Victorville Connection

NOISE IMPACT ANALYSIS

CITY OF VICTORVILLE

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LIST OF ABBREVIATED TERMS

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

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Victorville Connection development ("Project"). The Project site is located on the north side of Bear Valley Road between 2nd Avenue and 3rd Avenue in the City of Victorville. The Project as proposed consists of a gas station with convenience store, fast food restaurants with drive thru, commercial retail space, medical office space, general office space and multi-family residential land use. This noise study has been prepared to satisfy applicable City of Victorville noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this 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
Off-Site Traffic Noise	7	*Less Than Significant*	-
On-Site Traffic Noise	8	*Less Than Significant*	-
Operational Noise	10	*Less Than Significant*	-
Construction Noise	11	*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 Victorville Connection ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the 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 potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Project is located on the north side of Bear Valley Road between 2nd Avenue and 3rd Avenue in the City of Victorville, as shown on Exhibit 1-A. The site is currently zoned as General Commercial Transitional (C-2T) and classified as Commercial in the City of Victorville General Plan Land Use and Zoning District Map. The proposed project land use is permitted in the zone and does not require a zone change or General Plan amendment. The project site is currently vacant. The area surrounding the Project Site consists mostly of rural residential homes to the north and west, with the Victor Elementary School District Building and Desert Valley Hospital located east of the Project site.

1.2 PROJECT DESCRIPTION

The proposed Project will consist of the following land uses as shown on Exhibit 1-B.

Parcel A
- 16 pump gas station with 3,500 square feet convenience store

Parcel B
- 4,400 square feet fast food with drive thru.

Parcel C1
- 6,100 square feet of commercial retail space
- 6,600 square feet of fast food with drive thru

Parcel C2
- 55,989 square feet of commercial retail space

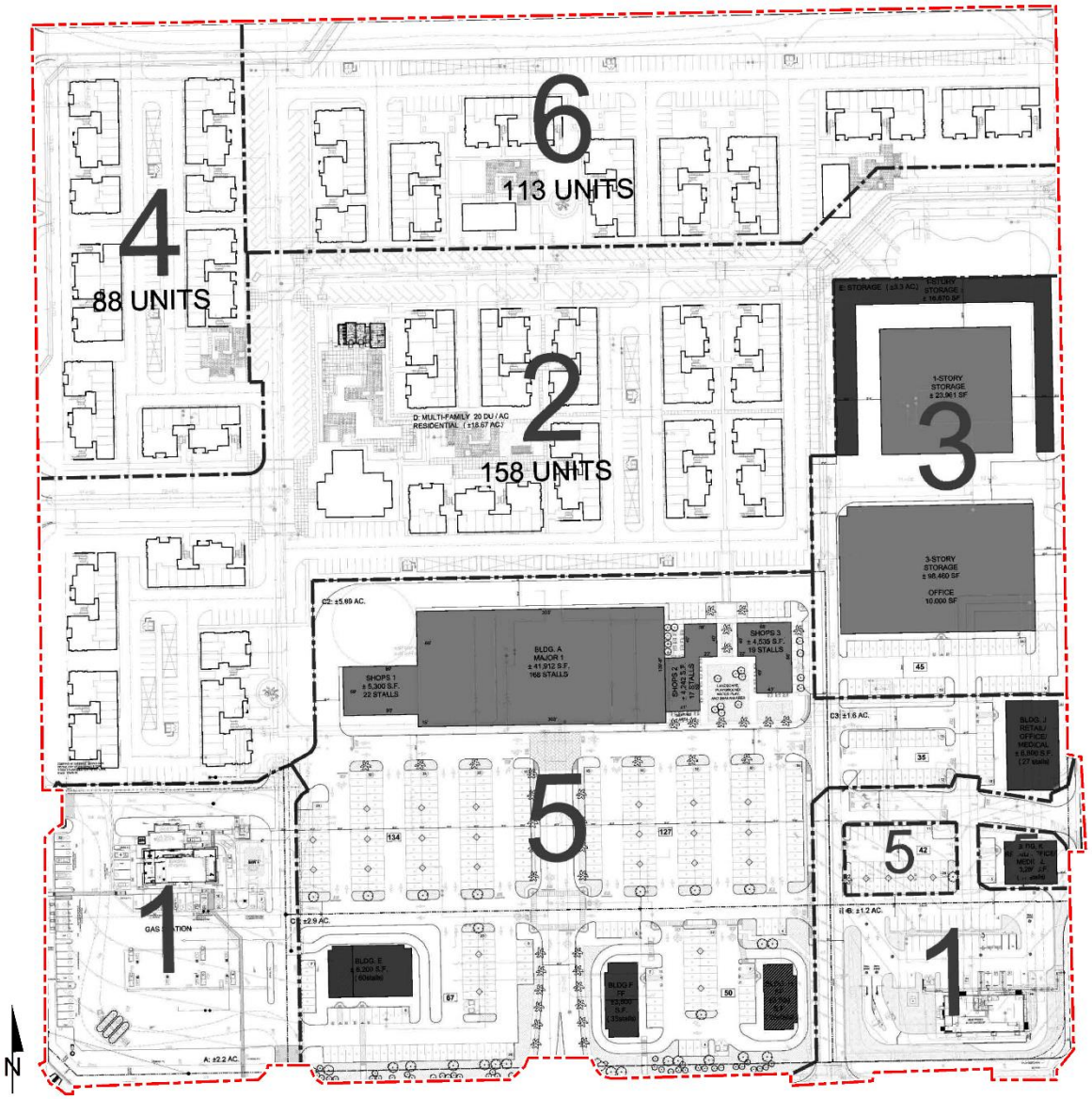
Parcel C3
- 10,080 square feet of medical office space

Parcel D
- 376 dwelling unit multi-family residential complex

Parcel E
- 10,000 square feet of general office space
- 139,091 square feet of storage space.

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.

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 City of Victorville 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)

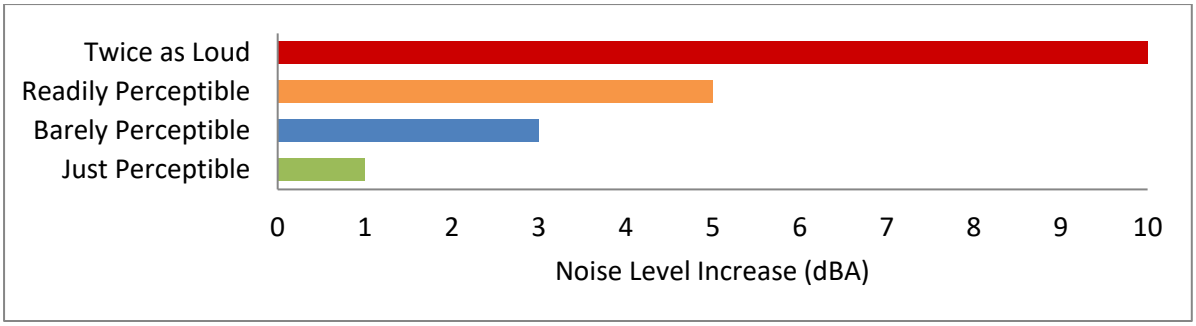
2.7 COMMUNITY RESPONSE TO NOISE

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



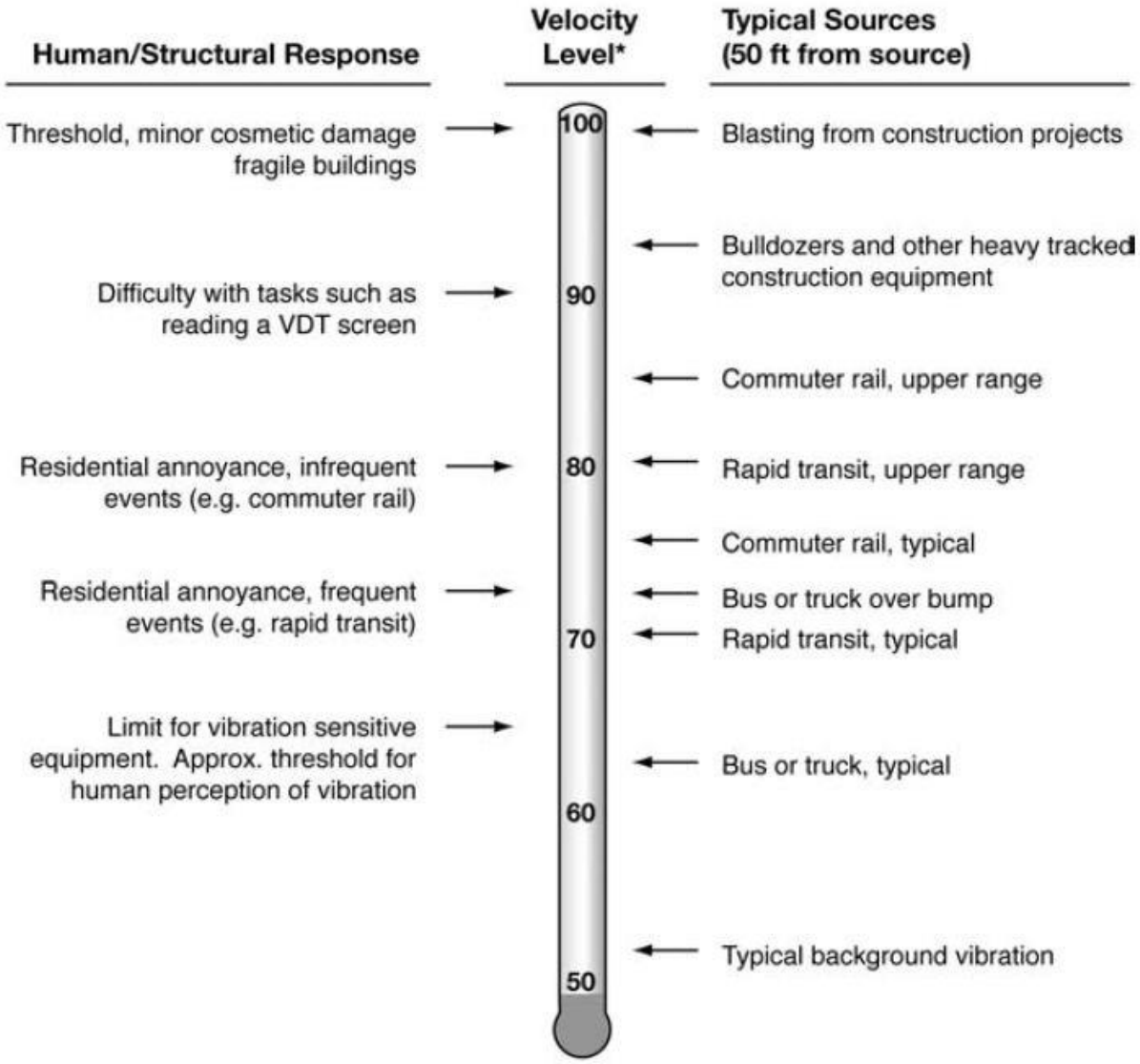
2.8 VIBRATION

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

3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (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.

3.1.1 RESIDENTIAL CONSTRUCTION

The State of California's noise insulation standards for all residential units are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Chapter 12, Section 1206. These noise standards are applied to new construction that contains dwelling units or sleeping units, such as residential and hotel or motel uses, in California for controlling interior noise levels resulting from exterior noise sources. For new buildings, the acceptable interior noise limit is 45 dBA CNEL in habitable rooms (9).

3.1.2 NON-RESIDENTIAL CONSTRUCTION

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (10) 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 non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other noise source. If the development falls within an airport or freeway 65 dBA CNEL noise contour, buildings shall be construction to provide an interior noise level environment attributable to exterior sources that does not exceed an hourly equivalent level of 50 dBA L_{eq} in occupied areas during any hour of operation.

3.3 CITY OF VICTORVILLE GENERAL PLAN NOISE ELEMENT

The City of Victorville *General Plan Noise Element* is *intended to limit exposure of the community to excessive noise levels*. (11) The City of Victorville *General Plan Noise Element* land use compatibility standards specify the noise levels allowable for new developments impacted by transportation noise sources. The City's compatibility criteria, found in Table N-3 of the *General Plan,* identify the criteria for the multi-family and commercial land uses such as the Project, as shown on Exhibit 3-A. For the multi-family residential land use, exterior noise levels of less than 65 dBA CNEL are considered *normally acceptable*, *conditionally acceptable* with exterior noise levels between 65 to 70 dBA CNEL, and *normally unacceptable* with exterior noise levels above 70 dBA CNEL. For the planned commercial land use. For the commercial land use, exterior noise levels of less than 70 dBA CNEL are considered *normally acceptable*, and *conditionally acceptable* with exterior noise levels between 70 to 75 dBA CNEL, and *normally unacceptable* with exterior noise levels above 75 dBA CNEL.

EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY CRITERIA

Table N-3
Victorville Land Use Compatibility Standards

	Community Noise Exposure Ldn or CNEL, dB						
Land Use Categories	55	60	65	70	75	80 +	
Residential - Low Density, Single Family, Duplex, Multi-family, Mobile Home	1	1	2	2	3	4	4
Transient Lodging - Motels, Hotels	1	1	2	2	3	3	4
Schools, Libraries, Churches, Hospitals, Nursing Homes	1	1	2	3	3	4	4
Auditoriums, Concert Halls, Amphitheaters	2	2	3	3	4	4	4
Sports Arena, Outdoor Spectator Sports	2	2	2	2	3	3	3
Playgrounds, Neighborhood Parks	1	1	1	2	3	3	3
Golf Courses, Riding Stables, Water Recreation, Cemeteries	1	1	1	2	2	4	4
Office Buildings, Business Commercial, Retail Commercial and Professional	1	1	1	2	2	3	3
Industrial, Manufacturing, Utilities	1	1	1	1	2	2	2
Agriculture	1	1	1	1	1	1	1

Legend:
1. NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
2. CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and Schools, Libraries, Churches, Hospitals, Nursing Homes 1 needed noise insulation features included in the design. Conventional construction, with closed windows and fresh air supply systems or air conditioning will normally suffice.
3. NORMALLY UNACCEPTABLE: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
4. CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.

Source: City of Victorville General Plan Noise Element, Table N-3.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Victorville Connection Project, stationary-source (operational) noise such as the expected roof-top air conditioning units, drive-thru speakerphones, trash enclosure activity, parking lot activity, loading dock activity, car wash tunnel, car wash vacuum, and gas station activity are typically evaluated against standards established under a jurisdiction's Municipal Code.

Section 13.01.030 of the City of Victorville Municipal Code, establishes the noise level standards for stationary noise sources. For residential properties, the exterior noise level shall not exceed 65 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 55 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (12) Since the Project land use will potentially impact noise-sensitive non-residential commercial uses such as the Victor Elementary School District and Desert Valley Hospital in addition to noise-sensitive residential uses in the Project study area, this noise study relies on the exterior noise level standards for all land uses identified by the City of Victorville Municipal Code. For commercial uses, exterior noise levels shall not exceed 70 dBA L_{eq} at any time. For the industrial uses the exterior noise levels commercial uses shall not exceed 75 dBA L_{eq} at any time. The operational noise level standards are shown on Table 3-1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Land Use	Exterior Noise Levels (dBA L_{eq})[2]	
	Daytime (7am-10pm)	Nighttime (10pm-7am)
Residential	65	55
Commercial	70	
Industrial	75	

[1] City of Victorville Municipal Code, Section 13.01.030 (Appendix 3.1).
[2] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given period.

3.5 CONSTRUCTION NOISE STANDARDS

Section 13.01.060.9 of the City of Victorville Municipal Code, provided in Appendix 3.1, indicates that construction activity is considered exempt from the noise level standards on private properties that are determined by the director of building and safety to be essential to the completion of a project. However, neither the City of Victorville General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. 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. (7 p. 179).

3.6 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (7)

To analyze vibration impacts originating from the operation and construction of the Victorville Connection, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Victorville does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (13 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4 SIGNIFICANCE CRITERIA

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

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

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

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

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest 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 increase represents a significant adverse environmental impact. This approach *recognizes that there is no single noise increase that renders the noise impact significant.* (14) 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. The Federal Interagency Committee on Noise (FICON) (15) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}). The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (4 p. 9) and Caltrans (16 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.6, the vibration impacts originating from the construction of the Victorville Connection, vibration-generating activities are appropriately evaluated using the Caltrans vibration damage thresholds to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest airport is the Southern California Logistics Airport located roughly 9 miles northwest 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 Appendix G to the CEQA Guidelines, Noise Threshold C.

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 that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	Nighttime
Off-Site Traffic[1]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
	If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
	If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
On-Site Traffic	Exterior Noise Compatibility Criteria[2]	See Exhibit 3-A	
	Interior Noise Level Standard[3]	45 dBA CNEL	
Operational	Exterior Noise Level Standards[4]	See Table 3-1	
	If ambient is < 60 dBA Leq[1]	≥ 5 dBA L_{eq} Project increase	
	If ambient is 60 - 65 dBA Leq[1]	≥ 3 dBA L_{eq} Project increase	
	If ambient is > 65 dBA Leq[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise Level Threshold[5]	80 dBA L_{eq}	
	Vibration Level Threshold[6]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] City of Victorville General Plan Noise Element Land Use Compatibility Standards (Table N-3).
[3] California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Chapter 12, Section 1206.
[4] City of Victorville Municipal Code, Section 13.01.030 (Appendix 3.1).
[5] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[6] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at five locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, June 30, 2021. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

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

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (7)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (7) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

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

5.3 NOISE MEASUREMENT RESULTS

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

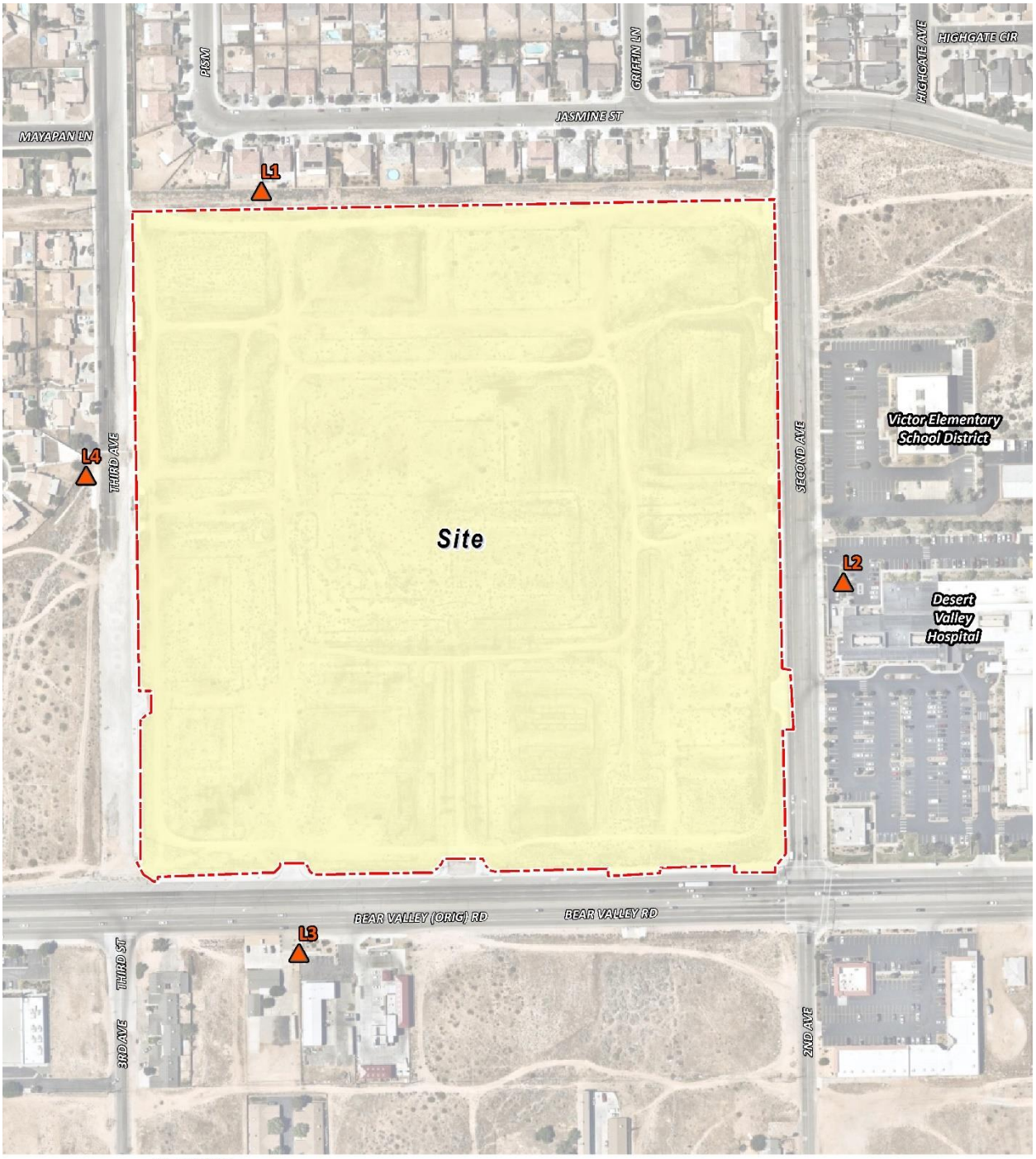
TABLE 5-1: AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located on the northern edge of the Project Site near a single-family residence at 16557 Jasmine Street.	46.7	46.9
L2	Located east of the Project Site on Second Avenue near Desert Valley Hospital at 16850 Bear Valley Rd.	65.4	62.8
L3	Located south of the Project Site near 20 High Desert Funeral Chapel & Cremation at 16545 Bear Valley Road.	72.3	69.6
L4	Located west of the Project Site on Third Avenue near a single-family residential at 12219 Jason Lane.	52.3	50.9

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

Table 5-1 provides the equivalent noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each of the daytime and nighttime hours.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with the City of Victorville *Land Use Compatibility Standards* guidelines outline on Exhibit 3-A, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (18) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (19) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (20)

6.1.1 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 13 off-site study area roadway segments, the distance from the centerline to adjacent receiving land use based on the functional roadway classifications per the City of Victorville General Plan Circulation Element, and the vehicle speeds. The ADT volumes used in this study are presented on Table 6-2 are based on the *Bear Valley Marketplace Traffic Impact Analysis* prepared by TJW Engineering, Inc. for the following traffic conditions:

1. Existing Without Project
2. Existing With Project (EP)
3. Project Opening Year (2023) Without Project (OYNP)
4. Project Opening Year (2023) With Project (OYWP)
5. Future Year (2033) Without Project (2033 NP)
6. Future Year (2033) With Project (2033 WP)

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification[1]	Centerline Distance to Receiving Land Use[2]	Vehicle Speed (mph)
1	3rd Ave	n/o Silica	Arterial	50'	45
2	3rd Ave	s/o Bear Valley	Arterial	50'	45
3	2nd Ave	n/o Jasmine	Arterial	50'	45
4	2nd Ave	n/o Bear Valley	Arterial	50'	45
5	2nd Ave	s/o Bear Valley	Arterial	50'	45
6	Hesperia	n/o Jasmine	Super Arterial	62'	45
7	Hesperia	s/o Jasmine	Super Arterial	62'	45
8	Jasmine	e/o 2nd Ave	Arterial	50'	45
9	Bear Valley	w/o 7th Ave	Super Arterial	62'	45
10	Bear Valley	e/o 7th Ave	Super Arterial	62'	45
11	Bear Valley	w/o 3rd Ave	Super Arterial	62'	45
12	Bear Valley	e/o 3rd Ave	Super Arterial	62'	45
13	Bear Valley	e/o 2nd Ave	Super Arterial	62'	45

[1] City of Victorville General Plan Circulation Element

[2] Based upon the right-of-way distances for each roadway classification provided in the General Plan Circulation Element.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]					
			Existing		OY 2023		2033	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	3rd Ave	n/o Silica	4,380	4,790	4,130	4,540	4,560	4,970
2	3rd Ave	s/o Bear Valley	1,890	2,300	1,560	1,970	2,320	2,730
3	2nd Ave	n/o Jasmine	3,000	3,410	3,240	3,650	3,700	4,110
4	2nd Ave	n/o Bear Valley	4,600	6,850	4,980	7,230	5,710	7,920
5	2nd Ave	s/o Bear Valley	1,590	2,000	1,720	2,130	2,000	2,380
6	Hesperia	n/o Jasmine	19,650	20,880	21,270	22,500	24,220	25,450
7	Hesperia	s/o Jasmine	20,040	20,860	21,680	22,500	24,700	25,520
8	Jasmine	e/o 2nd Ave	3,760	4,170	4,060	4,470	4,630	5,040
9	Bear Valley	w/o 7th Ave	34,880	37,410	38,010	40,540	42,960	45,490
10	Bear Valley	e/o 7th Ave	35,490	38,360	38,530	41,400	43,720	46,590
11	Bear Valley	w/o 3rd Ave	35,740	38,630	38,690	41,640	44,020	46,910
12	Bear Valley	e/o 3rd Ave	35,710	37,190	38,660	40,140	44,000	45,470
13	Bear Valley	e/o 2nd Ave	34,780	37,240	37,640	40,100	42,830	45,290

[1] Bear Valley Marketplace Traffic Impact Analysis, TJW Engineering, Inc.

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. In addition, the off-site traffic noise analysis is based on a PM peak hour to average daily traffic (peak-to-daily) relationship of 10%. Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

[1] Typical Southern California vehicle mix.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Roadways[1]	97.42%	1.84%	0.74%	100.00%

[1] Typical Southern California vehicle mix.

6.1.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-5 presents the on-site roadway parameters including the ADT volumes used for this study. The on-site roadway parameters are based on the long-range 2033 with project traffic conditions for adjacent roadway traffic noise levels impacting the on-site multi-family residential land use. The primary source of transportation noise affecting the Project site is anticipated to be from Bear Valley Road, Third Avenue and Second Avenue.

TABLE 6-5: ON-SITE ROADWAY PARAMETERS

Roadway	Classification[1]	Lanes	Average Daily Traffic Volume[2]	Speed Limit (mph)
Bear Valley Road	Super Arterial	6	45,470	50
Third/Second Avenue	Arterial	4	7,920	50

[1] Road classifications based upon the County of Riverside General Plan Circulation Element.
[2] Bear Valley Marketplace Traffic Impact Analysis, TJW Engineering, Inc.

7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on *Bear Valley Marketplace Traffic Impact Analysis*. (21) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at receiving land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area.

Tables 7-1 through 7-6 present a summary of the exterior dBA CNEL traffic noise levels, without barrier attenuation, for the 24 study area roadway segments analyzed from the without Project to the with Project conditions in each of the following conditions:

1. Existing Without Project
2. Existing With Project (EP)
3. Project Opening Year (2023) Without Project (OYNP)
4. Project Opening Year (2023) With Project (OYWP)
5. Future Year (2033) Without Project (2033 NP)
6. Future Year (2033) With Project (2033 WP)

Appendix 7.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	CNEL at Nearest Receiving Land Use (dBA)[1]	Distance to Contour from Centerline (Feet)		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	3rd Ave	n/o Silica	63.6	RW	RW	86
2	3rd Ave	s/o Bear Valley	59.9	RW	RW	RW
3	2nd Ave	n/o Jasmine	61.9	RW	RW	67
4	2nd Ave	n/o Bear Valley	63.8	RW	RW	89
5	2nd Ave	s/o Bear Valley	59.2	RW	RW	RW
6	Hesperia	n/o Jasmine	69.3	RW	120	259
7	Hesperia	s/o Jasmine	69.4	RW	122	263
8	Jasmine	e/o 2nd Ave	62.9	RW	RW	78
9	Bear Valley	w/o 7th Ave	71.8	82	176	380
10	Bear Valley	e/o 7th Ave	71.9	83	178	384
11	Bear Valley	w/o 3rd Ave	71.9	83	179	386
12	Bear Valley	e/o 3rd Ave	71.9	83	179	386
13	Bear Valley	e/o 2nd Ave	71.8	82	176	379

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING WITH PROJECT CONTOURS

ID	Road	Segment	CNEL at Nearest Receiving Land Use (dBA)[1]	Distance to Contour from Centerline (Feet)		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	3rd Ave	n/o Silica	63.9	RW	RW	92
3	3rd Ave	s/o Bear Valley	60.8	RW	RW	56
5	2nd Ave	n/o Jasmine	62.5	RW	RW	73
7	2nd Ave	n/o Bear Valley	65.5	RW	54	116
9	2nd Ave	s/o Bear Valley	60.1	RW	RW	51
11	Hesperia	n/o Jasmine	69.6	RW	125	270
13	Hesperia	s/o Jasmine	69.6	RW	125	270
15	Jasmine	e/o 2nd Ave	63.3	RW	RW	83
17	Bear Valley	w/o 7th Ave	72.1	86	185	398
19	Bear Valley	e/o 7th Ave	72.2	87	188	405
21	Bear Valley	w/o 3rd Ave	72.3	88	189	407
23	Bear Valley	e/o 3rd Ave	72.1	85	184	396
25	Bear Valley	e/o 2nd Ave	72.1	85	184	397

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: PROJECT OPENING YEAR (2023) WITHOUT PROJECT CONTOURS

ID	Road	Segment	CNEL at Nearest Receiving Land Use (dBA)[1]	Distance to Contour from Centerline (Feet)		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	3rd Ave	n/o Silica	63.3	RW	RW	83
3	3rd Ave	s/o Bear Valley	59.1	RW	RW	RW
5	2nd Ave	n/o Jasmine	62.2	RW	RW	71
7	2nd Ave	n/o Bear Valley	64.1	RW	RW	94
9	2nd Ave	s/o Bear Valley	59.5	RW	RW	RW
11	Hesperia	n/o Jasmine	69.7	RW	127	273
13	Hesperia	s/o Jasmine	69.7	RW	128	277
15	Jasmine	e/o 2nd Ave	63.2	RW	RW	82
17	Bear Valley	w/o 7th Ave	72.2	87	187	402
19	Bear Valley	e/o 7th Ave	72.2	87	188	406
21	Bear Valley	w/o 3rd Ave	72.3	88	189	407
23	Bear Valley	e/o 3rd Ave	72.3	88	189	407
25	Bear Valley	e/o 2nd Ave	72.1	86	186	400

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: PROJECT OPENING YEAR (2023) WITH PROJECT CONTOURS

ID	Road	Segment	CNEL at Nearest Receiving Land Use (dBA)[1]	Distance to Contour from Centerline (Feet)		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	3rd Ave	n/o Silica	63.7	RW	RW	88
3	3rd Ave	s/o Bear Valley	60.1	RW	RW	51
5	2nd Ave	n/o Jasmine	62.8	RW	RW	76
7	2nd Ave	n/o Bear Valley	65.7	RW	56	121
9	2nd Ave	s/o Bear Valley	60.4	RW	RW	53
11	Hesperia	n/o Jasmine	69.9	RW	132	284
13	Hesperia	s/o Jasmine	69.9	RW	132	284
15	Jasmine	e/o 2nd Ave	63.6	RW	RW	87
17	Bear Valley	w/o 7th Ave	72.5	90	195	420
19	Bear Valley	e/o 7th Ave	72.6	92	198	426
21	Bear Valley	w/o 3rd Ave	72.6	92	198	427
23	Bear Valley	e/o 3rd Ave	72.4	90	194	417
25	Bear Valley	e/o 2nd Ave	72.4	90	194	417

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: FUTURE YEAR (2033) WITHOUT PROJECT CONTOURS

ID	Road	Segment	CNEL at Nearest Receiving Land Use (dBA)[1]	Distance to Contour from Centerline (Feet)		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	3rd Ave	n/o Silica	63.7	RW	RW	89
3	3rd Ave	s/o Bear Valley	60.8	RW	RW	56
5	2nd Ave	n/o Jasmine	62.8	RW	RW	77
7	2nd Ave	n/o Bear Valley	64.7	RW	RW	103
9	2nd Ave	s/o Bear Valley	60.1	RW	RW	51
11	Hesperia	n/o Jasmine	70.2	64	138	298
13	Hesperia	s/o Jasmine	70.3	65	140	302
15	Jasmine	e/o 2nd Ave	63.8	RW	RW	90
17	Bear Valley	w/o 7th Ave	72.7	94	203	436
19	Bear Valley	e/o 7th Ave	72.8	95	205	442
21	Bear Valley	w/o 3rd Ave	72.8	96	206	444
23	Bear Valley	e/o 3rd Ave	72.8	96	206	443
25	Bear Valley	e/o 2nd Ave	72.7	94	202	436

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: FUTURE YEAR (2033) WITH PROJECT CONTOURS

ID	Road	Segment	CNEL at Nearest Receiving Land Use (dBA)[1]	Distance to Contour from Centerline (Feet)		
				70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	3rd Ave	n/o Silica	64.1	RW	RW	94
3	3rd Ave	s/o Bear Valley	61.5	RW	RW	63
5	2nd Ave	n/o Jasmine	63.3	RW	RW	83
7	2nd Ave	n/o Bear Valley	66.1	RW	59	128
9	2nd Ave	s/o Bear Valley	60.9	RW	RW	57
11	Hesperia	n/o Jasmine	70.4	66	143	308
13	Hesperia	s/o Jasmine	70.5	66	143	308
15	Jasmine	e/o 2nd Ave	64.2	RW	RW	95
17	Bear Valley	w/o 7th Ave	73.0	98	210	453
19	Bear Valley	e/o 7th Ave	73.1	99	214	461
21	Bear Valley	w/o 3rd Ave	73.1	100	215	463
23	Bear Valley	e/o 3rd Ave	73.0	98	210	453
25	Bear Valley	e/o 2nd Ave	72.9	97	210	452

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze the existing traffic scenarios identified in the Traffic Analysis prepared by TJW Engineering, Inc. However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until Year 2023 conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels range from 59.2 to 71.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions ranging from 60.1 to 72.3 dBA CNEL. Table 7-7 shows that the Project off-site traffic noise level increases range from 0.2 to 1.7 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

7.3 PROJECT OPENING YEAR (2023) TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Project Opening Year (2023) without Project conditions CNEL noise levels. The Project Opening Year (2023) without Project exterior noise levels range from 59.1 to 72.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows that the Project Opening Year (2023) with Project conditions will also range from 60.1 to 72.6 dBA CNEL. Table 7-8 shows that the Project off-site traffic noise level increases range from 0.1 to 1.6 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

7.4 FUTURE YEAR (2033) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the Future Year (2033) without Project conditions CNEL noise levels. The Future Year (2033) without Project exterior noise levels range from 60.1 to 72.8 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows that the Future Year (2033) with Project conditions will also range from 60.9 to 73.1 dBA CNEL. Table 7-9 shows that the Project off-site traffic noise level increases range from 0.2 to 1.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Project-related traffic.

TABLE 7-7: EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
			No Project	With Project	Project Addition	Limit	Exceeded?
1	3rd Ave	n/o Silica	63.6	63.9	0.3	3.0	No
2	3rd Ave	s/o Bear Valley	59.9	60.8	0.9	5.0	No
3	2nd Ave	n/o Jasmine	61.9	62.5	0.6	3.0	No
4	2nd Ave	n/o Bear Valley	63.8	65.5	1.7	3.0	No
5	2nd Ave	s/o Bear Valley	59.2	60.1	0.9	5.0	No
6	Hesperia	n/o Jasmine	69.3	69.6	0.3	1.5	No
7	Hesperia	s/o Jasmine	69.4	69.6	0.2	1.5	No
8	Jasmine	e/o 2nd Ave	62.9	63.3	0.4	3.0	No
9	Bear Valley	w/o 7th Ave	71.8	72.1	0.3	1.5	No
10	Bear Valley	e/o 7th Ave	71.9	72.2	0.3	1.5	No
11	Bear Valley	w/o 3rd Ave	71.9	72.3	0.4	1.5	No
12	Bear Valley	e/o 3rd Ave	71.9	72.1	0.2	1.5	No
13	Bear Valley	e/o 2nd Ave	71.8	72.1	0.3	1.5	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-8: PROJECT OPENING YEAR (2023) TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
			No Project	With Project	Project Addition	Limit	Exceeded?
1	3rd Ave	n/o Silica	63.3	63.7	0.4	3.0	No
2	3rd Ave	s/o Bear Valley	59.1	60.1	1.0	5.0	No
3	2nd Ave	n/o Jasmine	62.2	62.8	0.6	3.0	No
4	2nd Ave	n/o Bear Valley	64.1	65.7	1.6	3.0	No
5	2nd Ave	s/o Bear Valley	59.5	60.4	0.9	5.0	No
6	Hesperia	n/o Jasmine	69.7	69.9	0.2	1.5	No
7	Hesperia	s/o Jasmine	69.7	69.9	0.2	1.5	No
8	Jasmine	e/o 2nd Ave	63.2	63.6	0.4	3.0	No
9	Bear Valley	w/o 7th Ave	72.2	72.5	0.3	1.5	No
10	Bear Valley	e/o 7th Ave	72.2	72.6	0.4	1.5	No
11	Bear Valley	w/o 3rd Ave	72.3	72.6	0.3	1.5	No
12	Bear Valley	e/o 3rd Ave	72.3	72.4	0.1	1.5	No
13	Bear Valley	e/o 2nd Ave	72.1	72.4	0.3	1.5	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-9: FUTURE YEAR (2033) PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	CNEL at Receiving Land Use (dBA)[1]			Incremental Noise Level Increase Threshold[2]	
			No Project	With Project	Project Addition	Limit	Exceeded?
1	3rd Ave	n/o Silica	63.7	64.1	0.4	3.0	No
2	3rd Ave	s/o Bear Valley	60.8	61.5	0.7	3.0	No
3	2nd Ave	n/o Jasmine	62.8	63.3	0.5	3.0	No
4	2nd Ave	n/o Bear Valley	64.7	66.1	1.4	3.0	No
5	2nd Ave	s/o Bear Valley	60.1	60.9	0.8	3.0	No
6	Hesperia	n/o Jasmine	70.2	70.4	0.2	1.5	No
7	Hesperia	s/o Jasmine	70.3	70.5	0.2	1.5	No
8	Jasmine	e/o 2nd Ave	63.8	64.2	0.4	3.0	No
9	Bear Valley	w/o 7th Ave	72.7	73.0	0.3	1.5	No
10	Bear Valley	e/o 7th Ave	72.8	73.1	0.3	1.5	No
11	Bear Valley	w/o 3rd Ave	72.8	73.1	0.3	1.5	No
12	Bear Valley	e/o 3rd Ave	72.8	73.0	0.2	1.5	No
13	Bear Valley	e/o 2nd Ave	72.7	72.9	0.2	1.5	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

8 ON-SITE TRAFFIC NOISE ANALYSIS

An on-site exterior noise impact analysis has been completed to determine the noise exposure levels that would result from adjacent transportation noise sources in the Project study area, and to identify potential noise mitigation measures that would achieve acceptable Project exterior and interior noise levels. The primary source of transportation noise affecting the Project site is anticipated to be from Bear Valley Road, Third Avenue and Second Avenue. The Project would also be exposed to nominal traffic noise from the Project's internal roads. However, due to the distance, topography and low traffic volume/speed, traffic noise from these roads will not make a substantive contribution to ambient noise conditions.

8.1 EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model and the parameters outlined in Tables 6-3 to 6-5, the expected future exterior noise levels for the on-site Project land uses were estimated at on-site receiver locations. To describe the on-site traffic noise impacts, six on-site receiver locations were identified at the multi-family residential locations facing Bear Valley Road, Third Avenue and Second Avenue as shown on Exhibit 8-A. Table 8-1 presents a summary of future on-site exterior traffic noise levels. The on-site traffic noise analysis calculations are provided in Appendix 8.1.

As shown on Table 8-1, the planned multi-family residential land use will experience *normally acceptable* exterior noise levels of ranging from 56.8 to 64.7 dBA CNEL. For *normally acceptable* exterior noise levels, the *Land Use Compatibility Standards* indicate that the *land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insultation requirements.*

TABLE 8-1: UNMITIGATED EXTERIOR NOISE LEVELS

Receiver Location[1]	Land Use	Unmitigated Exterior Noise Level (dBA CNEL)[2]	Land Use Compatibility[3]
MF1	Multi-Family Residential	63.4	*Normally Acceptable*
MF2	Multi-Family Residential	64.7	*Normally Acceptable*
MF3	Multi-Family Residential	56.8	*Normally Acceptable*
MF4	Multi-Family Residential	56.9	*Normally Acceptable*
MF5	Multi-Family Residential	58.0	*Normally Acceptable*
MF6	Multi-Family Residential	59.8	*Normally Acceptable*

[1] On-site multi-family receiver locations shown on Exhibit 8-A.
[2] Exterior on-site traffic noise level calculations are included in Appendix 8.1.
[3] Based on the General Plan land use compatibility standards as shown on Exhibit 3-A.

EXHIBIT 8-A: ON-SITE RECEIVER LOCATIONS

9 OFF-SITE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following off-site receiver locations, as shown on Exhibit 9-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, five 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. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. 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 residence at 16595 Jasmine Street, approximately 47 feet north of the Project site. R1 is placed at the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

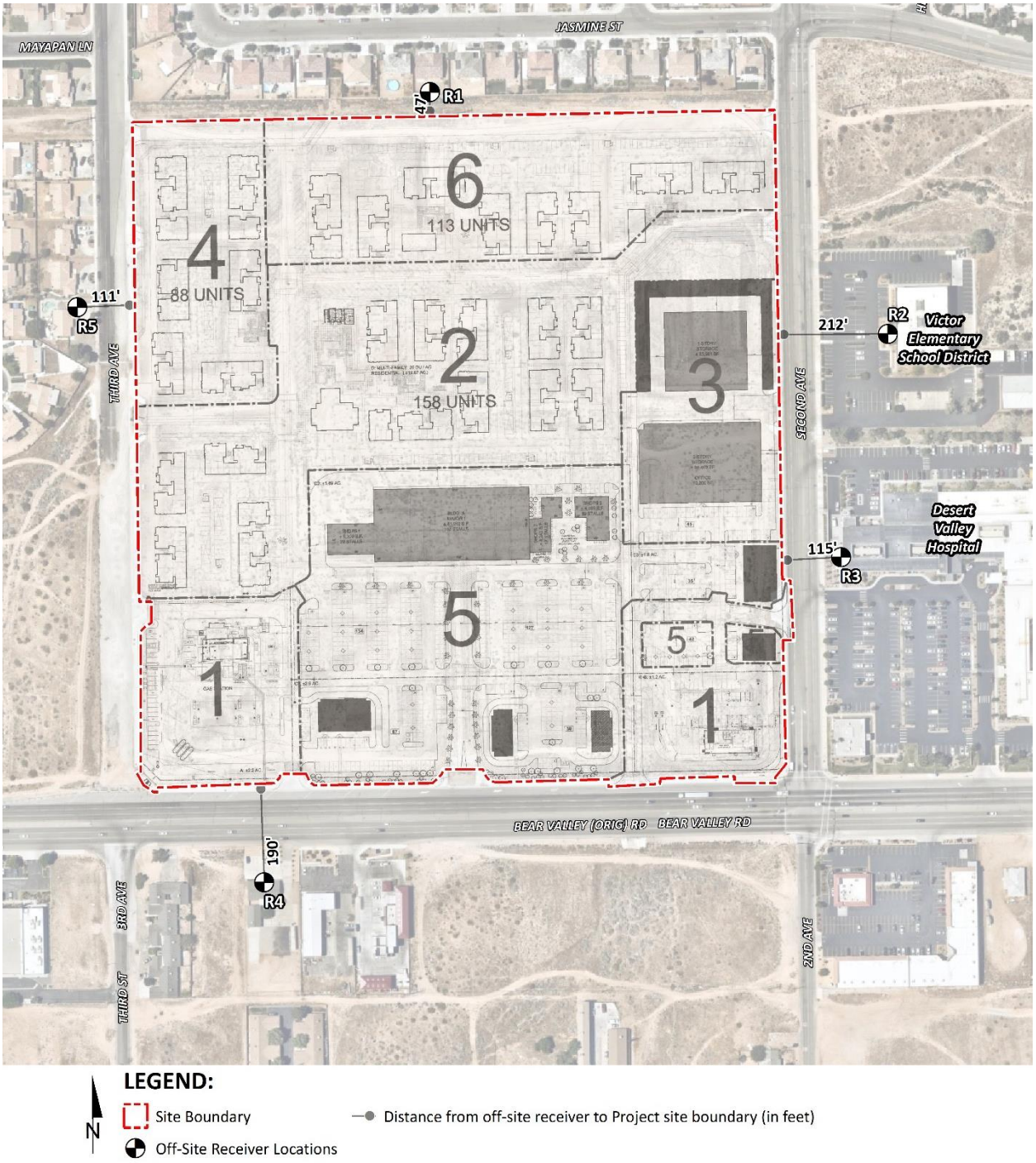
R2: Location R2 represents the Victor Elementary School District building at 12219 2nd Avenue, approximately 212 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R2 is placed at the building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the Desert Valley Hospital at 16850 Bear Valley Road, approximately 115 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the building façade. A 24-hour noise measurement near this location, L2, is used to describe the existing ambient noise environment.

R4: Location R4 represents the 20 High Desert Funeral Chapel & Cremation at 16545 Bear Valley Road, approximately 190 feet south of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R4 is placed at the building façade. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

R5: Location R5 represents the existing noise sensitive residence at 12244 3rd Avenue, approximately 111 feet west of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R5 is placed at the building façade. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

EXHIBIT 9-A: OFF-SITE RECEIVER LOCATIONS



10 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 9, resulting from the operation of the Victorville Connection Project. Exhibit 10-A identifies the representative noise source activities used to assess the operational noise levels.

10.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical daytime and nighttime activities at the Project site. The on-site Project-related noise sources are expected to include: roof-top air conditioning units, drive-thru speakerphones, trash enclosure activity, parking lot activity, loading dock activity, car wash tunnel, car wash vacuum, and gas station activity. The multi-family residential land use within the Victorville Connection is considered a noise-sensitive receiving land use. Therefore, no potential operational noise impacts for the multi-family residential land use are analyzed in the noise study.

10.2 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 10-1 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 roof-top air conditioning units, drive-thru speakerphones, trash enclosure activity, parking lot activity, loading dock activity, car wash tunnel, car wash vacuum, and gas station activity all operating at the same time. These sources of noise activity will likely vary throughout the day.

10.2.1 MEASUREMENT PROCEDURES

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

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS

TABLE 10-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level @50 feet (dBA L_{eq})	Sound Power Level (dBA)[3]
		Day	Night		
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Drive-Thru Speakerphone	3'	60	60	51.5	83.2
Trash Enclosure Activity	5'	10	10	56.8	89.0
Parking Lot Activity	5'	60	60	56.1	87.8
Loading Dock Activity	5'	60	0	62.8	103.4
Car Wash Tunnel	8'	60	0	74.3	106.0
Car Wash Vacuum	3'	60	0	54.6	86.3
Gas Station Activity	5'	60	60	48.2	79.9

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

10.2.2 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements were collected from a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for an average of 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. For this noise analysis, the air conditioning units are expected to be located on the roof of the proposed building. This reference noise level describes the expected roof-top air conditioning units located 5 feet above the roof for the planned air conditioning units at the Project site.

10.2.3 DRIVE-THRU SPEAKERPHONE ACTIVITY

To describe the potential noise level impacts associated with potential drive-thru speakerphones and vehicle activities, a reference noise level measurement was collected. The reference noise levels collected are expected to reflect potential drive-thru speakerphone noise level activities at the Project site, since the reference measurement includes both drive-thru speakerphone and vehicle activity noise. The noise sources included in the reference noise level measurement consist of voices of the employees over the speakerphone, customers' voices ordering food, car engines idling, car radios playing music, and cars queuing in the drive-thru lane. At 50 feet from the speakerphone, a reference noise level of 51.5 dBA L_{eq} was measured.

10.2.4 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, and trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 56.8 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for the Project's proposed building. Typical trash enclosure activities are estimated to occur for 10 minutes per hour.

10.2.5 PARKING LOT ACTIVITY

To describe the on-site parking lot activity a reference noise level of 56.1 dBA L_{eq} at 50 feet is used. Parking lot activity are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due cars pulling in and out of parking spaces.

10.2.6 LOADING DOCK ACTIVITY

The reference loading dock activities are intended to describe the typical operational noise source levels associated with the Project. This includes truck idling, deliveries, backup alarms, unloading/loading, docking including a combination of tractor trailer semi-trucks, two-axle delivery trucks, and background forklift operations. At a uniform reference distance of 50 feet, Urban Crossroads collected a reference noise level of 62.8 dBA L_{eq}.

The loading dock activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources taken from the center of activity. The reference noise level measurement includes employees unloading a docked truck container included the squeaking of the truck's shocks when weight was removed from the truck, employees playing music over a radio, as well as a forklift horn and backup alarm. In addition, during the noise level measurement a truck entered the loading dock area and proceeded to reverse and dock in a nearby loading bay, adding truck engine, idling, air brakes noise, in addition to on-going idling of an already docked truck.

10.2.7 CAR WASH TUNNEL

A reference noise level measurement was taken by Urban Crossroads to describe the air blowers used in a car wash tunnel. A reference noise level of 74.3 dBA L_{eq} was measured at the uniform distance of 50 feet. The reference noise level measurement includes an exposed five-unit air blower system with background pressure washer noise and is used to represent the proposed Project facilities. It is anticipated that the air dryers within the proposed car wash will operate continuously during the peak operating conditions. Further, this noise analysis does not include any additional attenuation or directional influence provided by locating the car wash air blower and dryer equipment inside the tunnel itself, but rather, models the tunnel exit activities as

occurring at the building façade. As such, the analysis may conservatively overstate actual noise levels produced by the car wash tunnel air blower and dryer equipment.

10.2.8 CAR WASH VACUUM

To represent the self-serve vacuums within the Project site, a reference noise level measurement was collected at an express car wash. The reference noise level measurement represents up to four vacuums operating simultaneously. At a uniform reference distance of 50 feet, the vacuum reference noise level is 54.6 dBA L_{eq}. This reference car wash vacuum activity noise level is anticipated to conservatively overstate those of the Project, since this reference noise level includes more vacuums operating simultaneously (4 vacuums) than what will be possible at the Project site (2 vacuums).

10.2.9 GAS STATION ACTIVITY

To describe the potential noise level impacts created by the gas station of the Project, a reference noise level measurement was collected. The reference noise level measurement includes six cars fueling at once, car doors closing, engines starting, fuel pump TV sounds and background car pass-by events within a 3-minute period. At 50 feet from the gas station, a reference noise level of 48.2 dBA L_{eq} was measured.

10.3 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 (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 10.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

10.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include roof-top air conditioning units, drive-thru speakerphones, trash enclosure activity, parking lot activity, loading dock activity, car wash tunnel, car wash vacuum, and gas station 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 10-2 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 46.6 to 53.7 dBA L_{eq}. The daytime hourly noise levels at the future on-site Project receiver locations are expected to range from 47.5 to 64.9 dBA L_{eq}.

Table 10-3 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 38.3 to 48.5 dBA L_{eq}. The nighttime hourly noise levels at the future on-site Project receiver locations are expected to range from 35.1 to 52.7 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the duration of noise activity (Table 10-1). Appendix 10.1 includes the detailed noise model inputs including the existing perimeter walls used to estimate the Project operational noise levels presented in this section.

10.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Victorville exterior noise level standards at nearby noise-sensitive receiver locations. Table 10-4 shows the operational noise levels associated with Victorville Connection Project will satisfy the City of Victorville 65 dBA L_{eq} daytime and 55 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 10-2: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)										
	R1	R2	R3	R4	R5	MF1	MF2	MF3	MF4	MF5	MF6
Roof-Top Air Conditioning Units	18.4	16.8	18.9	27.9	22.0	18.2	13.8	22.5	16.3	30.1	26.2
Drive-Thru Speakerphone	35.2	35.9	45.5	45.3	39.3	35.0	32.0	47.2	40.6	45.7	49.6
Trash Enclosure Activity	18.2	15.9	18.2	30.1	22.9	19.3	14.7	20.7	15.9	31.2	32.2
Parking Lot Activity	35.2	35.9	45.5	45.3	39.3	35.0	32.0	47.2	40.6	45.7	49.6
Loading Dock Activity	43.2	51.9	50.3	38.8	48.6	44.9	46.5	60.0	57.0	61.5	52.1
Car Wash Tunnel	42.5	34.4	38.6	46.1	51.6	44.6	39.0	36.3	42.2	59.6	64.3
Car Wash Vacuum	20.4	9.8	16.8	34.6	25.8	22.6	12.8	12.2	17.1	35.3	43.2
Gas Station Activity	12.8	10.6	13.9	30.7	21.4	14.1	10.5	9.8	11.8	21.3	30.5
Total (All Noise Sources)	**46.6**	**52.2**	**52.7**	**50.9**	**53.7**	**48.2**	**47.5**	**60.5**	**57.3**	**63.8**	**64.9**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.1.

TABLE 10-3: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)										
	R1	R2	R3	R4	R5	MF1	MF2	MF3	MF4	MF5	MF6
Roof-Top Air Conditioning Units	18.4	16.8	18.9	27.9	22.0	18.2	13.8	22.5	16.3	30.1	26.2
Drive-Thru Speakerphone	35.2	35.9	45.5	45.3	39.3	35.0	32.0	47.2	40.6	45.7	49.6
Trash Enclosure Activity	17.3	14.9	17.2	29.1	22.0	18.3	13.8	19.7	15.0	30.2	31.2
Parking Lot Activity	35.2	35.9	45.5	45.3	39.3	35.0	32.0	47.2	40.6	45.7	49.6
Loading Dock Activity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Car Wash Tunnel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Car Wash Vacuum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gas Station Activity	12.8	10.6	13.9	30.7	21.4	14.1	10.5	9.8	11.8	21.3	30.5
Total (All Noise Sources)	**38.3**	**39.0**	**48.5**	**48.5**	**42.4**	**38.1**	**35.1**	**50.2**	**43.6**	**48.8**	**52.7**

[1] See Exhibit 10-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.1.

TABLE 10-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	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	46.6	38.3	65	55	No	No
R2	52.2	39.0	65	55	No	No
R3	52.7	48.5	65	55	No	No
R4	50.9	48.5	65	55	No	No
R5	53.7	42.4	65	55	No	No
MF1	48.2	38.1	65	55	No	No
MF2	47.5	35.1	65	55	No	No
MF3	60.5	50.2	65	55	No	No
MF4	57.3	43.6	65	55	No	No
MF5	63.8	48.8	65	55	No	No
MF6	64.9	52.7	65	55	No	No

[1] See Exhibit 9-A for the off-site and Exhibit 8-A for the on-site receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 10-2 and 10-3.
[3] City of Victorville Municipal Code, Section 13.01.030 (Appendix 3.1).
[4] Do the estimated Project operational noise source activities exceed the noise level standards? "Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

10.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby off-site receiver locations potentially impacted by Project operational noise sources. The operational noise level increases are limited to the off-site receiver locations R1 to R5 that may perceive a noise level increase over time. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 10-5 and 10-6, respectively. As indicated on Tables 10-5 and 10-6, the Project will generate daytime and nighttime operational noise level increases ranging from 0.0 to 3.8 dBA L_{eq} at the receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented in Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 10-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	46.6	L1	46.7	49.7	3.0	5.0	No
R2	52.2	L2	65.4	65.6	0.2	1.5	No
R3	52.7	L2	65.4	65.6	0.2	1.5	No
R4	50.9	L3	72.3	72.3	0.0	1.5	No
R5	53.7	L4	52.3	56.1	3.8	5.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 10-2.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 10-6: NIGHTTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	38.3	L1	46.9	47.5	0.6	5.0	No
R2	39.0	L2	62.8	62.8	0.0	3.0	No
R3	48.5	L2	62.8	63.0	0.2	3.0	No
R4	48.5	L3	69.6	69.6	0.0	1.5	No
R5	42.4	L4	50.9	51.5	0.6	5.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 10-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-1.

11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the construction noise source locations in relation to the nearby sensitive receiver locations previously described in Section 9.

11.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. Even though the site is vacant and graded, this analysis assumes that some site preparation and grading will be required as part of the Project construction. The number and mix of construction equipment are expected to occur in the following stages:

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

11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe peak construction noise activities, this construction noise analysis was prepared using reference noise level measurements published in the Update of Noise Database for Prediction of Noise on Construction and Open Sites by the Department for Environment, Food and Rural Affairs (DEFRA). (22). The DEFRA database provides the most recent and comprehensive source of reference construction noise levels. Table 11-1 provides a summary of the DEFRA construction reference noise level measurements expressed in hourly average dBA Leq using the estimated FHWA Roadway Construction Noise Model (RCNM) usage factors (23) to describe the typical construction activities for each stage of Project construction.

EXHIBIT 11-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS

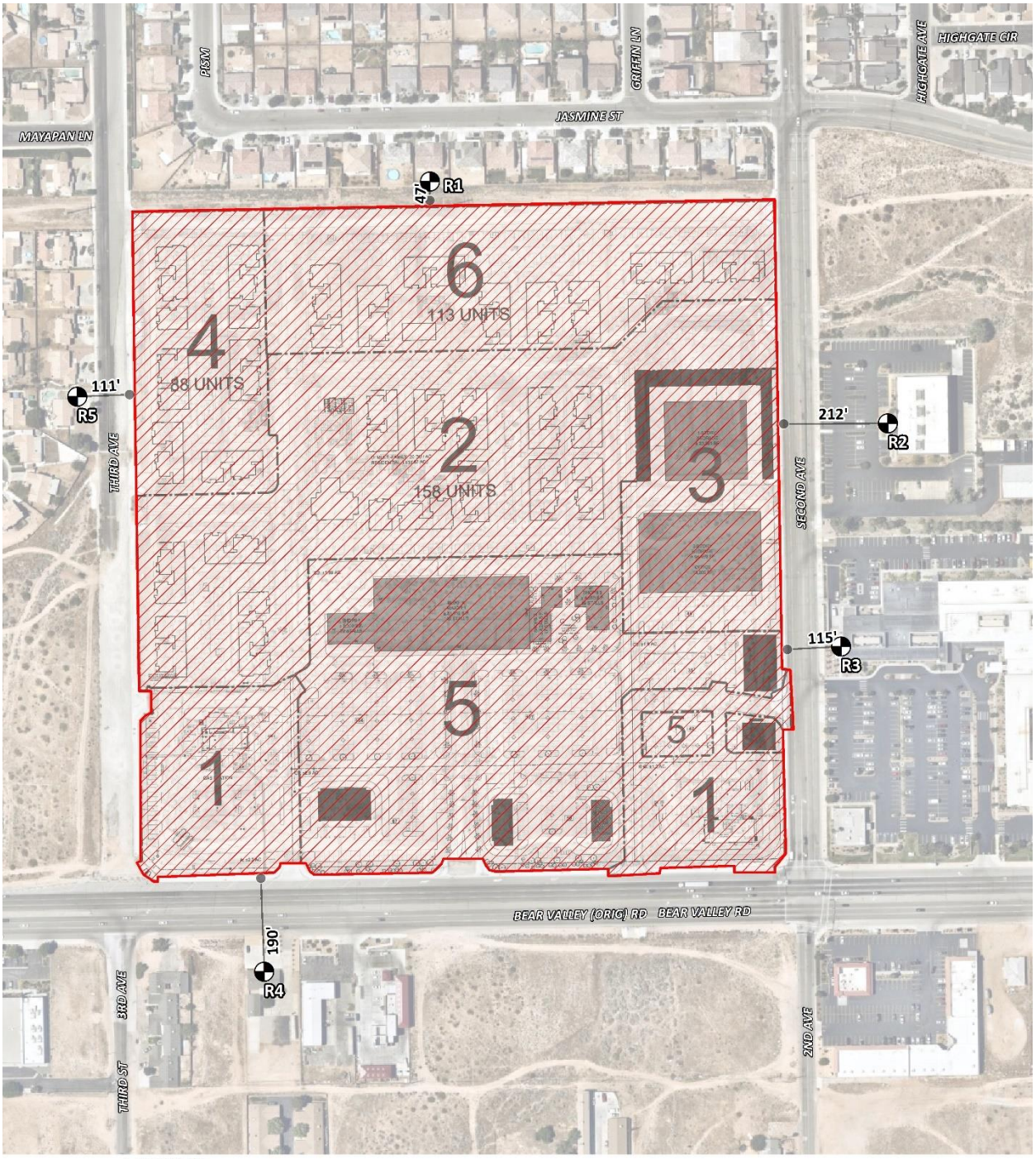


TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Highest Reference Noise Level (dBA L_{eq})
Site Preparation	Crawler Tractors	77	77
	Hauling Trucks	71	
	Rubber Tired Dozers	71	
Grading	Graders	79	79
	Excavators	64	
	Compactors	67	
Building Construction	Cranes	67	72
	Tractors	72	
	Welders	65	
Paving	Pavers	70	70
	Paving Equipment	69	
	Rollers	69	
Architectural Coating	Cranes	67	67
	Air Compressors	67	
	Generator Sets	67	

[1] Update of Noise Database for Prediction of Noise on Construction and Open Sites by the Department for Environment, Food and Rural Affairs (DEFRA) expressed in hourly average L_{eq} based on estimated usage factors from the FHWA Roadway Construction Noise Model (RCNM).

11.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 11-2, the construction noise levels are expected to range from 58.6 to 75.4 dBA L_{eq}, and the highest construction levels are expected to range from 70.6 to 75.4 dBA L_{eq} at the nearby receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from primary construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location.

TABLE 11-2: 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	73.4	75.4	68.4	66.4	63.4	75.4
R2	68.6	70.6	63.6	61.6	58.6	70.6
R3	71.7	73.7	66.7	64.7	61.7	73.7
R4	69.7	71.7	64.7	62.7	59.7	71.7
R5	71.1	73.1	66.1	64.1	61.1	73.1

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 11.1.

11.4 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 11-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 11-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	75.4	80	No
R2	70.6	80	No
R3	73.7	80	No
R4	71.7	80	No
R5	73.1	80	No

[1] Noise receiver locations are shown on Exhibit 11-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 11-2.
[3] Construction noise level thresholds as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.5 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). (7) 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 11-4. 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 11-4: 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 11-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 47 to 212 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.004 to 0.035 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec) for older residential buildings, the typical Project construction vibration levels will satisfy the building damage thresholds at all receiver locations. In addition, the typical construction vibration levels at the nearest sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site boundaries.

TABLE 11-5: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
R1	47'	0.001	0.014	0.029	0.035	0.035	0.3	No
R2	212'	0.000	0.001	0.003	0.004	0.004	0.3	No
R3	115'	0.000	0.004	0.008	0.009	0.009	0.3	No
R4	190'	0.000	0.002	0.004	0.004	0.004	0.3	No
R5	111'	0.000	0.004	0.008	0.010	0.010	0.3	No

[1] Receiver locations are shown on Exhibit 11-A.
[2] Distance from receiver location to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 11-4).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

Moreover, the impacts at the site of the nearest sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

12 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 Manual.* September 2018.
8. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
9. **State of California.** California Code of Regulations, Title 24, Part 2, Volume 1, Chapter 12, Section 1206.4, Allowable Interior Noise Level. *ICC Digital Coes.* [Online] 2019. https://codes.iccsafe.org/content/CABCV12019/chapter-12-interior-environment.
10. —. *2019 California Green Building Standards Code.* January 2020.
11. **City of Victorville.** *General Plan Noise Element.* 2008.
12. —. *Municipal Code, Section 13.01.030.*
13. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
14. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
15. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
16. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
17. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
18. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
19. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
20. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

21. **TJW Engineering, Inc.** *Bear Valley Traffic Impact Analysis.* December 2020.
22. **Department of Environment, Food and Rural Affiars (Defra).** *Update of Noise Database for Prediction of Noise on Construction and Open Sites.* 2004.
23. **FHWA.** *Roadway Construction Noise Model.* January 2006.

13 CERTIFICATION

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

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EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

CITY OF VICTORVILLE MUNICIPAL CODE

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Chapter 13.01 NOISE CONTROL

Sections:

13.01.010 Purpose and intent.

(a) The purpose of this chapter is to establish criteria and standards for the regulation of noise levels within the city of Victorville.

(b) The city council declares and finds that excessive noise levels are detrimental to the public health, welfare and safety and contrary to the public interest. It is the intent of this chapter to protect persons from excessive levels of noise from sources including, but not limited to; persons, animals, or fowl; automobiles, motorcycles, engines, machines, or other mechanical devices; loudspeakers, musical instruments, radios, televisions, phonographs, or other amplifying devices.

(c) This chapter includes standards for the measurement of noise levels to ensure that noise levels do not disturb and interfere with the peace, comfort or repose of the residents of the neighborhood from which the noise is emitted.

(Ord. 1962 § 2 (part), 2002)

13.01.020 Definitions.

The following words, phrases, and terms as used in this chapter shall have the following meanings:

(1) "A-weighted sound level" means the sound pressure level in decibels as measured on a sound level meter using A-weighting network. The level to read is designated db(A) or dB(A).

(2) "Ambient noise level" means the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding any intrusive noise.

(3) "Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

(4) "Decibel" means a unit of measure of sound level noise.

(5) "Noise level" means the same as "sound level" and the terms may be used interchangeably herein.

(6) "Sound level" (noise level) in decibels is the quantity measured using the frequency weighting of A of a sound level meter as defined herein.

(7) "Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 for type 1 or type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

(Ord. 1962 § 2 (part), 2002)

13.01.030 Noise measurement criteria.

Any noise level measurements made pursuant to the provisions of this chapter shall be performed using a sound level meter as defined in this chapter. The location selected for measuring exterior noise levels shall be at any point on the property line of the offender or anywhere on the affected property.

(Ord. 1962 § 2 (part), 2002)

13.01.040 Base ambient noise levels.

All ambient noise measurements shall commence in decibels within the respective zones and times as follows:

Zone	Time	Sound Level Decibels
All residential zones	10:00pm to 7:00am	55 dB(A)
	7:00am to 10:00pm	65 dB(A)
All commercial zones	Anytime	70 dB(A)
All industrial zones	Anytime	75 dB(A)

If the ambient noise level exceeds the applicable limit as noted in the above table, the ambient noise level shall be the standard.

(Ord. 1962 § 2 (part), 2002)

13.01.050 Noise levels prohibited.

Noise levels shall not exceed the ambient noise levels in Section 13.01.040 by the following dB(A) levels for the cumulative period of time specified:

(1) Less than 5dB(A) for a cumulative period of more than thirty minutes in any hour;

(2) Less than 10 dB(A) for a cumulative period of more than fifteen minutes in any hour;

(3) Less than 15 dB(A) for a cumulative period of more than five minutes in any hour;

(4) Less than 20 dB(A) for a cumulative period of more than one minute in any hour;

(5) 20 dB(A) or more for any period of time.

(Ord. 1962 § 2 (part), 2002)

13.01.060 Noise source exemptions.

The following activities shall be exempted from the provisions of this chapter:

(1) All mechanical devices, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

(2) The provisions of this regulation shall not preclude the construction, operation, maintenance and repairs of equipment, apparatus or facilities of park and recreation projects, public works projects or essential public works services and facilities, including those utilities subject to the regulatory jurisdiction of the California Public Utilities Commission.

(3) Activities conducted on the grounds of any elementary, intermediate or secondary school or college.

(4) Outdoor gatherings, public dances and shows, provided said events are conducted pursuant to a permit as required by this code.

(5) Activities conducted in public parks and public playgrounds, provided said events are conducted pursuant to a permit as required by this code.

(6) Any activity to the extent regulation thereof has been preempted by state or federal law.

(7) Traffic on any roadway or railroad right-of-way.

(8) The operation of the Southern California Logistics Airport.

(9) Construction activity on private properties that are determined by the director of building and safety to be essential to the completion of a project.

(Ord. 1962 § 2 (part), 2002)

13.01.070 Notice and penalties.

Any person violating any of the provisions, or failing to comply with the requirements of this chapter, is guilty of a civil penalty, punishable in accordance with Chapter 1.05. In addition, in the discretion of the city attorney and based upon the specific facts and circumstances presented to him or her, any such violation may be charged as an infraction subject to the penalties contained in Section 1.04.010.

(Ord. 1962 § 2 (part), 2002)

13.01.080 Severability.

If any provision of the ordinance codified in this chapter or the application thereof to any person or circumstance is held invalid, the remainder of the ordinance, and the application of such provision to other persons or circumstances, shall not be affected thereby.

(Ord. 1962 § 2 (part), 2002)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 13078 Study Area Photos

L1_E
34, 28' 27.360000"117, 18' 10.340000"

L1_N
34, 28' 28.650000"117, 18' 11.710000"

L1_S
34, 28' 28.650000"117, 18' 11.710000"

L1_W
34, 28' 27.360000"117, 18' 10.340000"

L2_E
34, 28' 21.370000"117, 17' 56.690000"

L2_N
34, 28' 21.400000"117, 17' 55.890000"

JN: 13078 Study Area Photos

L2_S
34, 28' 21.370000"117, 17' 56.690000"

L2_W
34, 28' 21.370000"117, 17' 56.690000"

L3_E
34, 28' 14.270000"117, 18' 8.750000"

L3_N
34, 28' 14.270000"117, 18' 8.750000"

L3_S
34, 28' 14.270000"117, 18' 8.750000"

L3_W
34, 28' 14.270000"117, 18' 8.750000"

JN: 13078 Study Area Photos

L4_E

L4_N
34, 28' 27.000000"117, 18' 6.250000"

L4_S
34, 28' 24.570000"117, 18' 6.520000"

L4_W
34, 28' 18.880000"117, 18' 12.950000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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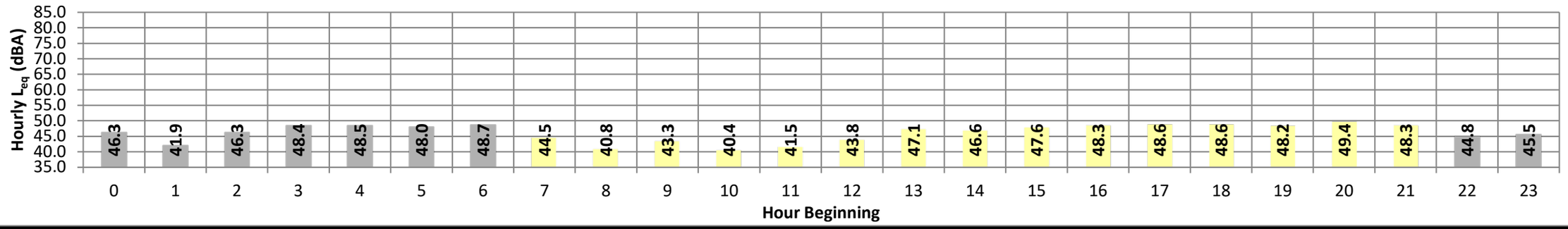
24-Hour Noise Level Measurement Summary

Date: Wednesday, June 30, 2021 *Location:* L1 - Located on the northern edge of the Project Site near a *Meter:* Piccolo II *JN:* 13078

Project: Victorville Connection *Source:* single-family residence at 16557 Jasmine Street. *Analyst:* A. Khan

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	46.3	51.2	43.1	50.8	50.3	49.6	48.7	47.0	45.5	43.8	43.5	43.2	46.3	10.0	56.3
	1	41.9	45.1	39.4	44.9	44.7	44.2	43.8	42.7	41.5	40.0	39.8	39.5	41.9	10.0	51.9
	2	46.3	50.1	43.3	49.9	49.6	48.8	48.4	47.2	45.7	44.0	43.8	43.5	46.3	10.0	56.3
	3	48.4	52.0	45.2	51.8	51.5	50.9	50.4	49.2	48.0	46.1	45.7	45.4	48.4	10.0	58.4
	4	48.5	53.0	44.8	52.7	52.3	51.6	51.0	49.3	47.9	45.7	45.4	44.9	48.5	10.0	58.5
	5	48.0	52.8	44.4	52.3	52.0	51.1	50.5	48.9	47.2	45.2	44.8	44.5	48.0	10.0	58.0
	6	48.7	56.5	45.2	55.2	53.9	51.8	50.7	49.1	47.8	46.1	45.7	45.3	48.7	10.0	58.7
Day	7	44.5	53.0	40.9	52.3	51.6	49.2	46.9	44.1	43.0	41.5	41.3	41.0	44.5	0.0	44.5
	8	40.8	46.7	36.9	46.3	45.9	44.6	43.8	41.4	39.9	37.9	37.5	37.1	40.8	0.0	40.8
	9	43.3	51.4	37.1	51.0	50.6	49.3	48.0	43.8	40.2	37.9	37.6	37.3	43.3	0.0	43.3
	10	40.4	45.0	37.5	44.5	44.2	43.3	42.9	41.2	39.6	38.1	37.9	37.7	40.4	0.0	40.4
	11	41.5	47.1	37.5	46.8	46.4	45.4	44.6	42.5	40.2	38.2	37.9	37.7	41.5	0.0	41.5
	12	43.8	50.7	39.6	50.1	49.6	48.0	47.0	44.3	42.3	40.3	40.0	39.7	43.8	0.0	43.8
	13	47.1	52.4	42.7	51.9	51.3	50.3	49.7	47.9	46.4	43.8	43.4	42.9	47.1	0.0	47.1
	14	46.6	52.0	42.7	51.5	51.1	49.8	49.0	47.3	46.0	43.7	43.3	42.9	46.6	0.0	46.6
	15	47.6	52.5	43.7	52.0	51.6	50.6	50.2	48.6	47.0	44.6	44.2	43.8	47.6	0.0	47.6
	16	48.3	52.6	44.4	52.1	51.7	50.9	50.5	49.2	47.8	45.5	45.0	44.5	48.3	0.0	48.3
	17	48.6	53.6	44.5	53.0	52.5	51.7	51.1	49.4	48.1	45.6	45.1	44.7	48.6	0.0	48.6
	18	48.6	56.1	44.0	55.1	54.0	51.7	50.9	49.2	47.7	45.3	44.7	44.2	48.6	0.0	48.6
	19	48.2	53.1	44.4	52.5	52.1	51.3	50.7	49.0	47.6	45.3	44.9	44.6	48.2	5.0	53.2
	20	49.4	55.5	44.9	55.0	54.5	53.5	52.7	50.0	48.1	45.9	45.5	45.0	49.4	5.0	54.4
	21	48.3	56.3	43.3	55.5	54.7	53.5	52.9	47.6	46.0	44.1	43.8	43.4	48.3	5.0	53.3
Night	22	44.8	49.5	41.9	49.0	48.5	47.7	47.1	45.5	44.1	42.6	42.4	42.0	44.8	10.0	54.8
	23	45.5	52.5	41.7	51.8	50.9	49.3	48.6	45.7	44.4	42.7	42.4	41.8	45.5	10.0	55.5

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	40.4	45.0	36.9	44.5	44.2	43.3	42.9	41.2	39.6	37.9	37.5	37.1
	Max	49.4	56.3	44.9	55.5	54.7	53.5	52.9	50.0	48.1	45.9	45.5	45.0
Energy Average		46.7	Average:		51.3	50.8	49.5	48.7	46.4	44.7	42.5	42.1	41.8
Night	Min	41.9	45.1	39.4	44.9	44.7	44.2	43.8	42.7	41.5	40.0	39.8	39.5
	Max	48.7	56.5	45.2	55.2	53.9	51.8	51.0	49.3	48.0	46.1	45.7	45.4
Energy Average		46.9	Average:		50.9	50.4	49.5	48.8	47.2	45.8	44.0	43.7	43.3

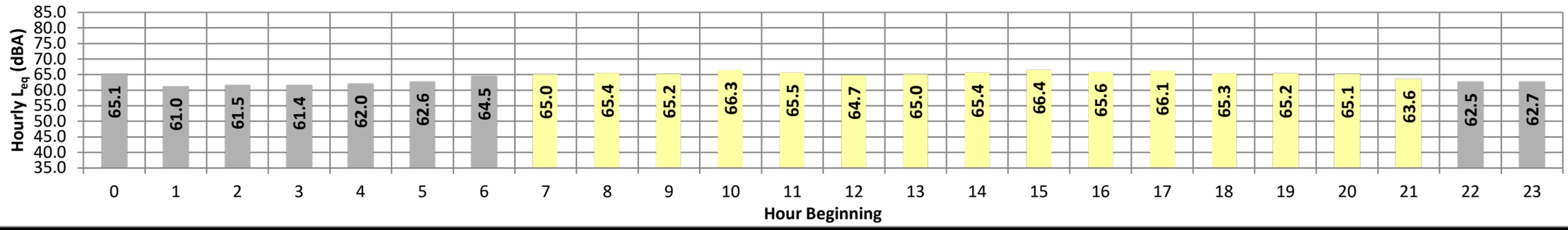
24-Hour	L_{eq} (dBA) Daytime (7am-10pm)	Nighttime (10pm-7am)
46.8	**46.7**	**46.9**

24-Hour Noise Level Measurement Summary

Date: Wednesday, June 30, 2021 *Location:* L2 - Located east of the Project Site on Second Avenue near *Meter:* Piccolo II *JN:* 13078

Project: Victorville Connection *Source:* Desert Valley Hospital at 16850 Bear Valley Rd. *Analyst:* A. Khan

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	65.1	76.6	59.3	76.4	75.9	73.0	68.7	61.1	60.4	59.7	59.6	59.4	65.1	10.0	75.1
	1	61.0	68.9	59.1	68.4	67.7	64.7	62.7	60.4	60.0	59.4	59.4	59.2	61.0	10.0	71.0
	2	61.5	68.4	59.2	68.0	67.5	65.3	64.1	61.2	60.3	59.5	59.4	59.3	61.5	10.0	71.5
	3	61.4	65.7	59.5	65.5	65.1	64.0	63.2	61.7	61.0	59.9	59.8	59.6	61.4	10.0	71.4
	4	62.0	68.2	59.7	67.7	67.0	65.1	63.8	62.1	61.3	60.1	60.0	59.8	62.0	10.0	72.0
	5	62.6	70.3	59.2	69.9	69.4	67.2	65.6	62.4	61.1	59.7	59.5	59.3	62.6	10.0	72.6
	6	64.5	73.7	59.6	73.2	72.5	70.0	68.4	63.9	61.8	60.2	60.0	59.8	64.5	10.0	74.5
Day	7	65.0	74.3	59.5	73.9	73.2	70.8	69.4	64.5	61.7	59.9	59.8	59.5	65.0	0.0	65.0
	8	65.4	75.1	59.3	74.6	73.8	71.4	69.6	65.2	62.0	59.7	59.5	59.4	65.4	0.0	65.4
	9	65.2	74.5	59.5	74.1	73.3	71.0	69.6	64.9	61.7	60.0	59.7	59.6	65.2	0.0	65.2
	10	66.3	76.1	59.9	75.8	75.2	73.0	71.0	65.4	62.3	60.2	60.1	59.9	66.3	0.0	66.3
	11	65.5	75.0	59.6	74.6	73.8	71.7	70.4	65.0	61.7	59.9	59.8	59.7	65.5	0.0	65.5
	12	64.7	73.8	59.4	73.3	72.4	70.5	69.1	64.7	61.5	59.8	59.6	59.4	64.7	0.0	64.7
	13	65.0	73.9	59.9	73.4	72.6	70.4	69.0	64.9	62.3	60.4	60.2	60.0	65.0	0.0	65.0
	14	65.4	75.2	60.0	74.6	73.7	71.0	69.5	65.0	62.4	60.6	60.3	60.1	65.4	0.0	65.4
	15	66.4	76.2	60.4	75.6	74.7	72.0	70.5	66.0	63.3	61.0	60.7	60.4	66.4	0.0	66.4
	16	65.6	75.1	60.5	74.4	73.4	70.7	69.2	65.5	63.3	61.2	60.9	60.6	65.6	0.0	65.6
	17	66.1	74.7	60.5	74.1	73.4	71.4	70.2	66.4	63.7	61.3	61.0	60.6	66.1	0.0	66.1
	18	65.3	74.1	60.0	73.5	72.9	71.1	69.7	64.9	62.7	60.6	60.4	60.1	65.3	0.0	65.3
	19	65.2	74.3	59.9	73.8	72.9	70.5	69.1	64.9	62.6	60.6	60.3	60.0	65.2	5.0	70.2
	20	65.1	73.8	60.1	73.3	72.5	70.4	69.0	65.1	62.6	60.6	60.4	60.2	65.1	5.0	70.1
	21	63.6	73.0	59.2	72.5	71.8	69.2	67.5	62.7	60.9	59.5	59.4	59.3	63.6	5.0	68.6
Night	22	62.5	71.0	58.9	70.6	69.9	67.6	65.8	61.8	60.6	59.4	59.2	59.0	62.5	10.0	72.5
	23	62.7	71.3	59.2	70.8	70.0	67.5	65.8	62.1	60.7	59.6	59.4	59.2	62.7	10.0	72.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.6	73.0	59.2	72.5	71.8	69.2	67.5	62.7	60.9	59.5	59.4	59.3
	Max	66.4	76.2	60.5	75.8	75.2	73.0	71.0	66.4	63.7	61.3	61.0	60.6
Energy Average		65.4	Average:		74.1	73.3	71.0	69.5	65.0	62.3	60.4	60.1	59.9
Night	Min	61.0	65.7	58.9	65.5	65.1	64.0	62.7	60.4	60.0	59.4	59.2	59.0
	Max	65.1	76.6	59.7	76.4	75.9	73.0	68.7	63.9	61.8	60.2	60.0	59.8
Energy Average		62.8	Average:		70.1	69.4	67.2	65.3	61.9	60.8	59.7	59.6	59.4

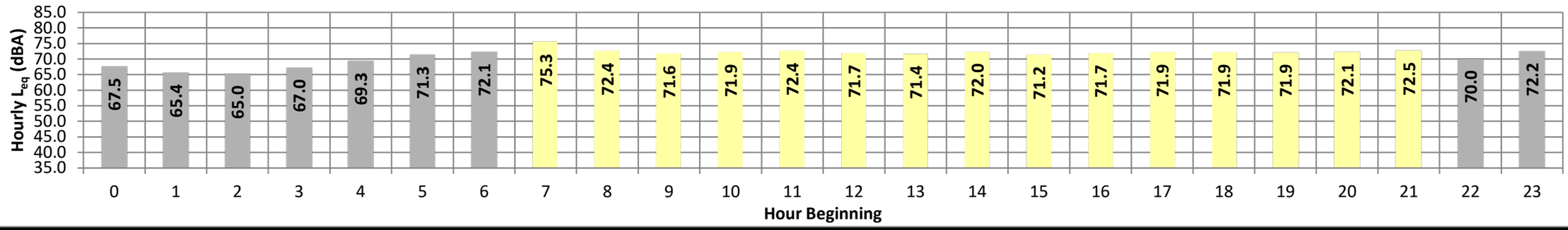
24-Hour	L_{eq} (dBA) Daytime (7am-10pm)	Nighttime (10pm-7am)
64.6	65.4	62.8

24-Hour Noise Level Measurement Summary

Date: Wednesday, June 30, 2021 *Location:* L3 - Located south of the Project Site near 20 High Desert *Meter:* Piccolo II *JN:* 13078

Project: Victorville Connection *Source:* Funeral Chapel & Cremation at 16545 Bear Valley Road. *Analyst:* A. Khan

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	67.5	78.7	47.9	78.2	77.3	74.7	73.5	66.5	60.6	50.1	49.0	48.1	67.5	10.0	77.5
	1	65.4	75.7	44.5	75.3	74.6	72.6	71.3	65.3	57.9	46.8	45.6	44.7	65.4	10.0	75.4
	2	65.0	75.6	48.4	75.2	74.4	72.1	70.7	64.6	57.7	49.5	49.0	48.6	65.0	10.0	75.0
	3	67.0	76.9	50.6	76.5	75.8	73.5	72.2	67.8	61.5	52.8	51.6	50.8	67.0	10.0	77.0
	4	69.3	78.8	51.9	78.3	77.5	75.2	73.9	70.2	65.6	54.4	53.2	52.1	69.3	10.0	79.3
	5	71.3	80.0	55.9	79.6	79.0	77.1	75.8	72.5	68.6	59.4	57.7	56.2	71.3	10.0	81.3
	6	72.1	80.5	57.5	80.1	79.4	77.4	76.3	73.3	69.9	61.9	60.1	58.0	72.1	10.0	82.1
Day	7	75.3	82.9	63.7	82.5	81.8	80.0	78.9	76.5	73.9	67.4	65.8	64.2	75.3	0.0	75.3
	8	72.4	80.6	57.3	80.2	79.5	77.3	76.2	73.7	70.7	62.1	59.8	57.6	72.4	0.0	72.4
	9	71.6	78.8	55.1	78.5	77.9	76.3	75.5	73.2	70.2	60.4	58.0	55.5	71.6	0.0	71.6
	10	71.9	80.2	57.4	79.7	79.0	77.3	75.8	73.1	70.1	61.5	59.4	57.7	71.9	0.0	71.9
	11	72.4	81.9	56.4	81.3	80.6	77.9	76.4	73.3	70.1	60.7	58.9	57.1	72.4	0.0	72.4
	12	71.7	81.0	55.1	80.7	79.8	77.0	75.5	72.5	69.5	60.5	58.5	55.7	71.7	0.0	71.7
	13	71.4	80.6	54.6	80.2	79.4	76.5	75.2	72.3	69.2	60.1	57.3	55.0	71.4	0.0	71.4
	14	72.0	83.3	55.6	82.7	81.5	77.6	75.2	72.0	69.1	60.5	58.2	56.1	72.0	0.0	72.0
	15	71.2	79.0	55.8	78.5	77.7	75.9	75.0	72.6	69.6	60.5	58.1	56.1	71.2	0.0	71.2
	16	71.7	80.3	55.6	79.9	79.1	76.8	75.4	72.7	70.1	61.6	59.3	56.0	71.7	0.0	71.7
	17	71.9	81.1	55.0	80.6	79.7	77.2	75.7	73.0	69.9	60.4	57.8	55.5	71.9	0.0	71.9
	18	71.9	80.0	55.4	79.5	78.9	76.9	76.0	73.3	69.9	61.5	58.4	55.7	71.9	0.0	71.9
	19	71.9	81.1	54.4	80.6	79.8	77.4	75.9	73.0	69.7	60.6	58.2	55.1	71.9	5.0	76.9
	20	72.1	82.4	55.2	81.8	81.1	78.6	76.3	72.2	68.8	59.2	57.2	55.5	72.1	5.0	77.1
	21	72.5	83.8	54.2	83.1	82.1	78.0	76.7	72.6	68.1	58.3	56.2	54.5	72.5	5.0	77.5
Night	22	70.0	78.7	52.4	78.3	77.7	75.9	74.7	71.0	66.8	56.3	54.3	52.6	70.0	10.0	80.0
	23	72.2	85.0	51.2	84.7	83.6	79.3	76.4	69.7	64.4	54.1	52.7	51.5	72.2	10.0	82.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	71.2	78.8	54.2	78.5	77.7	75.9	75.0	72.0	68.1	58.3	56.2	54.5
	Max	75.3	83.8	63.7	83.1	82.1	80.0	78.9	76.5	73.9	67.4	65.8	64.2
Energy Average		72.3	Average:		80.6	79.9	77.4	76.0	73.1	69.9	61.0	58.7	56.5
Night	Min	65.0	75.6	44.5	75.2	74.4	72.1	70.7	64.6	57.7	46.8	45.6	44.7
	Max	72.2	85.0	57.5	84.7	83.6	79.3	76.4	73.3	69.9	61.9	60.1	58.0
Energy Average		69.6	Average:		78.5	77.7	75.3	73.9	69.0	63.7	53.9	52.6	51.4

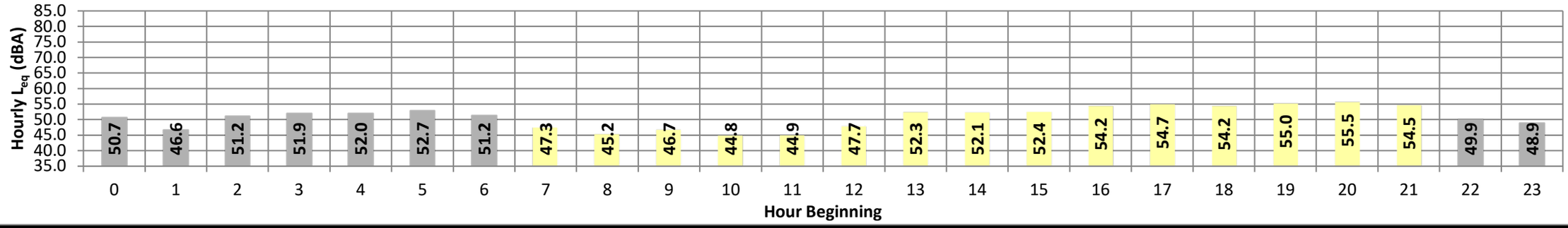
24-Hour	L_{eq} (dBA) Daytime (7am-10pm)	Nighttime (10pm-7am)
71.4	72.3	69.6

24-Hour Noise Level Measurement Summary

Date: Wednesday, June 30, 2021 *Location:* L4 - Located west of the Project Site on Third Avenue near a *Meter:* Piccolo II *JN:* 13078

Project: Victorville Connection *Source:* single-family residential at 12219 Jason Lane. *Analyst:* A. Khan

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	50.7	57.2	45.5	56.8	56.3	55.0	54.3	51.6	49.0	46.5	46.1	45.6	50.7	10.0	60.7
	1	46.6	51.3	41.3	51.1	50.8	50.1	49.7	47.9	45.6	42.4	41.9	41.4	46.6	10.0	56.6
	2	51.2	55.1	47.5	54.9	54.6	54.1	53.7	52.1	50.7	48.5	48.1	47.6	51.2	10.0	61.2
	3	51.9	56.5	48.0	56.2	55.8	55.1	54.6	52.7	51.3	48.9	48.6	48.1	51.9	10.0	61.9
	4	52.0	57.2	46.8	56.9	56.6	55.7	55.2	53.2	51.2	47.7	47.3	46.9	52.0	10.0	62.0
	5	52.7	57.5	48.4	57.3	56.9	56.1	55.6	54.0	51.7	49.2	48.9	48.5	52.7	10.0	62.7
	6	51.2	56.2	46.1	55.9	55.6	54.9	54.3	52.4	50.3	47.0	46.6	46.2	51.2	10.0	61.2
Day	7	47.3	52.6	42.2	52.2	51.9	51.1	50.5	48.4	46.3	43.3	42.9	42.4	47.3	0.0	47.3
	8	45.2	51.4	39.3	50.9	50.5	49.4	48.7	46.3	44.0	40.4	39.9	39.5	45.2	0.0	45.2
	9	46.7	53.5	40.3	53.1	52.7	51.5	50.8	47.7	44.9	41.4	40.9	40.4	46.7	0.0	46.7
	10	44.8	50.3	40.4	49.9	49.2	48.3	47.7	45.8	43.8	41.4	41.0	40.5	44.8	0.0	44.8
	11	44.9	50.9	40.3	50.4	50.1	49.3	47.9	45.8	43.5	41.0	40.7	40.4	44.9	0.0	44.9
	12	47.7	54.0	42.6	53.7	53.2	51.8	51.0	48.6	46.4	43.5	43.2	42.7	47.7	0.0	47.7
	13	52.3	58.8	46.0	58.3	57.7	56.6	55.7	53.2	51.0	47.4	46.9	46.2	52.3	0.0	52.3
	14	52.1	57.5	46.6	57.2	56.8	55.9	55.3	53.1	51.3	47.9	47.4	46.8	52.1	0.0	52.1
	15	52.4	58.3	46.5	58.0	57.5	56.5	55.7	53.5	51.1	47.6	47.2	46.7	52.4	0.0	52.4
	16	54.2	60.5	48.2	60.1	59.7	58.3	57.6	55.1	52.9	49.5	48.9	48.4	54.2	0.0	54.2
	17	54.7	61.1	48.1	60.6	60.0	59.0	58.2	55.7	53.5	49.5	48.9	48.3	54.7	0.0	54.7
	18	54.2	60.4	47.3	60.1	59.6	58.3	57.5	55.3	53.1	49.3	48.3	47.5	54.2	0.0	54.2
	19	55.0	61.5	47.9	61.0	60.7	59.7	58.9	56.1	53.6	49.4	48.8	48.1	55.0	5.0	60.0
	20	55.5	63.7	46.9	63.2	62.7	61.6	60.6	55.9	52.5	48.4	47.7	47.1	55.5	5.0	60.5
	21	54.5	63.0	45.6	62.6	61.9	60.5	59.9	54.7	51.6	46.6	46.1	45.7	54.5	5.0	59.5
Night	22	49.9	56.8	43.5	56.4	56.0	54.7	54.0	51.0	47.9	44.6	44.2	43.7	49.9	10.0	59.9
	23	48.9	57.5	41.1	56.9	56.4	54.4	53.2	49.1	46.1	42.5	41.8	41.3	48.9	10.0	58.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	44.8	50.3	39.3	49.9	49.2	48.3	47.7	45.8	43.5	40.4	39.9	39.5
	Max	55.5	63.7	48.2	63.2	62.7	61.6	60.6	56.1	53.6	49.5	48.9	48.4
Energy Average		52.3	Average:		56.7	56.3	55.2	54.4	51.7	49.3	45.8	45.2	44.7
Night	Min	46.6	51.3	41.1	51.1	50.8	50.1	49.7	47.9	45.6	42.4	41.8	41.3
	Max	52.7	57.5	48.4	57.3	56.9	56.1	55.6	54.0	51.7	49.2	48.9	48.5
Energy Average		50.9	Average:		55.8	55.4	54.4	53.8	51.5	49.3	46.4	45.9	45.5

L_{eq} (dBA)		
24-Hour	Daytime (7am-10pm)	Nighttime (10pm-7am)
51.8	**52.3**	**50.9**

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: 3rd Ave
Road Segment: n/o Silica

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,380 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	438 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.54	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-22.77	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-26.73	0.58	-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:	62.3	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	56.1	54.6	48.2	46.6	55.1	55.3
Heavy Trucks:	56.9	55.5	46.4	47.7	56.1	56.2
Vehicle Noise:	64.1	62.4	59.2	54.6	63.1	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	17	37	80	173
CNEL:	19	40	86	186

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: 2nd Ave
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,000 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	300 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-7.18	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-24.42	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-28.37	0.58	-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:	60.6	58.7	57.0	50.9	59.5	60.1
Medium Trucks:	54.4	52.9	46.5	45.0	53.5	53.7
Heavy Trucks:	55.3	53.8	44.8	46.1	54.4	54.5
Vehicle Noise:	62.5	60.7	57.6	52.9	61.5	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	29	63	135
CNEL:	14	31	67	144

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: 3rd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,890 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	189 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-9.19	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-26.42	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-30.38	0.58	-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:	58.6	56.7	55.0	48.9	57.5	58.1
Medium Trucks:	52.4	50.9	44.5	43.0	51.5	51.7
Heavy Trucks:	53.3	51.8	42.8	44.0	52.4	52.5
Vehicle Noise:	60.5	58.7	55.6	50.9	59.4	59.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	21	46	99
CNEL:	11	23	49	106

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: 2nd Ave
Road Segment: n/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	460 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.32	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-22.56	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-26.52	0.58	-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:	62.5	60.6	58.8	52.8	61.4	62.0
Medium Trucks:	56.3	54.8	48.4	46.9	55.3	55.6
Heavy Trucks:	57.1	55.7	46.7	47.9	56.3	56.4
Vehicle Noise:	64.3	62.6	59.4	54.8	63.3	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	18	39	83	179
CNEL:	19	41	89	192

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: 2nd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,590 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	159 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-9.94	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-27.18	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-31.13	0.58	-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:	57.9	56.0	54.2	48.2	56.8	57.4
Medium Trucks:	51.7	50.2	43.8	42.2	50.7	50.9
Heavy Trucks:	52.5	51.1	42.0	43.3	51.7	51.8
Vehicle Noise:	59.7	58.0	54.8	50.2	58.7	59.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	19	41	88
CNEL:	9	20	44	95

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hesperia
Road Segment: s/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,040 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,004 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.07	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.17	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.13	-0.18	-1.20	-5.32	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:	68.1	66.2	64.5	58.4	67.0	67.6
Medium Trucks:	61.9	60.4	54.0	52.5	61.0	61.2
Heavy Trucks:	62.7	61.3	52.3	53.5	61.9	62.0
Vehicle Noise:	70.0	68.2	65.1	60.4	68.9	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	114	245	527
CNEL:	57	122	263	566

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Hesperia
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,650 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	1,965 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.98	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.26	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.21	-0.18	-1.20	-5.32	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:	68.0	66.1	64.4	58.3	66.9	67.6
Medium Trucks:	61.8	60.3	53.9	52.4	60.9	61.1
Heavy Trucks:	62.7	61.2	52.2	53.5	61.8	61.9
Vehicle Noise:	69.9	68.1	65.0	60.3	68.9	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	112	242	520
CNEL:	56	120	259	558

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Jasmine
Road Segment: e/o 2nd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,760 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	376 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-6.20	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-23.44	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-27.39	0.58	-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:	61.6	59.7	58.0	51.9	60.5	61.1
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	56.2	54.8	45.8	47.0	55.4	55.5
Vehicle Noise:	63.5	61.7	58.6	53.9	62.4	62.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	73	157
CNEL:	17	36	78	168

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bear Valley
Road Segment: w/o 7th Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,880 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,488 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.47	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.76	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.72	-0.18	-1.20	-5.32	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:	70.5	68.6	66.9	60.8	69.4	70.0
Medium Trucks:	64.3	62.8	56.4	54.9	63.4	63.6
Heavy Trucks:	65.2	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	72.4	70.6	67.5	62.8	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	354	763
CNEL:	82	176	380	818

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bear Valley
Road Segment: w/o 3rd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,740 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,574 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.58	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.66	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.61	-0.18	-1.20	-5.32	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:	70.6	68.7	67.0	60.9	69.5	70.2
Medium Trucks:	64.4	62.9	56.5	55.0	63.5	63.7
Heavy Trucks:	65.3	63.8	54.8	56.1	64.4	64.5
Vehicle Noise:	72.5	70.7	67.6	62.9	71.5	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	167	360	775
CNEL:	83	179	386	832

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bear Valley
Road Segment: e/o 7th Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,490 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,549 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.55	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.69	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.64	-0.18	-1.20	-5.32	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:	70.6	68.7	66.9	60.9	69.5	70.1
Medium Trucks:	64.4	62.9	56.5	55.0	63.4	63.7
Heavy Trucks:	65.2	63.8	54.8	56.0	64.4	64.5
Vehicle Noise:	72.5	70.7	67.6	62.9	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	166	358	772
CNEL:	83	178	384	828

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bear Valley
Road Segment: e/o 3rd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,710 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,571 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.58	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.66	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.62	-0.18	-1.20	-5.32	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:	70.6	68.7	67.0	60.9	69.5	70.1
Medium Trucks:	64.4	62.9	56.5	55.0	63.5	63.7
Heavy Trucks:	65.3	63.8	54.8	56.1	64.4	64.5
Vehicle Noise:	72.5	70.7	67.6	62.9	71.5	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	167	360	775
CNEL:	83	179	386	831

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Bear Valley
Road Segment: e/o 2nd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,780 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,478 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.46	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.78	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.73	-0.18	-1.20	-5.32	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:	70.5	68.6	66.9	60.8	69.4	70.0
Medium Trucks:	64.3	62.8	56.4	54.9	63.3	63.6
Heavy Trucks:	65.1	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	72.4	70.6	67.5	62.8	71.3	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	353	762
CNEL:	82	176	379	817

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: 3rd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,300 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	230 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.33	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-25.57	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-29.53	0.58	-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:	59.5	57.6	55.8	49.8	58.4	59.0
Medium Trucks:	53.3	51.8	45.4	43.8	52.3	52.5
Heavy Trucks:	54.1	52.7	43.7	44.9	53.3	53.4
Vehicle Noise:	61.3	59.6	56.4	51.8	60.3	60.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	24	52	113
CNEL:	12	26	56	121

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: 3rd Ave
Road Segment: n/o Silica

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,790 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	479 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.15	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-22.39	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-26.34	0.58	-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:	62.7	60.8	59.0	53.0	61.6	62.2
Medium Trucks:	56.4	54.9	48.6	47.0	55.5	55.7
Heavy Trucks:	57.3	55.9	46.8	48.1	56.4	56.6
Vehicle Noise:	64.5	62.8	59.6	54.9	63.5	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	40	85	184
CNEL:	20	43	92	197

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: 2nd Ave
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,410 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	341 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-6.62	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-23.86	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-27.82	0.58	-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:	61.2	59.3	57.5	51.5	60.1	60.7
Medium Trucks:	55.0	53.5	47.1	45.6	54.0	54.3
Heavy Trucks:	55.8	54.4	45.4	46.6	55.0	55.1
Vehicle Noise:	63.0	61.3	58.1	53.5	62.0	62.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	68	147
CNEL:	16	34	73	157

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: 2nd Ave
Road Segment: n/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,850 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	685 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.59	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-20.83	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-24.79	0.58	-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:	64.2	62.3	60.6	54.5	63.1	63.7
Medium Trucks:	58.0	56.5	50.1	48.6	57.0	57.3
Heavy Trucks:	58.8	57.4	48.4	49.6	58.0	58.1
Vehicle Noise:	66.1	64.3	61.2	56.5	65.0	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	50	108	233
CNEL:	25	54	116	250

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: Hesperia
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,880 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,088 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.25	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-15.99	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.95	-0.18	-1.20	*-5.32*	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:	68.3	66.4	64.6	58.6	67.2	67.8
Medium Trucks:	62.1	60.6	54.2	52.7	61.1	61.4
Heavy Trucks:	62.9	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	70.2	68.4	65.3	60.6	69.1	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	54	117	252	542
CNEL:	58	125	270	581

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: 2nd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,000 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	200 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-8.94	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-26.18	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-30.13	0.58	-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:	58.9	57.0	55.2	49.2	57.8	58.4
Medium Trucks:	52.7	51.1	44.8	43.2	51.7	51.9
Heavy Trucks:	53.5	52.1	43.0	44.3	52.6	52.8
Vehicle Noise:	60.7	59.0	55.8	51.2	59.7	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	22	48	103
CNEL:	11	24	51	110

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: Hesperia
Road Segment: s/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,860 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,086 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.24	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-16.00	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.95	-0.18	-1.20	*-5.32*	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:	68.3	66.4	64.6	58.6	67.2	67.8
Medium Trucks:	62.1	60.6	54.2	52.7	61.1	61.4
Heavy Trucks:	62.9	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	70.1	68.4	65.3	60.6	69.1	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	54	117	251	542
CNEL:	58	125	270	581

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: Jasmine
Road Segment: e/o 2nd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,170 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	417 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.75	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-22.99	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-26.94	0.58	-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:	62.1	60.2	58.4	52.3	61.0	61.6
Medium Trucks:	55.8	54.3	48.0	46.4	54.9	55.1
Heavy Trucks:	56.7	55.3	46.2	47.5	55.8	56.0
Vehicle Noise:	63.9	62.2	59.0	54.3	62.9	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	78	168
CNEL:	18	39	83	180

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: Bear Valley
Road Segment: e/o 7th Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,360 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,836 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.89	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.35	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.31	-0.18	-1.20	-5.32	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:	71.0	69.1	67.3	61.2	69.9	70.5
Medium Trucks:	64.7	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.1	55.1	56.4	64.7	64.8
Vehicle Noise:	72.8	71.1	67.9	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	175	377	813
CNEL:	87	188	405	872

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: Bear Valley
Road Segment: w/o 7th Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,410 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,741 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.78	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.46	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.42	-0.18	-1.20	-5.32	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:	70.8	68.9	67.2	61.1	69.7	70.4
Medium Trucks:	64.6	63.1	56.7	55.2	63.7	63.9
Heavy Trucks:	65.5	64.0	55.0	56.3	64.6	64.7
Vehicle Noise:	72.7	70.9	67.8	63.1	71.7	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	172	371	799
CNEL:	86	185	398	858

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP
Road Name: Bear Valley
Road Segment: w/o 3rd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,630 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,863 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.92	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.32	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.28	-0.18	-1.20	-5.32	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:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	64.8	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.2	55.1	56.4	64.7	64.9
Vehicle Noise:	72.8	71.1	67.9	63.3	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	176	379	817
CNEL:	88	189	407	876

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP | Project Name: Bear Valley Marketplace
Road Name: Bear Valley | Job Number: 13078
Road Segment: e/o 3rd Ave

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,190 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,719 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.75	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.49	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.44	-0.18	-1.20	-5.32	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:	70.8	68.9	67.2	61.1	69.7	70.3
Medium Trucks:	64.6	63.1	56.7	55.2	63.6	63.9
Heavy Trucks:	65.4	64.0	55.0	56.2	64.6	64.7
Vehicle Noise:	72.7	70.9	67.8	63.1	71.6	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	172	370	796
CNEL:	85	184	396	854

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP | Project Name: Bear Valley Marketplace
Road Name: 3rd Ave | Job Number: 13078
Road Segment: n/o Silica

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,130 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	413 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.79	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-23.03	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-26.99	0.58	-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:	62.0	60.1	58.4	52.3	60.9	61.5
Medium Trucks:	55.8	54.3	47.9	46.4	54.9	55.1
Heavy Trucks:	56.6	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	63.9	62.1	59.0	54.3	62.8	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	77	167
CNEL:	18	39	83	179

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EP | Project Name: Bear Valley Marketplace
Road Name: Bear Valley | Job Number: 13078
Road Segment: e/o 2nd Ave

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,240 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,724 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.76	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.48	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.44	-0.18	-1.20	-5.32	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:	70.8	68.9	67.2	61.1	69.7	70.3
Medium Trucks:	64.6	63.1	56.7	55.2	63.6	63.9
Heavy Trucks:	65.4	64.0	55.0	56.2	64.6	64.7
Vehicle Noise:	72.7	70.9	67.8	63.1	71.6	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	172	370	797
CNEL:	85	184	397	855

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP | Project Name: Bear Valley Marketplace
Road Name: 3rd Ave | Job Number: 13078
Road Segment: s/o Bear Valley

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,560 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	156 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-10.02	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-27.26	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-31.21	0.58	-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	55.9	54.1	48.1	56.7	57.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	52.4	51.0	42.0	43.2	51.6	51.7
Vehicle Noise:	59.6	57.9	54.7	50.1	58.6	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	19	40	87
CNEL:	9	20	43	93

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: 2nd Ave
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,240 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	324 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-6.85	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-24.08	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-28.04	0.58	-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:	61.0	59.1	57.3	51.3	59.9	60.5
Medium Trucks:	54.8	53.2	46.9	45.3	53.8	54.0
Heavy Trucks:	55.6	54.2	45.1	46.4	54.7	54.9
Vehicle Noise:	62.8	61.1	57.9	53.2	61.8	62.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	31	66	142
CNEL:	15	33	71	152

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: 2nd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,720 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	172 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-9.60	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-26.83	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-30.79	0.58	-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:	58.2	56.3	54.6	48.5	57.1	57.7
Medium Trucks:	52.0	50.5	44.1	42.6	51.0	51.3
Heavy Trucks:	52.8	51.4	42.4	43.6	52.0	52.1
Vehicle Noise:	60.1	58.3	55.2	50.5	59.0	59.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	20	43	93
CNEL:	10	21	46	100

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: 2nd Ave
Road Segment: n/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,980 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	498 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.98	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-22.22	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-26.17	0.58	-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:	62.8	60.9	59.2	53.1	61.7	62.3
Medium Trucks:	56.6	55.1	48.7	47.2	55.7	55.9
Heavy Trucks:	57.5	56.0	47.0	48.3	56.6	56.7
Vehicle Noise:	64.7	62.9	59.8	55.1	63.7	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	88	189
CNEL:	20	44	94	202

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: Hesperia
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,270 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,127 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.33	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.91	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.87	-0.18	-1.20	-5.32	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:	68.4	66.5	64.7	58.7	67.3	67.9
Medium Trucks:	62.2	60.7	54.3	52.7	61.2	61.4
Heavy Trucks:	63.0	61.6	52.6	53.8	62.2	62.3
Vehicle Noise:	70.2	68.5	65.3	60.7	69.2	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	255	549
CNEL:	59	127	273	589

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: Hesperia
Road Segment: s/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,680 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,168 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.41	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.83	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.78	-0.18	-1.20	-5.32	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:	68.5	66.6	64.8	58.8	67.4	68.0
Medium Trucks:	62.2	60.7	54.4	52.8	61.3	61.5
Heavy Trucks:	63.1	61.7	52.6	53.9	62.2	62.4
Vehicle Noise:	70.3	68.6	65.4	60.7	69.3	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	258	556
CNEL:	60	128	277	596

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: Bear Valley
Road Segment: w/o 7th Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,010 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,801 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.85	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.39	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.35	-0.18	-1.20	-5.32	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:	70.9	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	64.7	63.2	56.8	55.3	63.7	64.0
Heavy Trucks:	65.5	64.1	55.1	56.3	64.7	64.8
Vehicle Noise:	72.8	71.0	67.9	63.2	71.7	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	375	808
CNEL:	87	187	402	867

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: Jasmine
Road Segment: e/o 2nd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,060 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	406 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.87	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-23.10	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-27.06	0.58	-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:	62.0	60.1	58.3	52.2	60.9	61.5
Medium Trucks:	55.7	54.2	47.9	46.3	54.8	55.0
Heavy Trucks:	56.6	55.2	46.1	47.4	55.7	55.8
Vehicle Noise:	63.8	62.1	58.9	54.2	62.8	63.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	165
CNEL:	18	38	82	177

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: Bear Valley
Road Segment: e/o 7th Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,530 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,853 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.91	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.33	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.29	-0.18	-1.20	-5.32	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:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	64.7	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.2	55.1	56.4	64.7	64.9
Vehicle Noise:	72.8	71.1	67.9	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	176	378	815
CNEL:	87	188	406	875

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: Bear Valley
Road Segment: w/o 3rd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,690 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,869 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.92	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.31	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.27	-0.18	-1.20	-5.32	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:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	64.8	63.3	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.2	55.1	56.4	64.8	64.9
Vehicle Noise:	72.8	71.1	67.9	63.3	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	176	379	818
CNEL:	88	189	407	877

Sunday, July 18, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: Bear Valley
Road Segment: e/o 2nd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,640 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,764 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.81	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.43	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.39	-0.18	-1.20	-5.32	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:	70.9	69.0	67.2	61.1	69.8	70.4
Medium Trucks:	64.6	63.1	56.8	55.2	63.7	63.9
Heavy Trucks:	65.5	64.1	55.0	56.3	64.6	64.8
Vehicle Noise:	72.7	71.0	67.8	63.1	71.7	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	173	373	803
CNEL:	86	186	400	861

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYNP
Road Name: Bear Valley
Road Segment: e/o 3rd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,660 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	3,866 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.92	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.32	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.27	-0.18	-1.20	-5.32	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:	71.0	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	64.8	63.3	56.9	55.3	63.8	64.0
Heavy Trucks:	65.6	64.2	55.1	56.4	64.8	64.9
Vehicle Noise:	72.8	71.1	67.9	63.3	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	176	379	817
CNEL:	88	189	407	877

Sunday, July 18, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: 3rd Ave
Road Segment: n/o Silica
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,540 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	454 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.38	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-22.62	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-26.57	0.58	-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:	62.4	60.5	58.8	52.7	61.3	61.9
Medium Trucks:	56.2	54.7	48.3	46.8	55.3	55.5
Heavy Trucks:	57.1	55.6	46.6	47.9	56.2	56.3
Vehicle Noise:	64.3	62.5	59.4	54.7	63.3	63.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	38	82	177
CNEL:	19	41	88	190

Sunday, July 18, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: 3rd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,970 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	197 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-9.01	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-26.24	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-30.20	0.58	-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	56.9	55.1	49.1	57.7	58.3
Medium Trucks:	52.6	51.1	44.7	43.2	51.6	51.9
Heavy Trucks:	53.4	52.0	43.0	44.2	52.6	52.7
Vehicle Noise:	60.7	58.9	55.8	51.1	59.6	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	22	47	102
CNEL:	11	24	51	109

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: 2nd Ave
Road Segment: n/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,230 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	723 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.36	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-20.60	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-24.55	0.58	-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:	64.5	62.6	60.8	54.7	63.4	64.0
Medium Trucks:	58.2	56.7	50.4	48.8	57.3	57.5
Heavy Trucks:	59.1	57.7	48.6	49.9	58.2	58.4
Vehicle Noise:	66.3	64.6	61.4	56.7	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	52	112	242
CNEL:	26	56	121	260

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: 2nd Ave
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,650 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	365 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-6.33	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-23.57	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-27.52	0.58	-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:	61.5	59.6	57.8	51.8	60.4	61.0
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.5
Heavy Trucks:	56.1	54.7	45.7	46.9	55.3	55.4
Vehicle Noise:	63.3	61.6	58.4	53.8	62.3	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	33	71	153
CNEL:	16	35	76	165

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: 2nd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,130 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	213 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.67	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-25.91	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-29.86	0.58	-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:	59.2	57.3	55.5	49.4	58.1	58.7
Medium Trucks:	52.9	51.4	45.1	43.5	52.0	52.2
Heavy Trucks:	53.8	52.4	43.3	44.6	52.9	53.0
Vehicle Noise:	61.0	59.3	56.1	51.4	60.0	60.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	23	50	107
CNEL:	11	25	53	115

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: Hesperia
Road Segment: n/o Jasmine
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,500 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.57	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-15.67	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.62	-0.18	-1.20	*-5.32*	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:	68.6	66.7	65.0	58.9	67.5	68.1
Medium Trucks:	62.4	60.9	54.5	53.0	61.5	61.7
Heavy Trucks:	63.3	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	70.5	68.7	65.6	60.9	69.4	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	123	264	570
CNEL:	61	132	284	611

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: Jasmine
Road Segment: e/o 2nd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,470 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	447 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.45	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-22.69	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-26.64	0.58	-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:	62.4	60.5	58.7	52.7	61.3	61.9
Medium Trucks:	56.1	54.6	48.3	46.7	55.2	55.4
Heavy Trucks:	57.0	55.6	46.5	47.8	56.1	56.3
Vehicle Noise:	64.2	62.5	59.3	54.6	63.2	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	18	38	82	176
CNEL:	19	41	87	188

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: Hesperia
Road Segment: s/o Jasmine
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,500 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.57	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-15.67	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.62	-0.18	-1.20	*-5.32*	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:	68.6	66.7	65.0	58.9	67.5	68.1
Medium Trucks:	62.4	60.9	54.5	53.0	61.5	61.7
Heavy Trucks:	63.3	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	70.5	68.7	65.6	60.9	69.4	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	123	264	570
CNEL:	61	132	284	611

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: Bear Valley
Road Segment: w/o 7th Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,540 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,054 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.13	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-13.11	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.07	-0.18	-1.20	*-5.32*	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:	71.2	69.3	67.5	61.5	70.1	70.7
Medium Trucks:	65.0	63.5	57.1	55.6	64.0	64.2
Heavy Trucks:	65.8	64.4	55.4	56.6	65.0	65.1
Vehicle Noise:	73.0	71.3	68.1	63.5	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	84	182	391	843
CNEL:	90	195	420	905

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: Bear Valley
Road Segment: e/o 7th Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,400 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,140 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.22	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.02	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.98	-0.18	-1.20	-5.32	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:	71.3	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	65.1	63.5	57.2	55.6	64.1	64.3
Heavy Trucks:	65.9	64.5	55.4	56.7	65.0	65.2
Vehicle Noise:	73.1	71.4	68.2	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	184	397	855
CNEL:	92	198	426	917

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: Bear Valley
Road Segment: e/o 3rd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,140 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,014 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.08	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.15	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.11	-0.18	-1.20	-5.32	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:	71.1	69.2	67.5	61.4	70.1	70.7
Medium Trucks:	64.9	63.4	57.1	55.5	64.0	64.2
Heavy Trucks:	65.8	64.3	55.3	56.6	64.9	65.0
Vehicle Noise:	73.0	71.2	68.1	63.4	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	84	181	389	838
CNEL:	90	194	417	899

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: Bear Valley
Road Segment: w/o 3rd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,640 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,164 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.24	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-12.99	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.95	-0.18	-1.20	-5.32	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:	71.3	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	65.1	63.6	57.2	55.7	64.1	64.4
Heavy Trucks:	65.9	64.5	55.5	56.7	65.1	65.2
Vehicle Noise:	73.1	71.4	68.3	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	185	399	859
CNEL:	92	198	427	921

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYWP
Road Name: Bear Valley
Road Segment: e/o 2nd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,100 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,010 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.08	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.16	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.11	-0.18	-1.20	-5.32	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:	71.1	69.2	67.5	61.4	70.0	70.7
Medium Trucks:	64.9	63.4	57.0	55.5	64.0	64.2
Heavy Trucks:	65.8	64.3	55.3	56.6	64.9	65.0
Vehicle Noise:	73.0	71.2	68.1	63.4	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	84	180	389	837
CNEL:	90	194	417	898

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: 3rd Ave
Road Segment: n/o Silica

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,560 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	456 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.36	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-22.60	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-26.56	0.58	-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:	62.5	60.6	58.8	52.7	61.4	62.0
Medium Trucks:	56.2	54.7	48.4	46.8	55.3	55.5
Heavy Trucks:	57.1	55.7	46.6	47.9	56.2	56.4
Vehicle Noise:	64.3	62.6	59.4	54.7	63.3	63.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	18	38	83	178
CNEL:	19	41	89	191

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: 2nd Ave
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,700 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	370 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-6.27	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-23.51	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-27.46	0.58	-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:	61.5	59.7	57.9	51.8	60.5	61.1
Medium Trucks:	55.3	53.8	47.5	45.9	54.4	54.6
Heavy Trucks:	56.2	54.8	45.7	47.0	55.3	55.4
Vehicle Noise:	63.4	61.7	58.5	53.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	15	33	72	155
CNEL:	17	36	77	166

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: 3rd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,320 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	232 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-8.30	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-25.53	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-29.49	0.58	-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:	59.5	57.6	55.9	49.8	58.4	59.0
Medium Trucks:	53.3	51.8	45.4	43.9	52.3	52.6
Heavy Trucks:	54.1	52.7	43.7	44.9	53.3	53.4
Vehicle Noise:	61.4	59.6	56.5	51.8	60.3	60.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	24	53	113
CNEL:	12	26	56	122

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: 2nd Ave
Road Segment: n/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,710 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	571 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.38	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-21.62	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-25.58	0.58	-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	61.5	59.8	53.7	62.3	62.9
Medium Trucks:	57.2	55.7	49.3	47.8	56.3	56.5
Heavy Trucks:	58.1	56.6	47.6	48.8	57.2	57.3
Vehicle Noise:	65.3	63.5	60.4	55.7	64.2	64.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	21	45	96	207
CNEL:	22	48	103	222

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: 2nd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,000 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	200 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.94	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-26.18	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-30.13	0.58	-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:	58.9	57.0	55.2	49.2	57.8	58.4
Medium Trucks:	52.7	51.1	44.8	43.2	51.7	51.9
Heavy Trucks:	53.5	52.1	43.0	44.3	52.6	52.8
Vehicle Noise:	60.7	59.0	55.8	51.2	59.7	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	22	48	103
CNEL:	11	24	51	110

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: Hesperia
Road Segment: s/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,700 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,470 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.98	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.26	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.22	-0.18	-1.20	-5.32	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:	69.0	67.1	65.4	59.3	67.9	68.5
Medium Trucks:	62.8	61.3	54.9	53.4	61.9	62.1
Heavy Trucks:	63.7	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	70.9	69.1	66.0	61.3	69.9	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	131	281	606
CNEL:	65	140	302	650

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: Hesperia
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,220 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,422 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.89	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.35	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.30	-0.18	-1.20	-5.32	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:	69.0	67.1	65.3	59.2	67.9	68.5
Medium Trucks:	62.7	61.2	54.9	53.3	61.8	62.0
Heavy Trucks:	63.6	62.2	53.1	54.4	62.7	62.8
Vehicle Noise:	70.8	69.1	65.9	61.2	69.8	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	278	598
CNEL:	64	138	298	642

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: Jasmine
Road Segment: e/o 2nd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,630 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	463 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.30	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-22.53	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-26.49	0.58	-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:	62.5	60.6	58.9	52.8	61.4	62.0
Medium Trucks:	56.3	54.8	48.4	46.9	55.3	55.6
Heavy Trucks:	57.1	55.7	46.7	47.9	56.3	56.4
Vehicle Noise:	64.4	62.6	59.5	54.8	63.3	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	39	83	180
CNEL:	19	42	90	193

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: Bear Valley
Road Segment: w/o 7th Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,960 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,296 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.38	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-12.86	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.81	-0.18	-1.20	-5.32	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:	71.4	69.5	67.8	61.7	70.3	71.0
Medium Trucks:	65.2	63.7	57.3	55.8	64.3	64.5
Heavy Trucks:	66.1	64.6	55.6	56.9	65.2	65.3
Vehicle Noise:	73.3	71.5	68.4	63.7	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	189	407	877
CNEL:	94	203	436	940

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: Bear Valley
Road Segment: w/o 3rd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,020 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,402 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.49	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-12.75	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.71	-0.18	-1.20	-5.32	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:	71.5	69.7	67.9	61.8	70.5	71.1
Medium Trucks:	65.3	63.8	57.5	55.9	64.4	64.6
Heavy Trucks:	66.2	64.7	55.7	57.0	65.3	65.4
Vehicle Noise:	73.4	71.6	68.5	63.8	72.4	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	192	414	891
CNEL:	96	206	444	956

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: Bear Valley
Road Segment: e/o 7th Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,720 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,372 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.46	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-12.78	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.74	-0.18	-1.20	-5.32	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:	71.5	69.6	67.9	61.8	70.4	71.0
Medium Trucks:	65.3	63.8	57.4	55.9	64.3	64.6
Heavy Trucks:	66.1	64.7	55.7	56.9	65.3	65.4
Vehicle Noise:	73.4	71.6	68.5	63.8	72.3	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	191	412	887
CNEL:	95	205	442	951

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: Bear Valley
Road Segment: e/o 3rd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,000 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,400 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.48	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-12.75	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.71	-0.18	-1.20	-5.32	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:	71.5	69.6	67.9	61.8	70.4	71.1
Medium Trucks:	65.3	63.8	57.5	55.9	64.4	64.6
Heavy Trucks:	66.2	64.7	55.7	57.0	65.3	65.4
Vehicle Noise:	73.4	71.6	68.5	63.8	72.4	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	192	413	891
CNEL:	96	206	443	955

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 NP
Road Name: Bear Valley
Road Segment: e/o 2nd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,830 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,283 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.37	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-12.87	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.83	-0.18	-1.20	-5.32	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:	71.4	69.5	67.8	61.7	70.3	70.9
Medium Trucks:	65.2	63.7	57.3	55.8	64.2	64.5
Heavy Trucks:	66.0	64.6	55.6	56.8	65.2	65.3
Vehicle Noise:	73.3	71.5	68.4	63.7	72.2	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	87	188	406	875
CNEL:	94	202	436	938

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: 3rd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,730 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	273 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.59	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-24.83	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-28.78	0.58	-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:	60.2	58.3	56.6	50.5	59.1	59.7
Medium Trucks:	54.0	52.5	46.1	44.6	53.1	53.3
Heavy Trucks:	54.9	53.4	44.4	45.6	54.0	54.1
Vehicle Noise:	62.1	60.3	57.2	52.5	61.0	61.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	27	59	126
CNEL:	14	29	63	136

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: 3rd Ave
Road Segment: n/o Silica

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,970 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	497 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.99	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-22.23	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-26.18	0.58	-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:	62.8	60.9	59.2	53.1	61.7	62.3
Medium Trucks:	56.6	55.1	48.7	47.2	55.7	55.9
Heavy Trucks:	57.5	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	64.7	62.9	59.8	55.1	63.6	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	88	189
CNEL:	20	44	94	202

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: 2nd Ave
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,110 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	411 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.81	0.56	-1.20	-4.65	0.000	0.000
Medium Trucks:	79.45	-23.05	0.59	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-27.01	0.58	-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:	62.0	60.1	58.3	52.3	60.9	61.5
Medium Trucks:	55.8	54.3	47.9	46.4	54.8	55.1
Heavy Trucks:	56.6	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	63.8	62.1	59.0	54.3	62.8	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	77	166
CNEL:	18	38	83	178

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: 2nd Ave
Road Segment: n/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,920 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	792 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.96	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-20.20	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-24.16	0.58	-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:	64.9	63.0	61.2	55.1	63.8	64.4
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	59.5	58.1	49.0	50.3	58.6	58.8
Vehicle Noise:	66.7	65.0	61.8	57.1	65.7	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	26	55	119	257
CNEL:	28	59	128	276

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: Hesperia
Road Segment: n/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,450 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,545 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.11	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-15.13	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.09	-0.18	-1.20	*-5.32*	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:	69.2	67.3	65.5	59.4	68.1	68.7
Medium Trucks:	62.9	61.4	55.1	53.5	62.0	62.2
Heavy Trucks:	63.8	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	71.0	69.3	66.1	61.4	70.0	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	287	618
CNEL:	66	143	308	663

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: 2nd Ave
Road Segment: s/o Bear Valley

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,380 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	238 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-8.19	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-25.42	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-29.38	0.58	-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:	59.6	57.7	56.0	49.9	58.5	59.1
Medium Trucks:	53.4	51.9	45.5	44.0	52.5	52.7
Heavy Trucks:	54.3	52.8	43.8	45.0	53.4	53.5
Vehicle Noise:	61.5	59.7	56.6	51.9	60.4	60.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	25	54	115
CNEL:	12	27	57	124

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: Hesperia
Road Segment: s/o Jasmine

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,520 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	2,552 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.12	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-15.12	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.08	-0.18	-1.20	*-5.32*	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:	69.2	67.3	65.5	59.5	68.1	68.7
Medium Trucks:	63.0	61.4	55.1	53.5	62.0	62.2
Heavy Trucks:	63.8	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	71.0	69.3	66.1	61.5	70.0	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	288	620
CNEL:	66	143	308	665

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: Jasmine
Road Segment: e/o 2nd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,040 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	504 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	44 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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	45.177
Medium Trucks:	44.981
Heavy Trucks:	45.000

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.93	0.56	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-22.17	0.59	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-26.12	0.58	-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:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	55.9
Heavy Trucks:	57.5	56.1	47.1	48.3	56.7	56.8
Vehicle Noise:	64.7	63.0	59.8	55.2	63.7	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	88	190
CNEL:	20	44	95	204

Sunday, July 18, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: Bear Valley
Road Segment: e/o 7th Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,590 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,659 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.73	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-12.51	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.46	-0.18	-1.20	*-5.32*	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:	71.8	69.9	68.1	62.1	70.7	71.3
Medium Trucks:	65.6	64.1	57.7	56.2	64.6	64.8
Heavy Trucks:	66.4	65.0	56.0	57.2	65.6	65.7
Vehicle Noise:	73.6	71.9	68.7	64.1	72.6	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	199	430	925
CNEL:	99	214	461	993

Sunday, July 18, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: Bear Valley
Road Segment: w/o 7th Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,490 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,549 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.63	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-12.61	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.57	-0.18	-1.20	*-5.32*	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:	71.7	69.8	68.0	62.0	70.6	71.2
Medium Trucks:	65.5	64.0	57.6	56.1	64.5	64.7
Heavy Trucks:	66.3	64.9	55.9	57.1	65.5	65.6
Vehicle Noise:	73.5	71.8	68.6	64.0	72.5	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	196	423	911
CNEL:	98	210	453	977

Sunday, July 18, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: Bear Valley
Road Segment: w/o 3rd Ave
Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,910 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,691 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.76	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-12.48	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.43	-0.18	-1.20	*-5.32*	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:	71.8	69.9	68.2	62.1	70.7	71.3
Medium Trucks:	65.6	64.1	57.7	56.2	64.6	64.9
Heavy Trucks:	66.4	65.0	56.0	57.2	65.6	65.7
Vehicle Noise:	73.7	71.9	68.8	64.1	72.6	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	200	431	930
CNEL:	100	215	463	997

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: Bear Valley
Road Segment: e/o 3rd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,470 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,547 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.63	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-12.61	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.57	-0.18	-1.20	*-5.32*	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:	71.7	69.8	68.0	62.0	70.6	71.2
Medium Trucks:	65.5	64.0	57.6	56.0	64.5	64.7
Heavy Trucks:	66.3	64.9	55.9	57.1	65.5	65.6
Vehicle Noise:	73.5	71.8	68.6	64.0	72.5	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	91	196	423	911
CNEL:	98	210	453	977

Sunday, July 18, 2021

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2033 WP
Road Name: Bear Valley
Road Segment: e/o 2nd Ave

Project Name: Bear Valley Marketplace
Job Number: 13078

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,290 vehicles
Peak Hour Percentage:	10.00%
Peak Hour Volume:	4,529 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 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%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	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:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.61	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-12.63	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.59	-0.18	-1.20	*-5.32*	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:	71.7	69.8	68.0	62.0	70.6	71.2
Medium Trucks:	65.4	63.9	57.6	56.0	64.5	64.7
Heavy Trucks:	66.3	64.9	55.8	57.1	65.4	65.6
Vehicle Noise:	73.5	71.8	68.6	63.9	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	91	196	422	908
CNEL:	97	210	452	974

Sunday, July 18, 2021

APPENDIX 8.1:

ON-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Third/Second Avenue
Lot No:

Project Name: Bear Valley Marketplace
Job Number: 13078
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,920 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	792 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	44 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	87.0 feet
Centerline Dist. to Observer:	87.0 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
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	84.226
Medium Trucks:	84.178
Heavy Trucks:	84.226

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.12	-3.42	-3.50	-1.20	*-4.86*	0.000	0.000
Medium Trucks:	78.79	-20.66	-3.50	-1.20	*-4.98*	0.000	0.000
Heavy Trucks:	83.02	-24.62	-3.50	-1.20	*-5.20*	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:	63.0	61.1	59.3	53.3	61.9	62.5
Medium Trucks:	53.4	51.9	45.6	44.0	52.5	52.7
Heavy Trucks:	53.7	52.3	43.2	44.5	52.9	53.0
Vehicle Noise:	63.9	62.1	59.6	54.3	62.8	63.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.0	61.1	59.3	53.3	61.9	62.5
Medium Trucks:	53.4	51.9	45.6	44.0	52.5	52.7
Heavy Trucks:	53.7	52.3	43.2	44.5	52.9	53.0
Vehicle Noise:	63.9	62.1	59.6	54.3	62.8	63.4

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	31	68	146	314

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Third/Second Avenue
Lot No:

Project Name: Bear Valley Marketplace
Job Number: 13078
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,920 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	792 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	44 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 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
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	68.622
Medium Trucks:	68.564
Heavy Trucks:	68.622

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.12	-3.42	-2.17	-1.20	*-4.86*	0.000	0.000
Medium Trucks:	78.79	-20.66	-2.16	-1.20	*-4.99*	0.000	0.000
Heavy Trucks:	83.02	-24.62	-2.17	-1.20	*-5.26*	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:	64.3	62.4	60.7	54.6	63.2	63.8
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.1
Heavy Trucks:	55.0	53.6	44.6	45.8	54.2	54.3
Vehicle Noise:	65.2	63.4	60.9	55.6	64.2	64.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.7	54.6	63.2	63.8
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.1
Heavy Trucks:	55.0	53.6	44.6	45.8	54.2	54.3
Vehicle Noise:	65.2	63.4	60.9	55.6	64.2	64.7

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	32	69	148	319

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Bear Valley Road
Lot No:

Project Name: Bear Valley Marketplace
Job Number: 13078
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,470 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,547 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	745.0 feet
Centerline Dist. to Observer:	745.0 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
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	744.136
Medium Trucks:	744.130
Heavy Trucks:	744.136

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.12	4.17	-17.69	-1.20	*-4.89*	0.000	0.000
Medium Trucks:	78.79	-13.07	-17.69	-1.20	*-4.90*	0.000	0.000
Heavy Trucks:	83.02	-17.03	-17.69	-1.20	*-4.93*	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:	56.4	54.5	52.7	46.7	55.3	55.9
Medium Trucks:	46.8	45.3	39.0	37.4	45.9	46.1
Heavy Trucks:	47.1	45.7	36.6	37.9	46.2	46.4
Vehicle Noise:	57.3	55.5	53.0	47.6	56.2	56.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.4	54.5	52.7	46.7	55.3	55.9
Medium Trucks:	46.8	45.3	39.0	37.4	45.9	46.1
Heavy Trucks:	47.1	45.7	36.6	37.9	46.2	46.4
Vehicle Noise:	57.3	55.5	53.0	47.6	56.2	56.8

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	98	210	453	975

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Bear Valley Road
Lot No:

Project Name: Bear Valley Marketplace
Job Number: 13078
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,470 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,547 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	733.0 feet
Centerline Dist. to Observer:	733.0 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
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	732.122
Medium Trucks:	732.116
Heavy Trucks:	732.122

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.12	4.17	-17.59	-1.20	*-4.89*	0.000	0.000
Medium Trucks:	78.79	-13.07	-17.59	-1.20	*-4.90*	0.000	0.000
Heavy Trucks:	83.02	-17.03	-17.59	-1.20	*-4.93*	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	54.6	52.8	46.8	55.4	56.0
Medium Trucks:	46.9	45.4	39.1	37.5	46.0	46.2
Heavy Trucks:	47.2	45.8	36.7	38.0	46.4	46.5
Vehicle Noise:	57.4	55.6	53.1	47.8	56.3	56.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.5	54.6	52.8	46.8	55.4	56.0
Medium Trucks:	46.9	45.4	39.1	37.5	46.0	46.2
Heavy Trucks:	47.2	45.8	36.7	38.0	46.4	46.5
Vehicle Noise:	57.4	55.6	53.1	47.8	56.3	56.9

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	98	210	453	975

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Bear Valley Road
Lot No:

Project Name: Bear Valley Marketplace
Job Number: 13078
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,470 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,547 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	615.0 feet
Centerline Dist. to Observer:	615.0 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
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	613.953
Medium Trucks:	613.946
Heavy Trucks:	613.953

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.12	4.17	-16.44	-1.20	*-4.89*	0.000	0.000
Medium Trucks:	78.79	-13.07	-16.44	-1.20	*-4.90*	0.000	0.000
Heavy Trucks:	83.02	-17.03	-16.44	-1.20	*-4.94*	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:	57.6	55.7	54.0	47.9	56.6	57.2
Medium Trucks:	48.1	46.6	40.2	38.7	47.1	47.4
Heavy Trucks:	48.4	46.9	37.9	39.1	47.5	47.6
Vehicle Noise:	58.5	56.7	54.3	48.9	57.5	58.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.6	55.7	54.0	47.9	56.6	57.2
Medium Trucks:	48.1	46.6	40.2	38.7	47.1	47.4
Heavy Trucks:	48.4	46.9	37.9	39.1	47.5	47.6
Vehicle Noise:	58.5	56.7	54.3	48.9	57.5	58.0

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	98	210	453	976

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Bear Valley Road
Lot No:

Project Name: Bear Valley Marketplace
Job Number: 13078
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,470 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,547 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	465.0 feet
Centerline Dist. to Observer:	465.0 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
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

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:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	463.614
Medium Trucks:	463.605
Heavy Trucks:	463.614

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.12	4.17	-14.61	-1.20	*-4.89*	0.000	0.000
Medium Trucks:	78.79	-13.07	-14.61	-1.20	*-4.91*	0.000	0.000
Heavy Trucks:	83.02	-17.03	-14.61	-1.20	*-4.95*	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:	59.5	57.6	55.8	49.8	58.4	59.0
Medium Trucks:	49.9	48.4	42.0	40.5	49.0	49.2
Heavy Trucks:	50.2	48.8	39.7	41.0	49.3	49.5
Vehicle Noise:	60.4	58.6	56.1	50.7	59.3	59.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.5	57.6	55.8	49.8	58.4	59.0
Medium Trucks:	49.9	48.4	42.0	40.5	49.0	49.2
Heavy Trucks:	50.2	48.8	39.7	41.0	49.3	49.5
Vehicle Noise:	60.4	58.6	56.1	50.7	59.3	59.8

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	98	210	453	977

APPENDIX 10.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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13078 - Bear Valley Marketplace

CadnaA Noise Prediction Model: 13078-02_Exterior.cna
Date: 14.07.21
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	274.32
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	46.8	37.9	46.8	65.0	55.0	0.0				5.00	r	6244681.76	2481878.97	3030.55
RECEIVERS		R2	52.2	38.6	50.5	65.0	55.0	0.0				5.00	r	6245555.59	2481398.17	3023.00
RECEIVERS		R3	52.5	47.2	54.8	65.0	55.0	0.0				5.00	r	6245457.98	2480969.81	3034.23
RECEIVERS		R4	50.1	46.5	53.6	65.0	55.0	0.0				5.00	r	6244336.73	2480362.15	3058.79
RECEIVERS		R5	53.6	40.6	52.1	65.0	55.0	0.0				5.00	r	6243995.47	2481475.93	3045.00
REC_ONSITE		MF1	48.3	37.5	47.5	65.0	55.0	0.0				5.00	r	6244151.63	2481762.27	3038.55
REC_ONSITE		MF2	47.6	35.2	46.2	65.0	55.0	0.0				5.00	r	6245313.46	2481681.52	3022.45
REC_ONSITE		MF3	60.4	48.7	59.3	65.0	55.0	0.0				5.00	r	6245004.89	2481225.09	3033.11
REC_ONSITE		MF4	57.5	45.0	56.1	65.0	55.0	0.0				5.00	r	6244709.87	2481212.13	3039.29
REC_ONSITE		MF5	63.8	47.1	61.5	65.0	55.0	0.0				5.00	r	6244357.10	2481094.22	3041.21
REC_ONSITE		MF6	64.8	50.1	62.8	65.0	55.0	0.0				5.00	r	6244137.69	2480944.07	3045.80

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6245210.58	2480620.04	3061.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6245270.50	2480620.48	3061.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6245302.30	2480914.65	3053.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6245300.00	2480979.48	3053.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6245296.95	2480800.76	3057.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244990.77	2481027.21	3058.94

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244968.01	2481075.90	3058.94
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244881.44	2481005.48	3061.10
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244900.63	2481077.05	3061.10
POINTSOURCE		AC10	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244841.86	2480990.42	3061.10
POINTSOURCE		AC11	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244840.35	2481099.42	3061.10
POINTSOURCE		AC12	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244589.14	2480992.48	3061.10
POINTSOURCE		AC13	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244590.90	2481095.80	3061.10
POINTSOURCE		AC14	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244516.57	2481018.43	3061.10
POINTSOURCE		AC15	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244989.81	2480640.78	3064.39
POINTSOURCE		AC16	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244798.82	2480639.55	3067.03
POINTSOURCE		AC17	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244472.70	2480685.54	3066.61
POINTSOURCE		AC18	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6244261.41	2480811.59	3065.89
POINTSOURCE		DOCK01	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6244541.76	2481112.37	3040.57
POINTSOURCE		DOCK02	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6244489.27	2481064.96	3041.00
POINTSOURCE		DOCK03	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245112.75	2481460.99	3027.97
POINTSOURCE		DOCK04	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245294.68	2481457.89	3024.54
POINTSOURCE		DOCK05	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245208.24	2481461.61	3029.00
POINTSOURCE		DOCK06	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245113.53	2481309.32	3031.00
POINTSOURCE		DOCK07	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245297.71	2481306.19	3027.00
POINTSOURCE		DOCK08	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245111.48	2481386.87	3029.38
POINTSOURCE		DOCK09	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245297.89	2481382.57	3025.97
POINTSOURCE		DOCK11	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245168.90	2481262.32	3029.59
POINTSOURCE		DOCK12	103.4	103.4	103.4	Lw	103.4		900.00	0.00	0.00	5.00	r	6245265.48	2481260.68	3027.00
POINTSOURCE		DT01	83.2	83.2	83.2	Lw	83.2					3.00	r	6244556.76	2480674.00	3045.00
POINTSOURCE		DT02	83.2	83.2	83.2	Lw	83.2					3.00	r	6244795.30	2480696.90	3044.64
POINTSOURCE		DT03	83.2	83.2	83.2	Lw	83.2					3.00	r	6244973.26	2480592.76	3044.38
POINTSOURCE		DT04	83.2	83.2	83.2	Lw	83.2					3.00	r	6244325.91	2480820.88	3044.01
POINTSOURCE		DT05	83.2	83.2	83.2	Lw	83.2					3.00	r	6245121.06	2480626.44	3039.70
POINTSOURCE		DT06	83.2	83.2	83.2	Lw	83.2					3.00	r	6245104.85	2480618.44	3040.37
POINTSOURCE		GAS01	79.9	79.9	79.9	Lw	79.9					5.00	r	6244207.64	2480688.93	3049.00
POINTSOURCE		GAS02	79.9	79.9	79.9	Lw	79.9					5.00	r	6244253.69	2480688.15	3049.00
POINTSOURCE		GAS03	79.9	79.9	79.9	Lw	79.9					5.00	r	6244294.14	2480688.58	3048.37
POINTSOURCE		PARK01	87.8	87.8	87.8	Lw	87.8					5.00	r	6244131.50	2480835.14	3048.08
POINTSOURCE		PARK02	87.8	87.8	87.8	Lw	87.8					5.00	r	6244359.53	2480768.35	3046.24
POINTSOURCE		PARK03	87.8	87.8	87.8	Lw	87.8					5.00	r	6244986.67	2481116.02	3036.52
POINTSOURCE		PARK04	87.8	87.8	87.8	Lw	87.8					5.00	r	6244888.95	2481116.56	3039.61
POINTSOURCE		PARK05	87.8	87.8	87.8	Lw	87.8					5.00	r	6245281.82	2481056.27	3033.06
POINTSOURCE		PARK06	87.8	87.8	87.8	Lw	87.8					5.00	r	6244981.56	2480730.14	3042.82
POINTSOURCE		PARK07	87.8	87.8	87.8	Lw	87.8					5.00	r	6245247.77	2480658.87	3041.00
POINTSOURCE		PARK08	87.8	87.8	87.8	Lw	87.8					5.00	r	6245143.06	2480659.68	3041.00
POINTSOURCE		PARK09	87.8	87.8	87.8	Lw	87.8					5.00	r	6245123.07	2480836.19	3036.77
POINTSOURCE		PARK10	87.8	87.8	87.8	Lw	87.8					5.00	r	6245195.25	2480699.07	3041.00
POINTSOURCE		PARK11	87.8	87.8	87.8	Lw	87.8					5.00	r	6245228.39	2480732.21	3040.25
POINTSOURCE		PARK12	87.8	87.8	87.8	Lw	87.8					5.00	r	6245163.26	2480733.32	3039.83
POINTSOURCE		PARK13	87.8	87.8	87.8	Lw	87.8					5.00	r	6245154.01	2480784.02	3037.00
POINTSOURCE		PARK14	87.8	87.8	87.8	Lw	87.8					5.00	r	6245098.96	2480783.84	3038.41
POINTSOURCE		PARK15	87.8	87.8	87.8	Lw	87.8					5.00	r	6245239.89	2480945.45	3033.00
POINTSOURCE		PARK16	87.8	87.8	87.8	Lw	87.8					5.00	r	6245144.91	2480908.87	3033.45
POINTSOURCE		PARK17	87.8	87.8	87.8	Lw	87.8					5.00	r	6245175.94	2480949.91	3033.00
POINTSOURCE		PARK18	87.8	87.8	87.8	Lw	87.8					5.00	r	6245099.49	2480946.72	3034.58
POINTSOURCE		PARK19	87.8	87.8	87.8	Lw	87.8					5.00	r	6245135.57	2481020.24	3033.97
POINTSOURCE		PARK20	87.8	87.8	87.8	Lw	87.8					5.00	r	6245281.62	2481021.13	3033.00
POINTSOURCE		PARK21	87.8	87.8	87.8	Lw	87.8					5.00	r	6245226.02	2481054.65	3033.62
POINTSOURCE		PARK22	87.8	87.8	87.8	Lw	87.8					5.00	r	6245166.50	2481055.67	3034.17
POINTSOURCE		PARK23	87.8	87.8	87.8	Lw	87.8					5.00	r	6245103.59	2481055.61	3034.77
POINTSOURCE		PARK24	87.8	87.8	87.8	Lw	87.8					5.00	r	6244948.29	2480643.74	3045.25
POINTSOURCE		PARK25	87.8	87.8	87.8	Lw	87.8					5.00	r	6244888.96	2480589.71	3047.86
POINTSOURCE		PARK26	87.8	87.8	87.8	Lw	87.8					5.00	r	6244895.70	2480655.87	3045.06
POINTSOURCE		PARK27	87.8	87.8	87.8	Lw	87.8					5.00	r	6244894.18	2480698.58	3045.00
POINTSOURCE		PARK28	87.8	87.8	87.8	Lw	87.8					5.00	r	6244799.28	2480732.78	3045.70
POINTSOURCE		PARK29	87.8	87.8	87.8	Lw	87.8					5.00	r	6244844.99	2480646.62	3045.00
POINTSOURCE		PARK30	87.8	87.8	87.8	Lw	87.8					5.00	r	6244615.93	2480586.49	3047.85
POINTSOURCE		PARK31	87.8	87.8	87.8	Lw	87.8					5.00	r	6244545.18	2480587.70	3047.35
POINTSOURCE		PARK32	87.8	87.8	87.8	Lw	87.8					5.00	r	6244499.72	2480623.30	3047.00
POINTSOURCE		PARK33	87.8	87.8	87.8	Lw	87.8					5.00	r	6244680.67	2480694.36	3047.00
POINTSOURCE		PARK34	87.8	87.8	87.8	Lw	87.8					5.00	r	6244628.34	2480655.93	3047.00
POINTSOURCE		PARK35	87.8	87.8	87.8	Lw	87.8					5.00	r	6244627.97	2480699.75	3047.00
POINTSOURCE		PARK36	87.8	87.8	87.8	Lw	87.8					5.00	r	6245011.69	2480804.42	3041.00
POINTSOURCE		PARK37	87.8	87.8	87.8	Lw	87.8					5.00	r	6245011.22	2480842.63	3040.83
POINTSOURCE		PARK38	87.8	87.8	87.8	Lw	87.8					5.00	r	6245010.71	2480878.58	3041.00
POINTSOURCE		PARK39	87.8	87.8	87.8	Lw	87.8					5.00	r	6244955.60	2480808.75	3042.15
POINTSOURCE		PARK40	87.8	87.8	87.8	Lw	87.8					5.00	r	6244956.19	2480843.56	3041.58
POINTSOURCE		PARK41	87.8	87.8	87.8	Lw	87.8					5.00	r	6244956.80	2480879.50	3041.00
POINTSOURCE		PARK42	87.8	87.8	87.8	Lw	87.8					5.00	r	6244890.40	2480806.49	3042.67
POINTSOURCE		PARK43	87.8	87.8	87.8	Lw	87.8					5.00	r	6244889.89	2480842.45	3041.99
POINTSOURCE		PARK44	87.8	87.8	87.8	Lw	87.8					5.00	r	6244890.53	2480879.51	3041.26
POINTSOURCE		PARK45	87.8	87.8	87.8	Lw	87.8					5.00	r	6244824.15	2480807.62	3043.11

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		PARK46	87.8	87.8	87.8	Lw	87.8					5.00	r	6244823.62	2480842.45	3042.15
POINTSOURCE		PARK47	87.8	87.8	87.8	Lw	87.8					5.00	r	6244824.27	2480880.63	3041.15
POINTSOURCE		PARK48	87.8	87.8	87.8	Lw	87.8					5.00	r	6244626.41	2480806.49	3044.03
POINTSOURCE		PARK49	87.8	87.8	87.8	Lw	87.8					5.00	r	6244627.01	2480841.31	3043.73
POINTSOURCE		PARK50	87.8	87.8	87.8	Lw	87.8					5.00	r	6244626.52	2480878.39	3042.90
POINTSOURCE		PARK51	87.8	87.8	87.8	Lw	87.8					5.00	r	6244560.12	2480805.38	3045.55
POINTSOURCE		PARK52	87.8	87.8	87.8	Lw	87.8					5.00	r	6244560.73	2480841.31	3045.00
POINTSOURCE		PARK53	87.8	87.8	87.8	Lw	87.8					5.00	r	6244561.36	2480878.37	3043.80
POINTSOURCE		PARK54	87.8	87.8	87.8	Lw	87.8					5.00	r	6244494.94	2480804.24	3045.45
POINTSOURCE		PARK55	87.8	87.8	87.8	Lw	87.8					5.00	r	6244495.61	2480843.55	3045.00
POINTSOURCE		PARK56	87.8	87.8	87.8	Lw	87.8					5.00	r	6244496.32	2480885.10	3043.69
POINTSOURCE		PARK57	87.8	87.8	87.8	Lw	87.8					5.00	r	6244428.68	2480805.37	3045.00
POINTSOURCE		PARK58	87.8	87.8	87.8	Lw	87.8					5.00	r	6244429.32	2480842.43	3045.00
POINTSOURCE		PARK59	87.8	87.8	87.8	Lw	87.8					5.00	r	6244197.79	2480814.61	3047.00
POINTSOURCE		PARK60	87.8	87.8	87.8	Lw	87.8					5.00	r	6244228.05	2480770.39	3047.77
POINTSOURCE		PARK61	87.8	87.8	87.8	Lw	87.8					5.00	r	6244278.23	2480769.53	3047.37
POINTSOURCE		PARK62	87.8	87.8	87.8	Lw	87.8					5.00	r	6244129.21	2480645.46	3050.36
POINTSOURCE		PARK63	87.8	87.8	87.8	Lw	87.8					5.00	r	6244127.86	2480699.06	3049.85
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6244918.04	2480582.47	3047.99
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6244347.92	2480854.91	3045.30
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6245169.33	2480657.77	3041.00
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	r	6244616.24	2480635.43	3047.00
POINTSOURCE		TUNNEL01	106.0	106.0	106.0	Lw	106		900.00	0.00	0.00	8.00	r	6244216.36	2480845.31	3049.29
POINTSOURCE		TUNNEL02	106.0	106.0	106.0	Lw	106		900.00	0.00	0.00	8.00	r	6244278.67	2480845.09	3049.01
POINTSOURCE		VAC01	86.0	86.0	86.0	Lw	86		900.00	0.00	0.00	3.00	r	6244128.48	2480768.13	3046.92
POINTSOURCE		VAC02	86.0	86.0	86.0	Lw	86		900.00	0.00	0.00	3.00	r	6244128.29	2480757.42	3047.04
POINTSOURCE		VAC03	86.0	86.0	86.0	Lw	86		900.00	0.00	0.00	3.00	r	6244128.14	2480748.12	3047.12
POINTSOURCE		VAC04	86.0	86.0	86.0	Lw	86		900.00	0.00	0.00	3.00	r	6244128.00	2480739.95	3047.19

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		15.00	r	6245068.44	2481508.14	3037.84	3022.83
								6245332.09	2481507.72	3037.84	3016.50
								6245333.10	2481293.52	3037.84	3020.80
								6245311.00	2481294.48	3037.84	3021.71
								6245310.60	2481476.08	3037.84	3018.18
								6245098.17	2481476.79	3037.84	3022.74
								6245097.40	2481294.63	3037.84	3026.00
								6245068.90	2481295.70	3037.84	3026.15
BUILDING		BUILDING00002	x	0		15.00	r	6245124.44	2481447.24	3038.72	3023.72
								6245282.75	2481447.45	3038.72	3020.72
								6245284.22	2481294.36	3038.72	3022.00
								6245125.91	2481294.14	3038.72	3025.98
BUILDING		BUILDING00003	x	0		20.00	r	6245080.05	2481232.65	3047.52	3027.52
								6245307.06	2481234.02	3047.52	3022.43
								6245307.30	2481077.45	3047.52	3027.42
								6245072.19	2481079.13	3047.52	3029.89
								6245072.28	2481221.14	3047.52	3027.96
BUILDING		BUILDING00004	x	0		20.00	r	6245270.38	2480994.27	3048.00	3028.00
								6245333.26	2480995.53	3048.00	3028.00
								6245333.70	2480884.94	3048.00	3031.06
								6245267.95	2480886.06	3048.00	3029.39
BUILDING		BUILDING00005	x	0		20.00	r	6245265.05	2480826.34	3052.00	3032.00
								6245328.07	2480825.27	3052.00	3032.04
								6245327.88	2480773.88	3052.00	3033.67
								6245265.55	2480775.62	3052.00	3032.64
BUILDING		BUILDING00006	x	0		20.00	r	6245189.23	2480639.87	3056.00	3036.00
								6245287.12	2480634.09	3056.00	3036.00
								6245286.48	2480596.41	3056.00	3036.00
								6245187.81	2480596.72	3056.00	3037.05
BUILDING		BUILDING00007	x	0		20.00	r	6244970.66	2480681.97	3059.39	3039.39
								6245005.61	2480682.06	3059.39	3038.04
								6245012.21	2480666.87	3059.39	3038.32
								6245007.70	2480603.22	3059.39	3040.27
								6244971.41	2480605.21	3059.39	3040.81
BUILDING		BUILDING00008	x	0		20.00	r	6244783.65	2480685.84	3062.03	3042.03
								6244817.94	2480687.31	3062.03	3041.19
								6244818.45	2480596.85	3062.03	3042.75
								6244784.21	2480598.12	3062.03	3043.99
BUILDING		BUILDING00009	x	0		20.00	r	6244449.74	2480714.83	3061.61	3041.61
								6244547.65	2480710.42	3061.61	3042.00
								6244547.31	2480650.12	3061.61	3042.00
								6244445.91	2480651.16	3061.61	3042.00
BUILDING		BUILDING00010	x	0		20.00	r	6244468.47	2481050.29	3056.10	3036.10

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
								6244558.91	2481049.43	3056.10	3036.00
								6244557.99	2481115.92	3056.10	3035.63
								6244856.07	2481115.64	3056.10	3035.01
								6244858.47	2481055.30	3056.10	3034.91
								6244883.16	2481056.25	3056.10	3034.59
								6244880.40	2481095.35	3056.10	3034.75
								6244924.23	2481093.92	3056.10	3034.17
								6244922.87	2481054.20	3056.10	3034.06
								6244899.58	2481054.59	3056.10	3034.37
								6244899.83	2480988.81	3056.10	3034.00
								6244857.36	2480990.21	3056.10	3034.00
								6244859.20	2480977.16	3056.10	3034.00
								6244559.02	2480975.42	3056.10	3036.00
								6244557.23	2480991.22	3056.10	3036.00
								6244469.51	2480990.65	3056.10	3036.98
BUILDING		BUILDING00011	x	0		20.00	r	6244946.18	2481094.92	3053.94	3033.94
								6245012.64	2481094.47	3053.94	3031.62
								6245011.89	2481010.20	3053.94	3032.41
								6244968.69	2481008.88	3053.94	3033.07
								6244968.09	2481054.11	3053.94	3033.61
								6244946.86	2481054.47	3053.94	3034.00
BUILDING		BUILDING00012	x	0		20.00	r	6244232.83	2480853.51	3060.89	3040.89
								6244273.98	2480854.29	3060.89	3040.80
								6244273.76	2480833.59	3060.89	3041.30
								6244312.59	2480832.66	3060.89	3040.99
								6244312.46	2480793.55	3060.89	3041.51
								6244225.89	2480793.14	3060.89	3042.10
								6244226.02	2480832.52	3060.89	3041.41
								6244233.00	2480832.13	3060.89	3041.39

APPENDIX 11.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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13078 - Bear Valley Marketplace

CadnaA Noise Prediction Model: 13078-02_Construction.cna
Date: 14.07.21
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	274.32
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.50
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	75.3	75.3	82.0	65.0	55.0	0.0				5.00	r	6244681.76	2481878.97	3030.55
RECEIVERS		R2	70.5	70.5	77.2	65.0	55.0	0.0				5.00	r	6245555.59	2481398.17	3023.00
RECEIVERS		R3	73.7	73.7	80.3	65.0	55.0	0.0				5.00	r	6245457.98	2480969.81	3034.23
RECEIVERS		R4	71.7	71.7	78.3	65.0	55.0	0.0				5.00	r	6244336.73	2480362.15	3058.79
RECEIVERS		R5	73.1	73.1	79.7	65.0	55.0	0.0				5.00	r	6243995.47	2481475.93	3045.00
REC_ONSITE		MF1	82.7	82.7	89.4	65.0	55.0	0.0				5.00	r	6244151.63	2481762.27	3038.55
REC_ONSITE		MF2	82.6	82.6	89.3	65.0	55.0	0.0				5.00	r	6245313.46	2481681.52	3022.45
REC_ONSITE		MF3	83.6	83.6	90.2	65.0	55.0	0.0				5.00	r	6245004.89	2481225.09	3033.11
REC_ONSITE		MF4	83.8	83.8	90.5	65.0	55.0	0.0				5.00	r	6244709.87	2481212.13	3039.29
REC_ONSITE		MF5	83.7	83.7	90.3	65.0	55.0	0.0				5.00	r	6244357.10	2481094.22	3041.21
REC_ONSITE		MF6	82.9	82.9	89.6	65.0	55.0	0.0				5.00	r	6244137.69	2480944.07	3045.80

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
SITEBOUNDARY		CONSTRUCTION	130.7	130.7	130.7	79.0	79.0	79.0	Lw''	79					8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	r			6244107.25	2481830.68	3038.98	3030.98

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6245344.20	2481832.89	3027.49	3019.49
			6245343.36	2480929.23	3037.47	3029.47
			6245359.31	2480926.05	3037.85	3029.85
			6245363.17	2480811.02	3041.38	3033.38
			6245342.80	2480811.37	3041.23	3033.23
			6245344.56	2480572.69	3049.65	3041.65
			6245323.77	2480548.31	3049.99	3041.99
			6245323.57	2480536.67	3050.00	3042.00
			6245245.01	2480538.01	3050.05	3042.05
			6245245.24	2480551.10	3049.14	3041.14
			6245102.59	2480549.16	3050.34	3042.34
			6245100.97	2480539.01	3050.64	3042.64
			6245001.94	2480534.87	3051.18	3043.18
			6245002.19	2480549.42	3050.72	3042.72
			6244785.33	2480547.29	3052.00	3044.00
			6244773.74	2480550.40	3052.00	3044.00
			6244761.02	2480572.44	3052.00	3044.00
			6244685.37	2480573.73	3052.00	3044.00
			6244680.84	2480563.62	3052.00	3044.00
			6244663.11	2480547.92	3052.30	3044.30
			6244436.09	2480547.42	3052.67	3044.67
			6244427.46	2480553.39	3052.98	3044.98
			6244420.46	2480569.52	3052.54	3044.54
			6244370.99	2480570.36	3053.58	3045.58
			6244369.42	2480563.11	3054.00	3046.00
			6244359.06	2480553.10	3054.00	3046.00
			6244134.88	2480548.19	3055.15	3047.15
			6244134.73	2480539.46	3055.33	3047.33
			6244126.00	2480539.61	3055.41	3047.41
			6244107.31	2480553.02	3055.30	3047.30
			6244094.61	2480576.52	3055.08	3047.08
			6244101.94	2480579.31	3054.94	3046.94
			6244106.55	2480849.89	3052.00	3044.00
			6244127.18	2480865.55	3051.48	3043.48
			6244127.88	2480906.28	3050.39	3042.39
			6244104.60	2480906.68	3050.54	3042.54