0	48.2	45.6	43.9	40.9	39.6	38.4	38.2	38.0	41.2	5.0	46.2
	21	44.9	55.5	37.1	54.5	53.8	50.8	49.1	44.7	40.7	37.7	37.4	37.2	44.9	5.0	49.9
Night	22	38.3	42.3	35.7	41.9	41.5	40.8	40.4	39.0	37.8	36.3	36.0	35.8	38.3	10.0	48.3
	23	37.7	42.3	35.1	41.9	41.4	40.4	39.7	38.2	37.1	35.6	35.4	35.1	37.7	10.0	47.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	41.1	49.5	35.7	49.0	48.1	44.3	42.8	40.9	39.2	36.5	36.2	35.9
	Max	60.5	71.1	50.3	69.2	67.8	66.3	65.5	61.4	57.4	50.9	50.6	50.4
Energy Average		53.9	Average:		58.8	57.9	55.5	54.0	50.1	47.5	44.2	43.7	43.1
Night	Min	37.5	41.0	34.2	40.7	40.4	39.7	39.3	37.9	36.5	34.9	34.6	34.4
	Max	44.5	47.7	42.2	47.5	47.2	46.7	46.3	45.1	44.1	42.8	42.5	42.3
Energy Average		40.2	Average:		44.0	43.5	42.5	41.9	40.0	38.8	37.3	37.1	36.8

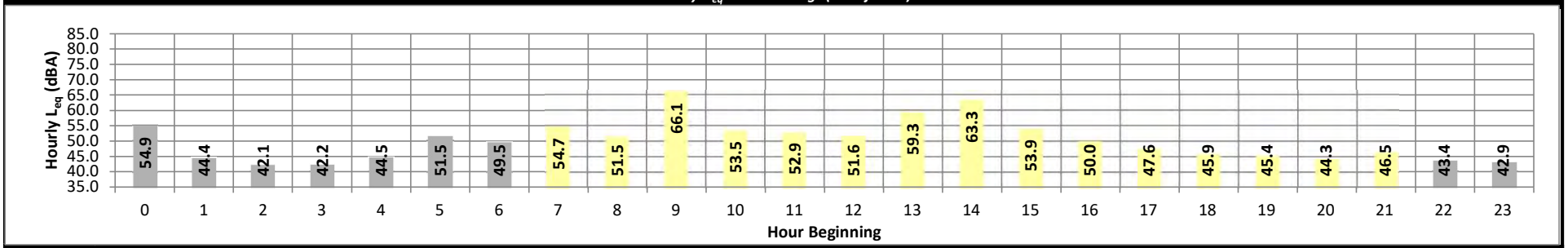
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
53.0	**53.9**	**40.2**

24-Hour Noise Level Measurement Summary

Date: Wednesday, October 30, 2024 *Location:* L6 - Located west of the site near the residence at 34033 *Meter:* Piccolo II *JN:* 16189

Project: French Valley *Source:* Kooden 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	54.9	67.3	40.6	65.8	65.0	62.8	60.5	53.5	42.7	41.1	40.8	40.6	54.9	10.0	64.9
	1	44.4	52.9	40.2	52.0	51.5	50.5	49.9	42.9	40.8	40.2	40.2	40.1	44.4	10.0	54.4
	2	42.1	47.6	40.3	47.1	46.5	45.5	45.0	42.0	41.1	40.4	40.3	40.2	42.1	10.0	52.1
	3	42.2	45.6	40.7	45.2	44.9	44.2	43.7	42.4	41.7	40.9	40.7	40.6	42.2	10.0	52.2
	4	44.5	48.7	42.0	48.3	48.0	47.2	46.7	45.1	43.9	42.5	42.3	42.0	44.5	10.0	54.5
	5	51.5	57.7	47.6	57.3	57.0	56.0	55.2	52.5	49.5	48.0	47.8	47.7	51.5	10.0	61.5
	6	49.5	53.0	47.1	52.7	52.5	51.9	51.5	50.1	49.1	47.7	47.4	47.2	49.5	10.0	59.5
Day	7	54.7	65.8	49.6	64.4	62.8	59.1	57.3	54.1	52.4	50.5	50.1	49.7	54.7	0.0	54.7
	8	51.5	60.9	46.2	60.1	59.0	56.8	55.1	51.5	49.3	47.0	46.7	46.4	51.5	0.0	51.5
	9	66.1	75.1	53.3	74.1	73.5	72.3	71.5	66.6	62.9	56.2	54.6	53.6	66.1	0.0	66.1
	10	53.5	61.9	45.7	60.9	60.1	58.4	57.6	54.6	51.1	47.2	46.5	45.9	53.5	0.0	53.5
	11	52.9	60.8	47.1	59.7	58.8	57.2	56.4	53.5	51.3	48.7	48.1	47.3	52.9	0.0	52.9
	12	51.6	63.6	43.4	62.2	60.5	57.5	55.5	50.9	48.2	44.5	44.0	43.5	51.6	0.0	51.6
	13	59.3	69.7	46.4	68.6	68.0	66.6	65.3	58.6	52.9	47.8	47.2	46.6	59.3	0.0	59.3
	14	63.3	71.4	51.7	70.7	70.0	69.0	68.1	64.7	59.9	54.8	53.8	52.0	63.3	0.0	63.3
	15	53.9	63.2	46.5	62.2	61.3	59.5	58.2	54.1	51.4	48.5	47.4	46.7	53.9	0.0	53.9
	16	50.0	59.8	42.5	58.8	57.7	55.4	53.8	50.0	47.5	44.1	43.6	42.8	50.0	0.0	50.0
	17	47.6	56.0	42.1	55.2	54.2	52.5	51.3	48.4	45.7	42.7	42.4	42.2	47.6	0.0	47.6
	18	45.9	53.9	41.5	53.3	52.6	50.9	49.6	46.2	43.9	41.8	41.6	41.5	45.9	0.0	45.9
	19	45.4	50.6	42.9	50.0	49.3	48.2	47.6	45.9	44.7	43.3	43.1	42.9	45.4	5.0	50.4
	20	44.3	51.4	41.9	50.9	50.1	47.9	46.4	44.1	43.1	42.1	42.0	41.9	44.3	5.0	49.3
	21	46.5	54.6	42.8	53.9	53.2	51.0	49.8	46.7	44.6	43.1	42.9	42.8	46.5	5.0	51.5
Night	22	43.4	46.8	41.7	46.5	46.2	45.5	45.0	43.8	42.9	42.0	41.8	41.6	43.4	10.0	53.4
	23	42.9	46.6	41.1	46.2	45.9	45.1	44.5	43.3	42.4	41.3	41.2	41.0	42.9	10.0	52.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	44.3	50.6	41.5	50.0	49.3	47.9	46.4	44.1	43.1	41.8	41.6	41.5
	Max	66.1	75.1	53.3	74.1	73.5	72.3	71.5	66.6	62.9	56.2	54.6	53.6
Energy Average		57.6	Average:		60.3	59.4	57.5	56.2	52.7	49.9	46.8	46.3	45.7
Night	Min	42.1	45.6	40.2	45.2	44.9	44.2	43.7	42.0	40.8	40.2	40.2	40.1
	Max	54.9	67.3	47.6	65.8	65.0	62.8	60.5	53.5	49.5	48.0	47.8	47.7
Energy Average		48.7	Average:		51.2	50.8	49.9	49.1	46.2	43.8	42.7	42.5	42.3

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
58.1	**57.6**	**48.7**

APPENDIX 6.1:

SITE PLAN

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LINE TABLE		
NO.	BEARING	LENGTH
L1	N89°53'33"E	194.54'
L2	S84°22'15"E	121.50'
L3	N89°55'07"E	250.90'
L4	S49°29'42"E	26.34'
L5	S89°41'57"E	38.00'
L6	N0°18'03"E	12.77'
L7	S89°41'57"E	38.00'
L8	N49°46'33"E	26.16'
L9	N89°55'07"E	187.63'
L10	S84°22'15"E	120.60'
L11	N89°55'07"E	250.90'
L12	S55°44'42"E	30.28'
L13	S0°05'43"W	582.51'
L14	S0°06'27"W	618.69'
L15	S44°35'46"W	18.32'
L16	S89°54'07"W	1,254.16'
L17	N44°26'27"W	18.47'
L18	N0°02'28"W	618.71'
L19	N0°02'28"W	594.62'
L20	N44°43'01"E	24.13'

REVISIONS			
DESCRIPTION	APD	REV	DATE

AERIAL PHOTOGRAPHY BY:
ARROWHEAD MAPPING CO.
673 S. COOLEY DRIVE
SUITE 102
COLTON, CA 92324
(909) 887-5969

rtm engineering consultants
357 N. Sheridan St.
Suite 117
Corona, CA 92878
Phone: 951.279.1800
Fax: 951.279.4380

COUNTY OF RIVERSIDE
TENTATIVE TRACT MAP NO. 39111

Drawn By: BC
Checked By: RV
Scale:

SHEET 2 OF 4 SHEETS

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Leon Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,996 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	631 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-5.07	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.94	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.72	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	64.0	62.6	56.6	65.0	65.7
Medium Trucks:	60.7	57.7	49.9	59.1	65.3	65.3
Heavy Trucks:	66.9	63.9	56.1	65.4	71.5	71.5
Vehicle Noise:	69.6	67.5	63.7	66.7	73.2	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	96	207	445	959
CNEL:	98	211	454	978

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,548 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	596 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-5.32	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-20.19	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.97	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.6	63.8	62.4	56.3	64.8	65.4
Medium Trucks:	60.4	57.5	49.7	58.9	65.0	65.1
Heavy Trucks:	66.6	63.7	55.9	65.1	71.3	71.3
Vehicle Noise:	69.3	67.2	63.4	66.5	72.9	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	92	199	428	923
CNEL:	94	203	437	942

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Pourroy Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-31.95	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-49.19	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-53.15	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	38.6	37.6	36.3	30.3	38.7	39.3
Medium Trucks:	32.4	29.5	22.0	30.8	36.9	37.0
Heavy Trucks:	33.2	30.2	26.8	31.5	37.7	37.8
Vehicle Noise:	40.4	38.9	36.9	35.6	42.6	42.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	0	1	2	4
CNEL:	0	1	2	5

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Pourroy Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	596 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	47 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-15.23	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-32.47	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-36.43	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.3	54.3	53.0	47.0	55.4	56.0
Medium Trucks:	49.1	46.2	38.7	47.5	53.7	53.7
Heavy Trucks:	50.0	46.9	43.5	48.2	54.4	54.5
Vehicle Noise:	57.1	55.6	53.6	52.4	59.3	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	13	27	58
CNEL:	6	13	28	61

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Keller Rd.
Road Segment: w/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	215 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	17 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-20.10	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-37.34	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-41.30	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.2	48.2	46.9	40.9	49.3	50.0
Medium Trucks:	42.8	39.9	32.4	41.2	47.3	47.4
Heavy Trucks:	43.2	40.2	36.8	41.4	47.6	47.7
Vehicle Noise:	50.9	49.4	47.5	46.0	53.0	53.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	8	17	37
CNEL:	4	8	18	38

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,808 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	143 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-10.87	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-28.10	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-32.06	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.4	57.5	56.2	50.1	58.6	59.2
Medium Trucks:	52.0	49.2	41.7	50.4	56.6	56.6
Heavy Trucks:	52.5	49.4	46.0	50.7	56.9	57.0
Vehicle Noise:	60.2	58.6	56.7	55.2	62.2	62.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	15	33	70	151
CNEL:	16	34	74	159

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Keller Rd.
Road Segment: e/o Pourroy Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,204 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	95 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-12.63	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-29.87	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-33.83	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.7	55.7	54.4	48.4	56.8	57.4
Medium Trucks:	50.3	47.4	39.9	48.6	54.8	54.9
Heavy Trucks:	50.7	47.7	44.3	48.9	55.1	55.2
Vehicle Noise:	58.4	56.9	54.9	53.4	60.4	60.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	25	54	115
CNEL:	12	26	56	121

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 109
Road Name: Leon Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,442 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	666 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.84	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.70	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.48	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.1	64.3	62.8	56.8	65.3	65.9
Medium Trucks:	60.9	58.0	50.2	59.4	65.5	65.6
Heavy Trucks:	67.1	64.2	56.4	65.6	71.7	71.8
Vehicle Noise:	69.8	67.7	63.9	67.0	73.4	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	99	214	462	994
CNEL:	101	219	471	1,014

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 109
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,802 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	616 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-5.18	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-20.04	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.83	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.8	63.9	62.5	56.5	64.9	65.6
Medium Trucks:	60.6	57.6	49.8	59.0	65.2	65.2
Heavy Trucks:	66.8	63.8	56.0	65.2	71.4	71.4
Vehicle Noise:	69.5	67.4	63.6	66.6	73.1	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	94	203	438	943
CNEL:	96	207	447	963

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 109
Road Name: Pourroy Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-31.95	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-49.19	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-53.15	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	38.6	37.6	36.3	30.3	38.7	39.3
Medium Trucks:	32.4	29.5	22.0	30.8	36.9	37.0
Heavy Trucks:	33.2	30.2	26.8	31.5	37.7	37.8
Vehicle Noise:	40.4	38.9	36.9	35.6	42.6	42.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	0	1	2	4
CNEL:	0	1	2	5

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 109
Road Name: Pourroy Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	914 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	72 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-13.37	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-30.61	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-34.57	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.2	56.2	54.9	48.8	57.3	57.9
Medium Trucks:	51.0	48.1	40.6	49.3	55.5	55.6
Heavy Trucks:	51.8	48.8	45.4	50.0	56.2	56.3
Vehicle Noise:	59.0	57.4	55.5	54.2	61.2	61.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	8	17	36	77
CNEL:	8	17	38	81

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 109
Road Name: Keller Rd.
Road Segment: w/o Leon Rd.
Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	215 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	17 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-20.10	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-37.34	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-41.30	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.2	48.2	46.9	40.9	49.3	50.0
Medium Trucks:	42.8	39.9	32.4	41.2	47.3	47.4
Heavy Trucks:	43.2	40.2	36.8	41.4	47.6	47.7
Vehicle Noise:	50.9	49.4	47.5	46.0	53.0	53.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	8	17	37
CNEL:	4	8	18	38

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 109
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,508 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	198 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-9.44	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-26.68	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-30.64	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.9	58.9	57.6	51.6	60.0	60.6
Medium Trucks:	53.5	50.6	43.1	51.8	58.0	58.0
Heavy Trucks:	53.9	50.9	47.5	52.1	58.3	58.4
Vehicle Noise:	61.6	60.0	58.1	56.6	63.6	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	19	41	87	188
CNEL:	20	43	92	197

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 109
Road Name: Keller Rd.
Road Segment: e/o Pourroy Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,458 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	115 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-11.80	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-29.04	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-32.99	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.5	56.5	55.2	49.2	57.6	58.3
Medium Trucks:	51.1	48.2	40.7	49.5	55.7	55.7
Heavy Trucks:	51.5	48.5	45.1	49.8	56.0	56.0
Vehicle Noise:	59.2	57.7	55.8	54.3	61.3	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	28	61	131
CNEL:	14	30	64	138

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 210
Road Name: Leon Rd.
Road Segment: n/o Keller Rd.
Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,655 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	683 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.73	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.59	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.38	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.2	64.4	63.0	56.9	65.4	66.0
Medium Trucks:	61.0	58.1	50.3	59.5	65.6	65.7
Heavy Trucks:	67.2	64.3	56.5	65.7	71.8	71.9
Vehicle Noise:	69.9	67.8	64.0	67.1	73.5	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	101	218	469	1,011
CNEL:	103	222	479	1,031

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 210
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,170 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	645 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.98	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.84	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.63	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	64.1	62.7	56.7	65.1	65.8
Medium Trucks:	60.8	57.8	50.0	59.2	65.4	65.4
Heavy Trucks:	67.0	64.0	56.2	65.4	71.6	71.6
Vehicle Noise:	69.7	67.6	63.8	66.8	73.3	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	97	210	452	973
CNEL:	99	214	461	993

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 210
Road Name: Pourroy Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-31.61	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-48.85	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-52.80	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	38.9	37.9	36.6	30.6	39.0	39.7
Medium Trucks:	32.7	29.9	22.4	31.1	37.3	37.3
Heavy Trucks:	33.6	30.6	27.2	31.8	38.0	38.1
Vehicle Noise:	40.8	39.2	37.2	36.0	42.9	43.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	0	1	2	5
CNEL:	0	1	2	5

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 210
Road Name: Pourroy Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	645 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	51 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-14.89	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-32.13	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-36.08	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.6	54.7	53.3	47.3	55.8	56.4
Medium Trucks:	49.5	46.6	39.1	47.8	54.0	54.0
Heavy Trucks:	50.3	47.3	43.9	48.5	54.7	54.8
Vehicle Noise:	57.5	55.9	54.0	52.7	59.7	60.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	13	28	61
CNEL:	6	14	30	64

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 210
Road Name: Keller Rd.
Road Segment: w/o Leon Rd.
Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	233 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	18 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-19.76	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-37.00	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-40.96	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.6	48.6	47.3	41.2	49.7	50.3
Medium Trucks:	43.1	40.3	32.8	41.5	47.7	47.7
Heavy Trucks:	43.6	40.5	37.1	41.8	48.0	48.1
Vehicle Noise:	51.3	49.7	47.8	46.3	53.3	53.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	8	18	39
CNEL:	4	9	19	41

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 210
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,957 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	154 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-10.52	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-27.76	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-31.72	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.8	57.8	56.5	50.5	58.9	59.5
Medium Trucks:	52.4	49.5	42.0	50.8	56.9	57.0
Heavy Trucks:	52.8	49.8	46.4	51.0	57.2	57.3
Vehicle Noise:	60.5	59.0	57.0	55.5	62.6	62.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	34	74	159
CNEL:	17	36	78	167

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Parcel 210
Road Name: Keller Rd.
Road Segment: e/o Pourroy Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,303 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	103 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-12.29	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-29.53	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-33.48	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.0	56.0	54.7	48.7	57.1	57.8
Medium Trucks:	50.6	47.7	40.2	49.0	55.2	55.2
Heavy Trucks:	51.0	48.0	44.6	49.3	55.5	55.6
Vehicle Noise:	58.7	57.2	55.3	53.8	60.8	61.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	26	56	122
CNEL:	13	27	59	128

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Leon Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,101 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	718 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.51	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.38	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.16	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	64.6	63.2	57.2	65.6	66.2
Medium Trucks:	61.2	58.3	50.5	59.7	65.9	65.9
Heavy Trucks:	67.4	64.5	56.7	65.9	72.1	72.1
Vehicle Noise:	70.2	68.0	64.2	67.3	73.7	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	105	225	485	1,046
CNEL:	107	230	495	1,067

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,424 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	665 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.85	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.71	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.49	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.1	64.2	62.8	56.8	65.3	65.9
Medium Trucks:	60.9	57.9	50.2	59.4	65.5	65.6
Heavy Trucks:	67.1	64.2	56.4	65.6	71.7	71.8
Vehicle Noise:	69.8	67.7	63.9	67.0	73.4	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	99	214	461	993
CNEL:	101	218	470	1,013

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Pourroy Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-31.61	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-48.85	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-52.80	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	38.9	37.9	36.6	30.6	39.0	39.7
Medium Trucks:	32.7	29.9	22.4	31.1	37.3	37.3
Heavy Trucks:	33.6	30.6	27.2	31.8	38.0	38.1
Vehicle Noise:	40.8	39.2	37.2	36.0	42.9	43.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	0	1	2	5
CNEL:	0	1	2	5

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Pourroy Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	963 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	76 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-13.15	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-30.38	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-34.34	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.4	56.4	55.1	49.1	57.5	58.1
Medium Trucks:	51.2	48.3	40.8	49.6	55.7	55.8
Heavy Trucks:	52.0	49.0	45.6	50.3	56.5	56.6
Vehicle Noise:	59.2	57.7	55.7	54.4	61.4	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	8	17	37	80
CNEL:	8	18	39	84

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Keller Rd.
Road Segment: w/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	233 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	18 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-19.76	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-37.00	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-40.96	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.6	48.6	47.3	41.2	49.7	50.3
Medium Trucks:	43.1	40.3	32.8	41.5	47.7	47.7
Heavy Trucks:	43.6	40.5	37.1	41.8	48.0	48.1
Vehicle Noise:	51.3	49.7	47.8	46.3	53.3	53.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	8	18	39
CNEL:	4	9	19	41

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,657 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	210 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-9.19	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-26.43	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-30.39	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.1	59.1	57.8	51.8	60.2	60.9
Medium Trucks:	53.7	50.8	43.3	52.1	58.3	58.3
Heavy Trucks:	54.1	51.1	47.7	52.4	58.6	58.7
Vehicle Noise:	61.8	60.3	58.4	56.9	63.9	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	20	42	91	195
CNEL:	21	44	95	205

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E + Project
Road Name: Keller Rd.
Road Segment: e/o Pourroy Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,557 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	123 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-11.51	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-28.75	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-32.71	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.8	56.8	55.5	49.5	57.9	58.5
Medium Trucks:	51.4	48.5	41.0	49.8	55.9	56.0
Heavy Trucks:	51.8	48.8	45.4	50.0	56.2	56.3
Vehicle Noise:	59.5	58.0	56.0	54.5	61.6	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	29	64	137
CNEL:	14	31	67	144

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Leon Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,207 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	884 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-3.61	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-18.47	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.25	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.4	65.5	64.1	58.1	66.5	67.1
Medium Trucks:	62.1	59.2	51.4	60.6	66.8	66.8
Heavy Trucks:	68.3	65.4	57.6	66.8	73.0	73.0
Vehicle Noise:	71.1	68.9	65.1	68.2	74.6	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	120	259	558	1,201
CNEL:	123	264	569	1,225

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,374 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	819 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-3.94	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-18.81	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.59	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.0	65.2	63.7	57.7	66.2	66.8
Medium Trucks:	61.8	58.8	51.1	60.3	66.4	66.5
Heavy Trucks:	68.0	65.1	57.3	66.5	72.6	72.7
Vehicle Noise:	70.7	68.6	64.8	67.9	74.3	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	114	246	530	1,141
CNEL:	116	251	540	1,164

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Pourroy Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-31.61	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-48.85	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-52.80	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	38.9	37.9	36.6	30.6	39.0	39.7
Medium Trucks:	32.7	29.9	22.4	31.1	37.3	37.3
Heavy Trucks:	33.6	30.6	27.2	31.8	38.0	38.1
Vehicle Noise:	40.8	39.2	37.2	36.0	42.9	43.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	0	1	2	5
CNEL:	0	1	2	5

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Pourroy Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,217 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	96 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-12.13	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-29.37	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-33.32	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.4	57.4	56.1	50.1	58.5	59.1
Medium Trucks:	52.2	49.3	41.8	50.6	56.8	56.8
Heavy Trucks:	53.1	50.0	46.6	51.3	57.5	57.6
Vehicle Noise:	60.3	58.7	56.7	55.5	62.4	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	20	43	94
CNEL:	10	21	46	98

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Keller Rd.
Road Segment: w/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	233 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	18 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-19.76	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-37.00	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-40.96	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.6	48.6	47.3	41.2	49.7	50.3
Medium Trucks:	43.1	40.3	32.8	41.5	47.7	47.7
Heavy Trucks:	43.6	40.5	37.1	41.8	48.0	48.1
Vehicle Noise:	51.3	49.7	47.8	46.3	53.3	53.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	8	18	39
CNEL:	4	9	19	41

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,613 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	443 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-5.95	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-23.18	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-27.14	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.4	62.4	61.1	55.1	63.5	64.1
Medium Trucks:	57.0	54.1	46.6	55.3	61.5	61.5
Heavy Trucks:	57.4	54.4	51.0	55.6	61.8	61.9
Vehicle Noise:	65.1	63.5	61.6	60.1	67.1	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	32	69	149	322
CNEL:	34	73	157	338

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040
Road Name: Keller Rd.
Road Segment: e/o Pourroy Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,531 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	436 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-6.01	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-23.25	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-27.20	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.3	62.3	61.0	55.0	63.4	64.0
Medium Trucks:	56.9	54.0	46.5	55.3	61.4	61.5
Heavy Trucks:	57.3	54.3	50.9	55.5	61.7	61.8
Vehicle Noise:	65.0	63.5	61.6	60.0	67.1	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	32	69	148	319
CNEL:	33	72	155	335

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 109
Road Name: Leon Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,653 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	919 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-3.44	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-18.30	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.08	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.5	65.7	64.2	58.2	66.7	67.3
Medium Trucks:	62.3	59.4	51.6	60.8	66.9	67.0
Heavy Trucks:	68.5	65.6	57.8	67.0	73.1	73.2
Vehicle Noise:	71.2	69.1	65.3	68.4	74.8	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	123	266	572	1,233
CNEL:	126	271	584	1,258

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 109
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,628 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	839 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-3.84	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-18.70	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.48	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	65.3	63.8	57.8	66.3	66.9
Medium Trucks:	61.9	59.0	51.2	60.4	66.5	66.6
Heavy Trucks:	68.1	65.2	57.4	66.6	72.7	72.8
Vehicle Noise:	70.8	68.7	64.9	68.0	74.4	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	116	250	538	1,159
CNEL:	118	255	549	1,183

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 109
Road Name: Pourroy Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-31.61	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-48.85	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-52.80	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	38.9	37.9	36.6	30.6	39.0	39.7
Medium Trucks:	32.7	29.9	22.4	31.1	37.3	37.3
Heavy Trucks:	33.6	30.6	27.2	31.8	38.0	38.1
Vehicle Noise:	40.8	39.2	37.2	36.0	42.9	43.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	0	1	2	5
CNEL:	0	1	2	5

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 109
Road Name: Pourroy Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,535 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	121 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-11.12	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-28.36	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-32.31	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.4	58.4	57.1	51.1	59.5	60.1
Medium Trucks:	53.2	50.4	42.9	51.6	57.8	57.8
Heavy Trucks:	54.1	51.0	47.7	52.3	58.5	58.6
Vehicle Noise:	61.3	59.7	57.7	56.5	63.4	63.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	24	51	109
CNEL:	11	25	53	115

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 109
Road Name: Keller Rd.
Road Segment: w/o Leon Rd.
Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	233 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	18 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-19.76	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-37.00	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-40.96	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.6	48.6	47.3	41.2	49.7	50.3
Medium Trucks:	43.1	40.3	32.8	41.5	47.7	47.7
Heavy Trucks:	43.6	40.5	37.1	41.8	48.0	48.1
Vehicle Noise:	51.3	49.7	47.8	46.3	53.3	53.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	8	18	39
CNEL:	4	9	19	41

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 109
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,313 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	498 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-5.44	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-22.67	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-26.63	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.9	62.9	61.6	55.6	64.0	64.6
Medium Trucks:	57.5	54.6	47.1	55.8	62.0	62.1
Heavy Trucks:	57.9	54.9	51.5	56.1	62.3	62.4
Vehicle Noise:	65.6	64.1	62.1	60.6	67.6	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	75	162	348
CNEL:	37	79	170	365

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 109
Road Name: Keller Rd.
Road Segment: e/o Pourroy Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,785 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	456 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-5.81	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-23.05	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-27.01	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.5	62.5	61.2	55.2	63.6	64.2
Medium Trucks:	57.1	54.2	46.7	55.5	61.6	61.7
Heavy Trucks:	57.5	54.5	51.1	55.7	61.9	62.0
Vehicle Noise:	65.2	63.7	61.7	60.2	67.3	67.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	71	152	328
CNEL:	34	74	160	345

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 210
Road Name: Leon Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,919 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1,887 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.31	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-15.18	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.96	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.6	68.8	67.4	61.3	69.8	70.4
Medium Trucks:	65.4	62.5	54.7	63.9	70.1	70.1
Heavy Trucks:	71.6	68.7	60.9	70.1	76.3	76.3
Vehicle Noise:	74.4	72.2	68.4	71.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	199	429	924	1,991
CNEL:	203	438	943	2,031

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 210
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,668 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1,552 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.16	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-16.03	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-13.81	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	67.9	66.5	60.5	69.0	69.6
Medium Trucks:	64.6	61.6	53.8	63.1	69.2	69.2
Heavy Trucks:	70.8	67.8	60.1	69.3	75.4	75.4
Vehicle Noise:	73.5	71.4	67.6	70.6	77.1	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	175	377	811	1,748
CNEL:	178	384	828	1,783

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 210
Road Name: Pourroy Rd.
Road Segment: n/o Keller Rd.
Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-30.96	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-48.20	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-52.16	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	39.6	38.6	37.3	31.3	39.7	40.3
Medium Trucks:	33.4	30.5	23.0	31.8	37.9	38.0
Heavy Trucks:	34.2	31.2	27.8	32.5	38.7	38.7
Vehicle Noise:	41.4	39.8	37.9	36.6	43.6	43.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	1	1	2	5
CNEL:	1	1	3	5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 210
Road Name: Pourroy Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,411 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	111 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-11.48	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-28.72	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-32.68	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.0	58.1	56.7	50.7	59.2	59.8
Medium Trucks:	52.9	50.0	42.5	51.2	57.4	57.4
Heavy Trucks:	53.7	50.7	47.3	51.9	58.1	58.2
Vehicle Noise:	60.9	59.3	57.4	56.1	63.1	63.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	22	48	103
CNEL:	11	23	50	108

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 210
Road Name: Keller Rd.
Road Segment: w/o Leon Rd.
Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,374 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	108 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-12.06	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-29.29	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-33.25	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.3	56.3	55.0	49.0	57.4	58.0
Medium Trucks:	50.8	48.0	40.5	49.2	55.4	55.4
Heavy Trucks:	51.3	48.2	44.9	49.5	55.7	55.8
Vehicle Noise:	59.0	57.4	55.5	54.0	61.0	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	27	58	126
CNEL:	13	28	61	132

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 210
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,464 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	668 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.16	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-21.40	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-25.36	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.2	64.2	62.9	56.8	65.3	65.9
Medium Trucks:	58.7	55.9	48.4	57.1	63.3	63.3
Heavy Trucks:	59.2	56.1	52.7	57.4	63.6	63.7
Vehicle Noise:	66.9	65.3	63.4	61.9	68.9	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	91	196	423
CNEL:	44	96	206	444

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Parcel 210
Road Name: Keller Rd.
Road Segment: e/o Pourroy Rd.
Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,146 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	722 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.83	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-21.06	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-25.02	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	64.5	63.2	57.2	65.6	66.2
Medium Trucks:	59.1	56.2	48.7	57.5	63.6	63.7
Heavy Trucks:	59.5	56.5	53.1	57.7	63.9	64.0
Vehicle Noise:	67.2	65.7	63.7	62.2	69.2	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	45	96	207	445
CNEL:	47	101	217	468

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Project
Road Name: Leon Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,365 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1,922 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.23	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-15.10	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.88	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	68.9	67.4	61.4	69.9	70.5
Medium Trucks:	65.5	62.6	54.8	64.0	70.1	70.2
Heavy Trucks:	71.7	68.8	61.0	70.2	76.3	76.4
Vehicle Noise:	74.4	72.3	68.5	71.6	78.0	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	202	434	936	2,016
CNEL:	206	443	955	2,056

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Project
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,922 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1,572 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	59.0 feet
Centerline Dist. to Observer:	59.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.11	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-15.97	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-13.76	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	68.0	66.6	60.6	69.0	69.6
Medium Trucks:	64.6	61.7	53.9	63.1	69.3	69.3
Heavy Trucks:	70.8	67.9	60.1	69.3	75.5	75.5
Vehicle Noise:	73.6	71.4	67.6	70.7	77.1	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	176	380	818	1,763
CNEL:	180	387	835	1,798

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Project
Road Name: Pourroy Rd.
Road Segment: n/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	1 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-30.96	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-48.20	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-52.16	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	39.6	38.6	37.3	31.3	39.7	40.3
Medium Trucks:	33.4	30.5	23.0	31.8	37.9	38.0
Heavy Trucks:	34.2	31.2	27.8	32.5	38.7	38.7
Vehicle Noise:	41.4	39.8	37.9	36.6	43.6	43.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	1	1	2	5
CNEL:	1	1	3	5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Project
Road Name: Pourroy Rd.
Road Segment: s/o Keller Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,729 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	136 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	29.816
Medium Trucks:	29.518
Heavy Trucks:	29.547

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-10.60	3.26	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	79.45	-27.84	3.33	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-31.80	3.32	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.9	58.9	57.6	51.6	60.0	60.7
Medium Trucks:	53.7	50.9	43.4	52.1	58.3	58.3
Heavy Trucks:	54.6	51.6	48.2	52.8	59.0	59.1
Vehicle Noise:	61.8	60.2	58.2	57.0	63.9	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	26	55	118
CNEL:	12	27	58	124

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Project
Road Name: Keller Rd.
Road Segment: w/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,374 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	108 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-12.06	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-29.29	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-33.25	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.3	56.3	55.0	49.0	57.4	58.0
Medium Trucks:	50.8	48.0	40.5	49.2	55.4	55.4
Heavy Trucks:	51.3	48.2	44.9	49.5	55.7	55.8
Vehicle Noise:	59.0	57.4	55.5	54.0	61.0	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	27	58	126
CNEL:	13	28	61	132

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Project
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,164 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	723 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.82	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-21.06	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-25.01	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	64.5	63.2	57.2	65.6	66.2
Medium Trucks:	59.1	56.2	48.7	57.5	63.6	63.7
Heavy Trucks:	59.5	56.5	53.1	57.7	63.9	64.0
Vehicle Noise:	67.2	65.7	63.7	62.2	69.3	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	45	96	207	446
CNEL:	47	101	217	468

Monday, March 31, 2025

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY + Project
Road Name: Keller Rd.
Road Segment: e/o Pourroy Rd.

Project Name: French Valley
Job Number: 16189

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,400 vehicles
Peak Hour Percentage:	7.89%
Peak Hour Volume:	742 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.71	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-20.95	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-24.90	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	64.6	63.3	57.3	65.7	66.3
Medium Trucks:	59.2	56.3	48.8	57.6	63.7	63.8
Heavy Trucks:	59.6	56.6	53.2	57.8	64.0	64.1
Vehicle Noise:	67.3	65.8	63.9	62.4	69.4	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	45	98	211	454
CNEL:	48	103	221	476

Monday, March 31, 2025

APPENDIX 8.1:

ON-SITE NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Backyard
Road Name: Keller Rd.

Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	1,470 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	94.0 feet
Centerline Dist. to Observer:	104.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	97.944
Medium Trucks:	97.853
Heavy Trucks:	97.862

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	0.23	-4.48	-1.20	*-1.03*	0.000	0.000
Medium Trucks:	76.31	-17.01	-4.48	-1.20	*-1.15*	0.000	0.000
Heavy Trucks:	81.16	-20.96	-4.48	-1.20	*-1.47*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.9	61.4	60.1	54.1	62.5	63.1
Medium Trucks:	53.6	51.2	43.7	52.5	58.6	58.7
Heavy Trucks:	54.5	52.0	48.6	53.2	59.4	59.5
Vehicle Noise:	63.2	62.2	60.5	58.1	65.3	65.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.9	61.4	60.1	54.1	62.5	63.1
Medium Trucks:	53.6	51.2	43.7	52.5	58.6	58.7
Heavy Trucks:	54.5	52.0	48.6	53.2	59.4	59.5
Vehicle Noise:	63.2	62.2	60.5	58.1	65.3	65.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Backyard With Wall
Road Name: Keller Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	1,470 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	6.0
Centerline Dist. to Barrier:	94.0 feet
Centerline Dist. to Observer:	104.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.050
Medium Trucks:	97.923
Heavy Trucks:	97.868

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	0.23	-4.49	-1.20	*0.12*	-6.160	-9.160
Medium Trucks:	76.31	-17.01	-4.48	-1.20	*0.09*	-5.900	-8.900
Heavy Trucks:	81.16	-20.96	-4.48	-1.20	*0.03*	-5.300	-8.300

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.9	61.4	60.1	54.1	62.5	63.1
Medium Trucks:	53.6	51.2	43.7	52.5	58.6	58.7
Heavy Trucks:	54.5	52.0	48.6	53.2	59.4	59.5
Vehicle Noise:	63.1	62.2	60.5	58.1	65.3	65.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	52.7	52.2	50.9	44.9	53.3	53.9
Medium Trucks:	44.7	42.3	34.8	43.6	49.7	49.8
Heavy Trucks:	46.2	43.7	40.3	44.9	51.1	51.2
Vehicle Noise:	54.1	53.2	51.4	49.3	56.4	56.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: First Floor With Wall
Road Name: Keller Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	1,470 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	6.0
Centerline Dist. to Barrier:	94.0 feet
Centerline Dist. to Observer:	114.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	108.025
Medium Trucks:	107.898
Heavy Trucks:	107.843

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	0.23	-5.12	-1.20	*0.11*	-6.080	-9.080
Medium Trucks:	76.31	-17.01	-5.11	-1.20	*0.07*	-5.700	-8.700
Heavy Trucks:	81.16	-20.96	-5.11	-1.20	*0.01*	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.3	60.7	59.4	53.4	61.8	62.5
Medium Trucks:	53.0	50.6	43.1	51.8	58.0	58.0
Heavy Trucks:	53.9	51.3	47.9	52.6	58.8	58.9
Vehicle Noise:	62.5	61.6	59.8	57.4	64.6	65.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	52.2	51.7	50.4	44.3	52.8	53.4
Medium Trucks:	44.3	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	45.8	43.2	39.8	44.5	50.7	50.8
Vehicle Noise:	53.6	52.6	50.8	48.8	55.9	56.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Second Floor With Wall
Road Name: Keller Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	1,470 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	6.0
Centerline Dist. to Barrier:	94.0 feet
Centerline Dist. to Observer:	114.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	108.738
Medium Trucks:	108.466
Heavy Trucks:	108.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	0.23	-5.16	-1.20	*-0.82*	0.000	0.000
Medium Trucks:	76.31	-17.01	-5.15	-1.20	*-0.97*	0.000	0.000
Heavy Trucks:	81.16	-20.96	-5.12	-1.20	*-1.37*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	60.7	59.4	53.4	61.8	62.4
Medium Trucks:	53.0	50.5	43.0	51.8	58.0	58.0
Heavy Trucks:	53.9	51.3	47.9	52.6	58.8	58.9
Vehicle Noise:	62.5	61.5	59.8	57.4	64.6	65.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	60.7	59.4	53.4	61.8	62.4
Medium Trucks:	53.0	50.5	43.0	51.8	58.0	58.0
Heavy Trucks:	53.9	51.3	47.9	52.6	58.8	58.9
Vehicle Noise:	62.5	61.5	59.8	57.4	64.6	65.0

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Backyard
Road Name: Kooden Rd.

Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	355 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	43.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-5.94	1.88	-1.20	*-0.83*	0.000	0.000
Medium Trucks:	76.31	-23.18	1.93	-1.20	*-1.15*	0.000	0.000
Heavy Trucks:	81.16	-27.13	1.92	-1.20	*-2.17*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.1	61.6	60.3	54.3	62.7	63.3
Medium Trucks:	53.9	51.5	43.9	52.7	58.9	58.9
Heavy Trucks:	54.8	52.2	48.8	53.4	59.6	59.7
Vehicle Noise:	63.4	62.4	60.7	58.3	65.5	65.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.1	61.6	60.3	54.3	62.7	63.3
Medium Trucks:	53.9	51.5	43.9	52.7	58.9	58.9
Heavy Trucks:	54.8	52.2	48.8	53.4	59.6	59.7
Vehicle Noise:	63.4	62.4	60.7	58.3	65.5	65.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Backyard With Wall
Road Name: Kooden Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	355 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	6.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	43.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	37.050
Medium Trucks:	36.634
Heavy Trucks:	36.451

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-5.94	1.85	-1.20	*0.36*	-7.800	-10.800
Medium Trucks:	76.31	-23.18	1.92	-1.20	*0.20*	-6.800	-9.800
Heavy Trucks:	81.16	-27.13	1.96	-1.20	*0.00*	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.1	61.5	60.2	54.2	62.6	63.3
Medium Trucks:	53.9	51.4	43.9	52.7	58.9	58.9
Heavy Trucks:	54.8	52.2	48.8	53.5	59.7	59.8
Vehicle Noise:	63.3	62.4	60.6	58.3	65.5	65.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.3	50.7	49.4	43.4	51.8	52.5
Medium Trucks:	44.1	41.6	34.1	42.9	49.1	49.1
Heavy Trucks:	46.9	44.3	40.9	45.6	51.8	51.9
Vehicle Noise:	53.2	52.1	50.1	48.9	55.8	56.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: First Floor With Wall
Road Name: Kooden Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	355 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	6.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	47.025
Medium Trucks:	46.609
Heavy Trucks:	46.712

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-5.94	0.30	-1.20	*0.41*	-8.050	-11.050
Medium Trucks:	76.31	-23.18	0.35	-1.20	*0.20*	-6.800	-9.800
Heavy Trucks:	81.16	-27.13	0.34	-1.20	*0.00*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.5	60.0	58.7	52.7	61.1	61.7
Medium Trucks:	52.3	49.9	42.4	51.1	57.3	57.3
Heavy Trucks:	53.2	50.6	47.2	51.9	58.1	58.2
Vehicle Noise:	61.8	60.8	59.1	56.7	63.9	64.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.5	48.9	47.6	41.6	50.0	50.7
Medium Trucks:	42.5	40.1	32.6	41.3	47.5	47.5
Heavy Trucks:	53.2	50.6	47.2	51.9	58.1	58.2
Vehicle Noise:	55.0	53.1	50.5	52.6	59.0	59.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Second Floor With Wall
Road Name: Kooden Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	355 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	6.0
Centerline Dist. to Barrier:	33.0 feet
Centerline Dist. to Observer:	53.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.672
Medium Trucks:	48.062
Heavy Trucks:	46.999

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-5.94	0.07	-1.20	*-0.16*	0.000	0.000
Medium Trucks:	76.31	-23.18	0.15	-1.20	*-0.35*	0.000	0.000
Heavy Trucks:	81.16	-27.13	0.30	-1.20	*-1.21*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.3	59.8	58.5	52.4	60.9	61.5
Medium Trucks:	52.1	49.7	42.2	50.9	57.1	57.1
Heavy Trucks:	53.1	50.6	47.2	51.8	58.0	58.1
Vehicle Noise:	61.6	60.6	58.9	56.5	63.7	64.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.3	59.8	58.5	52.4	60.9	61.5
Medium Trucks:	52.1	49.7	42.2	50.9	57.1	57.1
Heavy Trucks:	53.1	50.6	47.2	51.8	58.0	58.1
Vehicle Noise:	61.6	60.6	58.9	56.5	63.7	64.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Backyard
Road Name: Elliot Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	355 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	55.902
Medium Trucks:	55.743
Heavy Trucks:	55.759

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-5.36	-0.83	-1.20	*-0.94*	0.000	0.000
Medium Trucks:	74.83	-22.60	-0.81	-1.20	*-1.15*	0.000	0.000
Heavy Trucks:	80.05	-26.55	-0.81	-1.20	*-1.75*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	57.2	55.9	49.9	58.3	58.9
Medium Trucks:	50.2	47.8	40.3	49.1	55.2	55.3
Heavy Trucks:	51.5	48.9	45.5	50.2	56.4	56.5
Vehicle Noise:	59.2	58.2	56.4	54.5	61.6	61.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	57.2	55.9	49.9	58.3	58.9
Medium Trucks:	50.2	47.8	40.3	49.1	55.2	55.3
Heavy Trucks:	51.5	48.9	45.5	50.2	56.4	56.5
Vehicle Noise:	59.2	58.2	56.4	54.5	61.6	61.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Backyard With Wall
Road Name: Elliot Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	355 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	55.902
Medium Trucks:	55.743
Heavy Trucks:	55.759

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-5.36	-0.83	-1.20	*-0.94*	0.000	0.000
Medium Trucks:	74.83	-22.60	-0.81	-1.20	*-1.15*	0.000	0.000
Heavy Trucks:	80.05	-26.55	-0.81	-1.20	*-1.75*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	57.2	55.9	49.9	58.3	58.9
Medium Trucks:	50.2	47.8	40.3	49.1	55.2	55.3
Heavy Trucks:	51.5	48.9	45.5	50.2	56.4	56.5
Vehicle Noise:	59.2	58.2	56.4	54.5	61.6	61.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	57.2	55.9	49.9	58.3	58.9
Medium Trucks:	50.2	47.8	40.3	49.1	55.2	55.3
Heavy Trucks:	51.5	48.9	45.5	50.2	56.4	56.5
Vehicle Noise:	59.2	58.2	56.4	54.5	61.6	61.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: First Floor With Wall
Road Name: Elliot Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	355 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	65.917
Medium Trucks:	65.782
Heavy Trucks:	65.795

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-5.36	-1.90	-1.20	*-0.42*	0.000	0.000
Medium Trucks:	74.83	-22.60	-1.89	-1.20	*-0.60*	0.000	0.000
Heavy Trucks:	80.05	-26.55	-1.89	-1.20	*-1.21*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.6	56.1	54.8	48.8	57.2	57.8
Medium Trucks:	49.1	46.7	39.2	48.0	54.2	54.2
Heavy Trucks:	50.4	47.8	44.5	49.1	55.3	55.4
Vehicle Noise:	58.2	57.1	55.3	53.4	60.5	60.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.6	56.1	54.8	48.8	57.2	57.8
Medium Trucks:	49.1	46.7	39.2	48.0	54.2	54.2
Heavy Trucks:	50.4	47.8	44.5	49.1	55.3	55.4
Vehicle Noise:	58.2	57.1	55.3	53.4	60.5	60.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - v5/13/24

Scenario: Second Floor With Wall
Road Name: Elliot Rd.
Project Name: French Valley 131
Job Number: 16189
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	7.10%
Peak Hour Volume:	355 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	1.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	97.42%
Medium Trucks:	48.9%	2.2%	48.9%	1.84%
Heavy Trucks:	47.3%	5.4%	47.3%	0.74%

Noise Source Elevations (in feet)

Autos:	0.00		
Medium Trucks:	2.30		
Heavy Trucks:	8.00	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.201
Medium Trucks:	66.760
Heavy Trucks:	66.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	-5.36	-2.03	-1.20	*-2.88*	0.000	0.000
Medium Trucks:	74.83	-22.60	-1.99	-1.20	*-3.37*	0.000	0.000
Heavy Trucks:	80.05	-26.55	-1.91	-1.20	*-4.73*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.5	56.0	54.7	48.7	57.1	57.7
Medium Trucks:	49.0	46.6	39.1	47.9	54.1	54.1
Heavy Trucks:	50.4	47.8	44.4	49.1	55.3	55.4
Vehicle Noise:	58.1	57.0	55.2	53.3	60.4	60.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.5	56.0	54.7	48.7	57.1	57.7
Medium Trucks:	49.0	46.6	39.1	47.9	54.1	54.1
Heavy Trucks:	50.4	47.8	44.4	49.1	55.3	55.4
Vehicle Noise:	58.1	57.0	55.2	53.3	60.4	60.8

APPENDIX 10.1:

SAMPLE AIR CONDITIONING UNIT

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48VR–A
Performance™ 15 SEER 2–Stage Packaged HYBRID HEAT® Dual Fuel System with Puron® (R–410A) Refrigerant
Single and Three Phase
2–5 Nominal Tons (Sizes 24–60)

Carrier
turn to the experts

Product Data

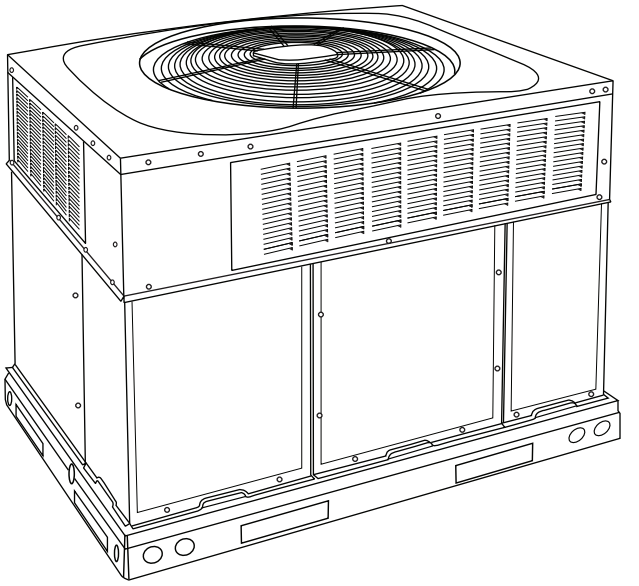


Fig. 1 - Unit 48VR-A

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- Up to 15.5 SEER
- 12.0 - 12.5 EER
- Up to 80.1% AFUE
- Meets Energy Star requirements
- Direct Spark Ignition
- Factory-Installed TXV
- Multi-speed ECM Blower Motor-Standard
- Sound Levels as low as 71dBA
- Two Stage Cooling
- Two Stage Heating (208/230 VAC models)
- Dehumidification Feature

FEATURES/BENEFITS

One-piece heating and cooling units with low sound levels, easy installation, low maintenance, and dependable performance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems proving highly reliable, environmentally sound performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, combination gas heating/electric cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard and optional heating/cooling size combinations with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes two horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

Efficient operation

High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of 15.0 to 15.5, 12.0 to 12.5 EER, and AFUE (Annual Fuel Utilization Efficiency) ratings as high as 80.1%.

Energy-saving, direct spark ignition saves gas by operating only when the room thermostat calls for heating. Standard units are furnished with natural gas controls. A low-cost field installed kit for propane conversion is available for all units.

48VRN-A units are dedicated Low NOx units designed for California installations. These models meet the California maximum oxides of nitrogen (NOx) emissions requirement of 40 nanograms/joule or less as shipped from the factory and MUST be installed in California Air Quality Management Districts and wherever a Low NOx rule exists.

Durable, dependable components

Compressors have two stages of cooling and are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Monoport inshot burners produce precise air-to-gas mixture, which provides for clean and efficient combustion. The large monoport on the inshot (or injection type) burners seldom, if ever, requires cleaning. All gas furnace components are accessible in one compartment.

Turbo-tubular™ heat exchangers are constructed of aluminized steel for corrosion resistance and optimum heat transfer for improved efficiency. The tubular design permits hot gases to make multiple passes across the path of the supply air.

In addition, dimples located on the heat exchanger walls force the hot gases to stay in close contact with the walls, improving heat transfer.

Stainless steel heat exchanger available as factory installed option.

Multi-speed ECM Blower Motor is standard on all 48VR-A models.

Direct-drive PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooing operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Thermostatic Expansion Valve - A hard shutoff, balance port TXV maintains a constant superheat at the evaporator exit (cooling cycle) resulting in higher overall system efficiency.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 71dBA.

Dehumidification Feature

This unit has independent fan speeds for low stage cooling and high stage cooling. In addition, 208/230 VAC models have the field-selectable capability to run an enhanced dehumidification ('DHUM') speed on high stage cooling (as low as 320CFM per ton). Coupled with the improved dehumidification associated with low stage cooling, the DHUM speed allows for a complete dehumidification solution independent of cooling stage. 208/230 VAC models also have independent fan speeds for low stage gas heating and high stage gas heating. The dehumidification control must open the control circuit on humidity rise above the dehumidification set point.

NOTE: The enhanced dehumidification feature on high stage cooling does not support use of an economizer.

Heating

- Reliable direct spark ignition system
- Two-speed PSC inducer motor with ball bearings (208/230 VAC models)
- Low stage heating delivers 65% of high-stage capacity (208/230 VAC models)

Easy to service cabinets provide easy 3-panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 mm) wide perimeter flange makes frame mounting on a rooftop easy.

Standard horizontal metal duct covers with insulation come with the unit and cover the horizontal duct openings. These can be left in place if the units are converted to downflow.

Integrated Gas Control (IGC) board provides safe and efficient control of heating and simplifies trouble-shooting through its built-in diagnostic function.

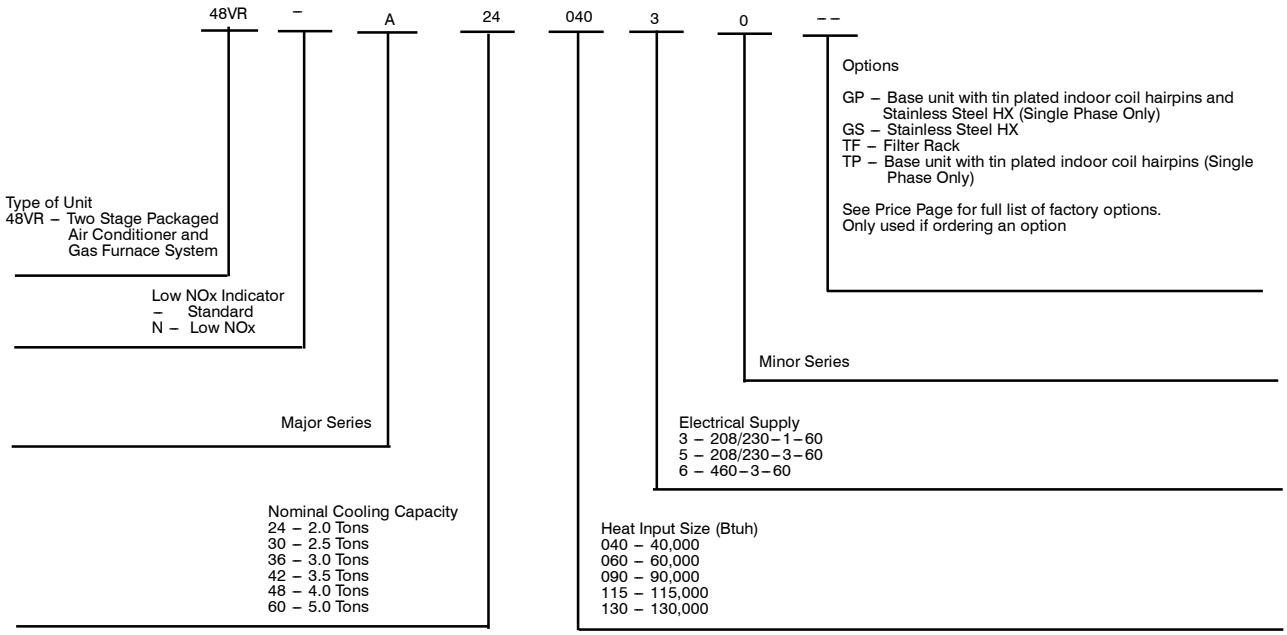
Cabinets are constructed of heavyduty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/heat exchanger compartment are insulated with foil-faced insulation, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers 62.2.) The sloped drain pan minimizes standing water in the drain. An external drain is provided.

Louvered grille provides hail and vandalism protection for the coil.

Short-Cycling protection for the compressor is incorporated into our defrost control board ensuring a five minute delay (+/-2 minutes) before restarting compressor after shutdown for any reason.

TABLE OF CONTENTS

MODEL NUMBER NOMENCLATURE



ASHRAE 90.1 COMPLIANT

GAS-FIRED

c UL us LISTED

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AHRI CERTIFIED www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

ENERGY STAR

AHRI* CAPACITIES

Cooling Capacities and Efficiencies

Unit Model 48VR-A	Nominal Tons	Standard CFM (High / Low Stage)	Net Cooling Capacities - Btuh (High Stage)	EER @A**	SEER†
24	2	850 / 650	23000	12.0	15.0
30	2-1/2	1000 / 750	30000	12.0	15.0
36	3	1200 / 900	34000	12.0	15.0
42	3-1/2	1400 / 1050	42000	12.0	15.0
48	4	1600 / 1200	47500	12.5	15.5
60	5	1750 / 1400	57000	12.0	15.0

Heat Pump Heating Capacities and Efficiencies

Unit Model 48VR-A	Heating Capacity (BTUH) @ 47_F (8.3_C)	COP @ 47_F (8.3_C)	Heating Capacity (BTUH) @ 17_F (---8.3_C)	COP @ 17_F (---8.3_C)	HSPF	Heating Cd
24	23,000	3.8	11200	2.2	8.0	0.25
30	29,000	3.8	15400	2.3	8.0	0.25
36	34,000	3.7	17200	2.3	8.0	0.25
42	42,000	3.6	24000	2.5	8.0	0.25
48	47,000	3.7	26000	2.3	8.0	0.25
60	57,000	3.5	32400	2.4	8.5	0.25

LEGEND
dB–Sound Levels (decibels)
db—Dry Bulb
SEER—Seasonal Energy Efficiency Ratio
wb—Wet Bulb
COP–Coefficient of Performance
* Air Conditioning, Heating & Refrigeration Institute.
**At "A" conditions–80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.
† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F (26.7°C) db, 67°F wb (19.4°C) indoor entering–air temperature and 95°F db (35°C) outdoor entering–air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from AHRIdirectory.org.

Heating Capacities and Efficiencies
208/230 VAC Models

UNIT 48VR-A	HEATING INPUT (BTUH) HIGH/LOW	OUTPUT CAPACITY (BTUH) HIGH / LOW	TEMPERATURE RISE RANGE HIGH °F (°C)	TEMPERATURE RISE RANGE LOW °F (°C)	AFUE (%)
24040 30040	40,000 / 26,000	32,000 / 21,000	20-50 (11-28)	15-45 (8-25)	78
24060 30060 36060 42060	60,000 / 39,000	49,000 / 31,000	25-55 (14-31)	25-55 (14-31)	78.6
36090 42090 48090 60090	90,000 / 58,500	74,000 / 47,000	35-65 (19-36)	35-65 (19-36)	79.2
48115 60115	115,000 / 75,000	93,000 / 61,000	30-60 (17-33)	30-60 (17-33)	80.1
48130 60130	130,000 / 84,500	103,000 / 68,000	35-65 (19-36)	35-65 (19-36)	80.0

LEGEND
AFUE – Annual Fuel Utilization Efficiency
NOTE: Before purchasing this appliance, read important energy cost and efficiency information available from AHRIdirectory.org.

A-Weighted Sound Power Level (dBA)

Model 48VR-A	Sound Ratings (dBA)	TYPICAL OCTAVE BAND SPECTRUM(dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	73	58.5	65	66.5	67	62	57.5	54.5
30	76	59	63	69	70	63.5	59	53.5
36	73	64	63.5	68	68	65.5	60.5	52.5
42	71	64	62	65	66	63.5	59.5	52.5
48	74	59.5	65	70	67	64.5	60.5	52.5
60	73	68	63	66	66	65	59.5	52.5

NOTE: Tested in accordance with AHRI Standard 270 (not listed in AHRI).

PHYSICAL DATA

UNIT SIZE	24040	24060	30040	30060	36060	36090	42060	42090
NOMINAL CAPACITY (ton)	2	2	2–1/2	2–1/2	3	3	3–1/2	3–1/2
SHIPPING WEIGHT** lb.	371	371	379	379	467	467	506	506
SHIPPING WEIGHT** (kg)	168	168	172	172	212	212	230	230
COMPRESSORS	Scroll							
Quantity	1							
REFRIGERANT (R–410A)								
Quantity lb.	9.0	9.0	10.0	10.0	11.0	11.0	14.6	14.6
Quantity (kg)	4.1	4.1	4.5	4.5	5.0	5.0	6.6	6.6
REFRIGERANT METERING DEVICE	TXV, Indoor TXV							
ORIFICE ID in.	.032 (2)	.032 (2)	.040 (2)	.040 (2)	.042 (2)	.042 (2)	.042 (2)	.042 (2)
(mm)	.81 (2)	.81 (2)	1.02 (2)	1.02 (2)	1.07 (2)	1.07 (2)	1.07 (2)	1.07 (2)
OUTDOOR COIL								
Rows...Fins/in.	2..21	2...21	2...21	2...21	2...21	2...21	2...21	2...21
Face Area (sq ft)	13.6	13.6	15.3	15.3	13.6	13.6	19.4	19.4
OUTDOOR FAN								
Nominal CFM	2100	2100	2500	2500	3000	3000	3000	3000
Diameter in.	24	24	24	24	26	26	26	26
Diameter (mm)	609.6	609.6	609.6	609.6	660.4	660.4	660.4	660.4
Motor Hp (Rpm)	1/12 (800)	1/12 (800)	1/8 (810)	1/8 (810)	1/5 (810)	1/5 (810)	1/5 (810	1/5 (810)
INDOOR COIL								
Rows...Fins/in.	3...17	3...17	3...17	3...17	3...17	3...17	3...17	3...17
Face Area (sq ft)	3.7	3.7	3.7	3.7	4.7	4.7	4.7	4.7
INDOOR BLOWER								
Nominal Low Stage Cooling Airflow (Cfm)	650	650	750	750	900	900	1050	1050
Nominal High Stage Cooling Airflow (Cfm)	850	850	1000	1000	1200	1200	1400	1400
Size in.	10x10	10x10	10x10	10x10	11x10	11x10	11x10	11x10
Size (mm.)	254x254	254x254	254x254	254x254	279.4x254	279.4x254	279.4x254	279.4x254
Motor HP (RPM)	1/2 (1050)	1/2 (1050)	1/2 (1050)	1/2 (1050)	3/4 (1000)	3/4 (1000)	3/4 (1075)	3/4 (1075)
FURNACE SECTION*								
Burner Orifice No. (Qty...Drill Size)	2...44	3...44	2...44	3...44	3...44	3…38	3...44	3...38
Natural Gas (Factory Installed)	2...55	3...55	2...55	3...55	3...55	3…53	3...55	3...53
Propane Gas								
HIGH-PRESSURE SWITCH (psig) Cut-out Reset (Auto)	650 +/- 15 420 +/- 25							
LOSS-OF-CHARGE / LOW-PRESSURE SWITCH (Liquid Line) (psig) cut-out Reset (auto)	20 +/- 5 45 +/- 5							
RETURN–AIR FILTERS†‡								
Throwaway Size in.	20x20x1	20x24x1			24x30x1			
(mm)	508x508x25	508x610x25			610x762x25			

*Based on altitude of 0 to 2000 ft (0–610 m).

† Required filter sizes shown are based on the larger of the AHRI (Air Conditioning Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/minute for throwaway type. Air filter pressure drop for non–standard filters must not exceed 0.08 IN. W.C.

‡ If using accessory filter rack refer to the filter rack installation instructions for correct filter sizes and quantity.

PHYSICAL DATA (CONT)

UNIT SIZE	48090	48115	48130	60090	60115	60130
NOMINAL CAPACITY (ton)	4	4	4	5	5	5
SHIPPING WEIGHT lb	509	509	509	562	562	562
SHIPPING WEIGHT kg	231	231	231	255	255	255
COMPRESSORS	Scroll					
Quantity	1					
REFRIGERANT (R–410A)						
Quantity lb	12.0	12.0	12.0	14.8	14.8	14.8
Quantity (kg.)	5.4	5.4	5.4	6.7	6.7	6.7
REFRIGERANT METERING DEVICE	TXV, Indoor TXV					
ORIFICE ID in.	,042 (2)	.042 (2)	.042 (2)	.052 (2)	.052 (2)	.052 (2)
(mm)	1.07 (2)	1.07 (2)	1.07 (2)	1.32 (2)	1.32 (2)	1.32 (2)
OUTDOOR COIL						
Rows...Fins/in.	2...21	2...21	2...21	2...21	2...21	2...21
Face Area (sq ft)	17.5	17.5	17.5	23.3	23.3	23.3
OUTDOOR FAN						
Nominal Cfm	3300	3300	3300	3600	3600	3600
Diameter in.	26	26	26	26	26	26
Diameter (mm)	660.4	660.4	660.4	660.4	660.4	660.4
Motor Hp (Rpm)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)
INDOOR COIL						
Rows...Fins/in.	3...17	3...17	3...17	4...17	4...17	4...17
Face Area (sq ft)	5.7	5.7	5.7	5.7	5.7	5.7
INDOOR BLOWER						
Nominal Low Stage Cooling Airflow (Cfm)	1200	1200	1200	1400	1400	1400
Nominal High Stage Cooling Airflow (Cfm)	1600	1600	1600	1750	1750	1750
Size in.	11x10	11x10	11x10	11x10	11x10	11x10
Size (mm)	279.4x254	279.4x254	279.4x254	279.4x254	279.4x254	279.4x254
Motor HP (RPM)	1.0 (1075)	1.0 (1075)	1.0 (1075)	1.0 (1075)	1.0 (1075)	1.0 (1075)
FURNACE SECTION*						
Burner Orifice No. (Qty...Drill Size)						
Natural Gas (Factory Installed)	3...38	3...33	3...31	3...38	3...33	3...31
Propane Gas	3...53	3...51	3...49	3...53	3...51	3...49
HIGH-PRESSURE SWITCH (psig) Cut-out Reset (Auto)	650 +/- 15 420 +/- 25					
LOSS-OF-CHARGE / LOW-PRESSURE SWITCH (psig) cut-out Reset (auto)	20 +/-5 45 +/- 5					
RETURN-AIR FILTERS Throwaway†‡ **in.** **(mm)**	24x36x1 610x914x25					

*Based on altitude of 0 to 2000 ft (0–610 m).

† Required filter sizes shown are based on the larger of the AHRI (Air Conditioning Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/minute for throwaway type. Air filter pressure drop for non–standard filters must not exceed 0.08 IN. W.C.

‡ If using accessory filter rack refer to the filter rack installation instructions for correct filter sizes and quantity.

UNIT DIMENSIONS - 48VR-A24-30

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM					
		LB	KG	"A"		X		Y		Z	
48VR(-/N)A24(040/060)30	208/230-1	363	164.7	44-1/8	1121	22-13/16	579.4	15-5/16	388.9	15-13/16	401.6
48VR(-/N)A30(040/060)(3/5)0	208/230-1, 208/230-3-60	371	168.3	46-1/8	1172	22-13/16	579.4	15-5/16	388.9	16-5/8	422.3

UNIT	VOLTAGE	CORNER WEIGHT LB/KG							
		"1"		"2"		"3"		"4"	
48VR(-/N)A24(040/060)30	208/230	54.5	24.7	72.6	32.9	108.9	49.4	127.1	57.6
48VR(-/N)A30(040/060)(3/5)0	208/230	55.7	25.2	74.2	33.7	111.3	50.5	129.9	58.9

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	INCHES [MM]
TOP OF UNIT	14 [355.6]
DUCT SIDE OF UNIT	2 [50.8]
SIDE OPPOSITE DUCTS	14 [355.6]
BOTTOM OF UNIT	1/2 [12.7]
FLUE PANEL	36 [914.4]

NEC. REQUIRED CLEARANCES.

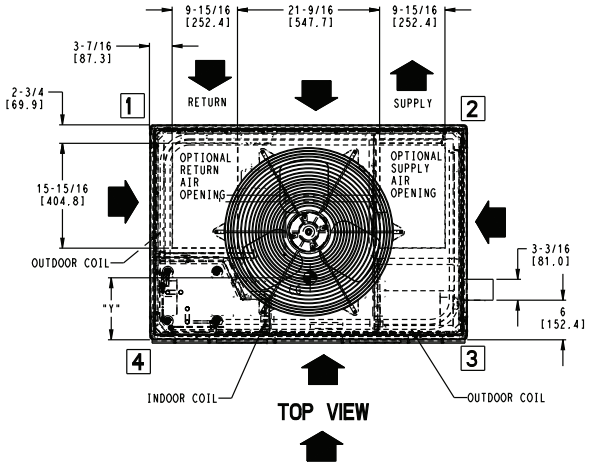
	INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

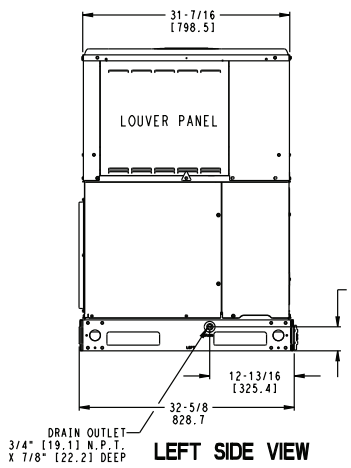
	INCHES [MM]
EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE	42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	48 [1219.2]
SIDE OPPOSITE DUCTS	36 [914.0]
DUCT PANEL	12 [304.8]*

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

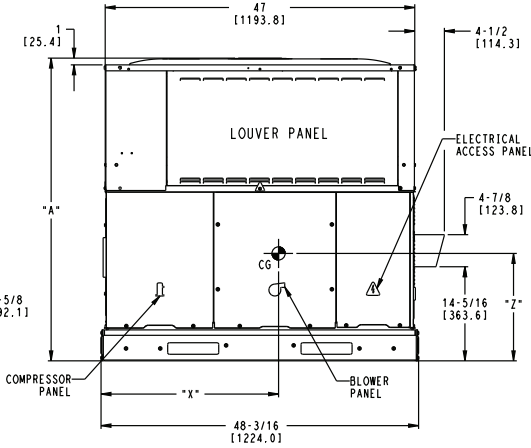
DIMENSIONS IN [] ARE IN MM



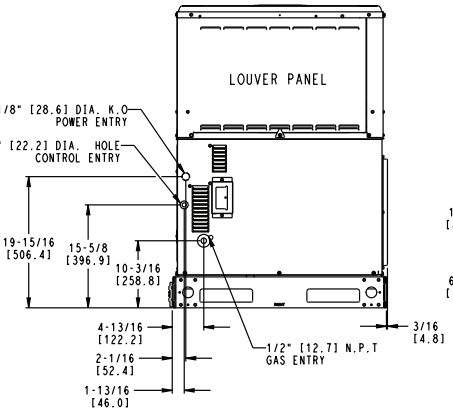
TOP VIEW



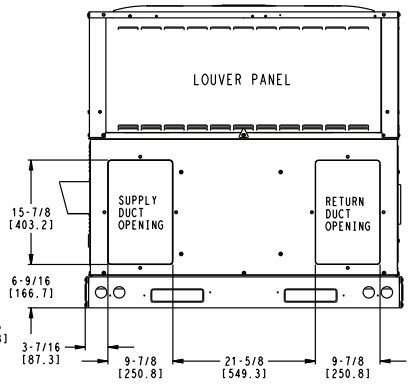
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



REAR VIEW

48VR500022	REV -

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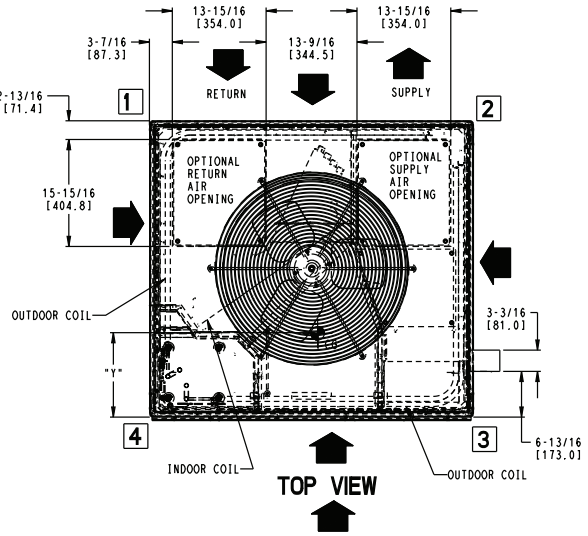
UNIT DIMENSIONS - 48VR-A36-60

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM					
		LB	KG	"A"		X		Y		Z	
48VR(-/N)A36(060/090)(3/5/6)0	208/230-1,208/230-3-60	459	208.2	44-3/4	1137	22-13/16	579.4	18	457.2	17-1/8	435.0
48VR(-/N)A42(060/090)(3/5/6)0	208/230-1,208/230-3-60	498	225.9	50-3/4	1289	22-13/16	579.4	18	457.2	17-1/8	435.0
48VR(-/N)A48(090/115/130)(3/5/6)0	208/230-1,208/230-3-60	501	227.3	48-3/4	1238	22-13/16	579.4	18	457.2	17-3/8	441.3
48VR(-/N)A60(090/115/130)(3/5/6)0	208/230-1,208/230-3-60	554	251.3	54-3/4	1391	22-13/16	579.4	18	457.2	17-5/8	447.7

UNIT	VOLTAGE	CORNER WEIGHT LB/KG							
		"1"		"2"		"3"		"4"	
48VR(-/N)A36(060/090)(3/5)0	208/230	68.9	31.2	91.8	41.6	137.7	62.5	160.7	72.9
48VR(-/N)A42(060/090)(3/5)0	208/230	74.7	33.9	99.6	45.2	149.4	67.8	174.3	79.1
48VR(-/N)A48(090/115/130)(3/5)0	208/230	75.2	34.1	100.2	45.5	150.3	68.2	175.4	79.5
48VR(-/N)A60(090/115/130)(3/5)0	208/230	83.1	37.7	110.8	50.3	166.2	75.4	193.9	88.0

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER



REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	INCHES [MM]
TOP OF UNIT	14 [355.6]
DUCT SIDE OF UNIT	2 [50.8]
SIDE OPPOSITE DUCTS	14 [355.6]
BOTTOM OF UNIT	1/2 [12.7]
FLUE PANEL	36 [914.4]

NEC. REQUIRED CLEARANCES.

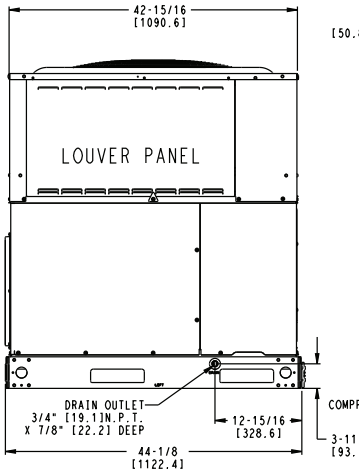
	INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.8]
UNIT AND UNGROUNDED SURFACES,POWER ENTRY SIDE	36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42 [1066.8]

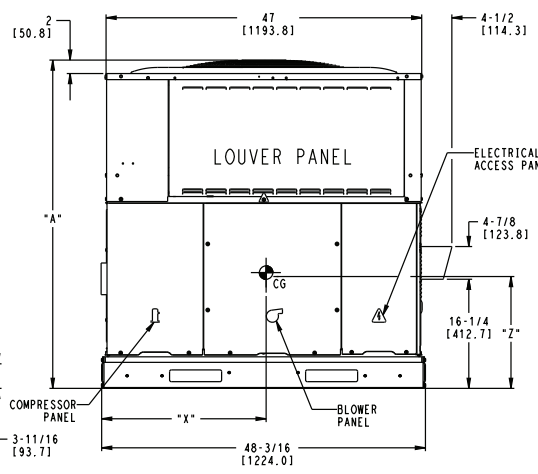
REQUIRED CLEARANCE FOR OPERATION AND SERVICING

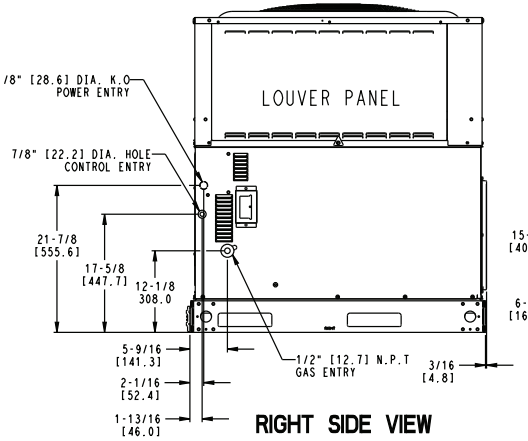
	INCHES [MM]
EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE	42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	48 [1219.2]
SIDE OPPOSITE DUCTS	36 [914.0]
DUCT PANEL	12 [304.8]*

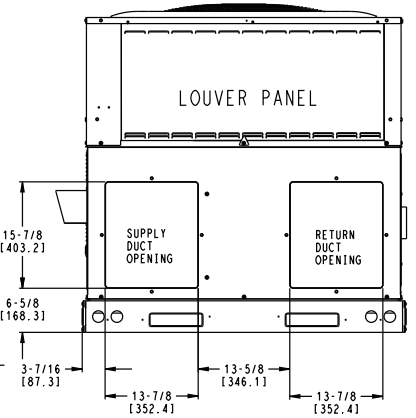
*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

DIMENSIONS IN [] ARE IN MM









48VR500025	REV -

48VR--A

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APPENDIX 10.2:

CADNAA OPERATIONAL NOISE CALCULATIONS

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16189 - French Valley

CadnaA Noise Prediction Model: 16189-02_Operation.cna
Date: 27.03.25
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (m)	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (m)	**999.99**
Min. Length of Section (m)	**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 (1996))	
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 (°C)	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (m/s)	**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)				(m)		(m)	(m)	(m)
R1		R1	37.1	34.4	41.1	0.0	0.0	0.0		x	Total	5.00	r	1919940.34	662434.22	5.00
R2		R2	43.1	40.3	47.1	0.0	0.0	0.0		x	Total	5.00	r	1920228.12	662079.55	5.00
R3		R3	33.4	30.6	37.3	0.0	0.0	0.0		x	Total	5.00	r	1920301.64	661665.74	5.00
R4		R4	35.4	32.7	39.4	0.0	0.0	0.0		x	Total	5.00	r	1919763.47	661779.51	5.00
R5		R5	43.1	40.3	47.1	0.0	0.0	0.0		x	Total	5.00	r	1919774.06	662078.22	5.00
R6		R6	41.1	38.3	45.1	0.0	0.0	0.0		x	Total	5.00	r	1919766.96	662244.62	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)	(m)		(m)	(m)	(m)
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919815.03	662261.50	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919841.48	662260.74	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919868.31	662261.12	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919895.52	662260.35	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919921.21	662261.12	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919947.27	662261.12	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919973.34	662261.12	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920023.17	662262.65	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920050.00	662261.89	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920075.30	662261.89	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920101.37	662261.89	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920127.82	662260.74	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920153.50	662261.50	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920178.80	662256.52	3.00

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)	(m)		(m)	(m)	(m)
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920180.33	662221.64	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920177.26	662200.94	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920177.26	662183.69	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920178.41	662163.37	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920177.26	662123.89	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920178.03	662104.34	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920177.65	662085.94	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920178.03	662068.69	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920177.65	662048.38	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920177.65	662031.13	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920177.65	662012.73	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920177.65	661994.71	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920178.41	661975.93	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920179.18	661955.61	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920180.33	661927.63	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920148.90	661919.20	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920126.67	661922.26	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920109.03	661922.26	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920089.87	661921.50	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920072.23	661921.88	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920053.07	661921.88	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920035.44	661921.50	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920016.65	661922.26	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919995.57	661924.95	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919978.32	661934.91	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919961.07	661943.73	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919818.09	662201.70	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919839.94	662202.47	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919860.64	662206.69	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919879.04	662207.07	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919897.06	662208.22	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919915.46	662208.22	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919934.24	662208.60	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919951.49	662207.07	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919972.19	662207.07	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920022.79	662207.45	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920040.04	662206.69	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920058.05	662207.45	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920077.22	662207.45	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920096.00	662206.69	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920114.40	662207.07	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920132.03	662206.69	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920128.97	662165.29	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920110.57	662164.52	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920091.78	662164.91	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920073.77	662165.29	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920057.28	662164.91	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920037.74	662164.91	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920019.72	662164.91	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919975.25	662164.14	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919956.85	662164.91	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919938.46	662166.06	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919920.06	662164.52	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919900.51	662165.29	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919882.87	662165.29	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919864.86	662164.91	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919824.61	662169.89	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919821.54	662149.19	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919818.48	662130.79	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919821.93	662113.16	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919868.69	662117.37	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919886.32	662117.76	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919904.72	662117.37	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919922.36	662118.91	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919939.99	662118.14	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919959.54	662118.52	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919976.40	662118.14	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920023.55	662117.76	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920040.04	662118.52	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920057.28	662117.76	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920078.75	662118.52	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920096.77	662118.91	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920113.25	662117.76	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920134.33	662118.52	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920132.42	662082.11	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920115.17	662082.49	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920095.23	662082.11	3.00

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)	(m)		(m)	(m)	(m)
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920077.60	662082.49	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920060.35	662082.49	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920040.80	662082.88	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920022.40	662081.73	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919976.79	662082.11	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919959.15	662082.11	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919940.37	662082.11	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919922.74	662081.73	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919904.72	662081.73	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919885.17	662082.11	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919867.54	662082.88	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919821.93	662094.76	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919823.08	662077.13	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919822.31	662057.96	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919824.61	662039.18	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919823.84	662021.54	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919824.23	662002.76	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919865.62	662036.11	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919884.41	662036.11	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919902.81	662036.49	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919921.97	662036.11	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919939.61	662035.73	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919957.62	662035.34	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920047.70	662040.71	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920094.85	662041.09	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920130.50	662040.71	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920128.58	662021.54	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920095.62	662021.93	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920094.85	662004.30	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920128.58	662004.68	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920131.27	661984.75	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920128.20	661968.26	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920094.85	661967.50	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920097.15	661985.13	3.00
AC6		AC6	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920047.32	662023.46	3.00
AC7		AC7	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920048.47	662003.91	3.00
AC8		AC8	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920045.40	661987.05	3.00
AC9		AC9	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1920049.62	661967.50	3.00
AC0		AC0	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919957.62	662000.46	3.00
AC1		AC1	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919938.84	662001.61	3.00
AC2		AC2	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919921.21	662002.38	3.00
AC3		AC3	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919903.57	662002.76	3.00
AC4		AC4	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919882.49	662002.38	3.00
AC5		AC5	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	1919865.62	662002.38	3.00

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	(km/h)	(ft)

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(m)		(m)		(m)	(m)	(m)	(m)

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)	

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(m)		(m)		(m)	(m)	(m)	(m)

Barrier(s)

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

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(m)	(m)	(m)	(m)	(m)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(m)	(m)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(m)	(m)	(m)	(m)	(m)	(m)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(km/h)

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(km/h)	(km/h)		(dB)		(%)	(dB)	(m)	(m)

RoadsGeo

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(m)	(%)
	(m)		(m)		(m)	(m)	(m)	(m)		

APPENDIX 11.1:

CONSTRUCTION NOISE CALCULATIONS

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16189 - French Valley

CadnaA Noise Prediction Model: 16189-02_Construction.cna
Date: 25.06.25
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (ft)	**6561.70**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (ft)	**3280.80**
Min. Length of Section (ft)	**3.30**
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	**328.08**
Search Radius Rcvr	**328.08**
Max. Distance Source - Rcvr	**3280.84 3280.84**
Min. Distance Rvcr - Reflector	**3.28 3.28**
Min. Distance Source - Reflector	**0.33**
Industrial (ISO 9613 (1996))	
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 (°F)	**50**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (mph)	**6.7**
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	58.9	-44.1	55.9	0.0	0.0	0.0		x	Total	16.40	r	6299016.88	2173340.63	16.40
R2		R2	64.2	-38.8	61.2	0.0	0.0	0.0		x	Total	16.40	r	6299961.02	2172176.99	16.40
R3		R3	54.5	-48.5	51.5	0.0	0.0	0.0		x	Total	16.40	r	6300202.22	2170819.35	16.40
R4		R4	57.7	-45.3	54.7	0.0	0.0	0.0		x	Total	16.40	r	6298436.60	2171192.62	16.40
R5		R5	64.9	-38.1	61.9	0.0	0.0	0.0		x	Total	16.40	r	6298471.32	2172172.65	16.40
R6		R6	63.6	-39.5	60.5	0.0	0.0	0.0		x	Total	16.40	r	6298448.04	2172718.58	16.40

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)

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)	

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

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)		
CA1		CA1	118.6	15.6	15.6	66.4	-36.6	-36.6	PWL-Pt	115.6					26	r

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
CA1	CA1	26.25	r		6298531.29	2172894.16	26.25	0.00
					6299875.30	2172897.11	26.25	0.00
					6299873.62	2171572.67	26.25	0.00
					6298533.28	2171572.11	26.25	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)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph)

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)

RoadsGeo

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		