Oak Valley North Specific Plan

NOISE AND VIBRATION ANALYSIS

CITY OF CALIMESA

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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	Oak Valley North Specific Plan
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 Oak Valley North Specific Plan ("Project"). The Project site is located south of Singleton Road at Calimesa Boulevard in the City of Calimesa. The proposed Project consists of four warehouse buildings, two truck trailer parking lots within Planning Area (PA) 1 and multi-family residential land use within PA 2. However, a church may be developed in PA 2 instead of the multi-family residential land use. Both the church and multi-family residential are considered as noise sensitive land uses.

This noise study has been prepared to satisfy applicable City of Calimesa noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) The results of this Noise and Vibration 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	-[1]	-[1]
Operational Noise	10	*Less Than Significant*	-
Construction Noise	11	*Less Than Significant*	-
Nighttime Concrete Pour		*Less Than Significant*	-
Construction Vibration		*Potentially Significant*	*Less Than Significant*

[1] Impacts of the environment on a project are excluded from CEQA.

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Oak Valley North Specific Plan ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the 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 south of Singleton Road at Calimesa Boulevard north and east of Calimesa Boulevard and the I-10 Freeway in the City of Calimesa, as shown on Exhibit 1-A. The Project site is mostly vacant and undeveloped. The area surrounding the Project includes existing single-family residences represented by the Sharondale Senior Community to the north, the proposed Holly Hillis Specific Plan residential land use located to the northeast, and the Rancho Calimesa Mobile Home Park to the southeast. In addition, the noise sensitive Stavness Early Learning childhood education center is located north of the Project site at 35275 Singleton Road. The Project site is located.

1.2 PROJECT DESCRIPTION

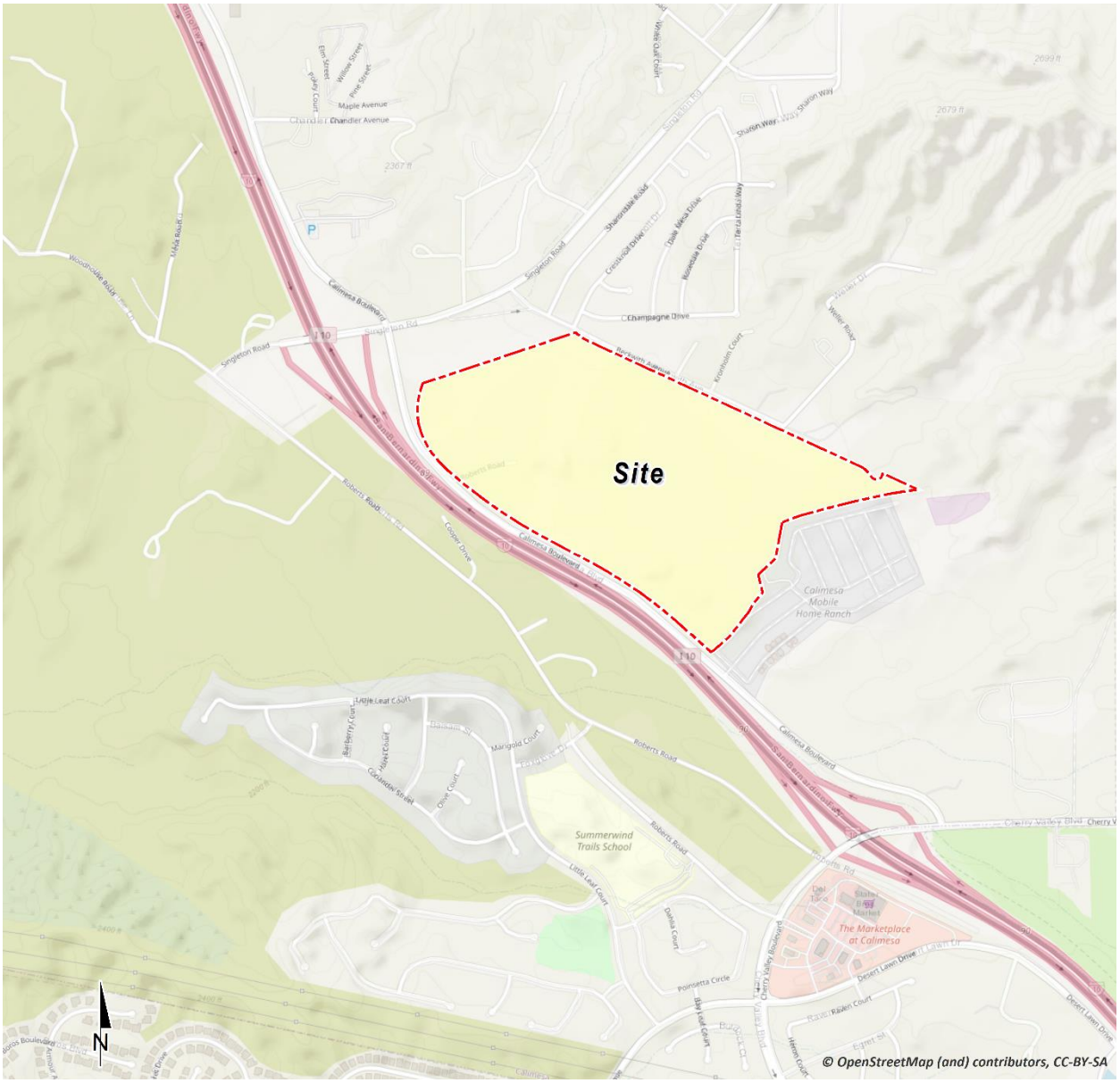
The conceptual Project site plan shown on Exhibit 1-B is located south of Singleton Road at Calimesa Boulevard in the City of Calimesa. The proposed Project consists of four warehouse buildings, two truck trailer parking lots within Planning Area (PA) 1 and multi-family residential land use within PA 2. However, a church may be developed in PA 2 instead of the multi-family residential.

Within Planning Area 1 (PA 1), the four warehouse buildings are evaluated in terms of average weekday commute periods. These two scenarios are labeled the "PA 1 High-Cube Warehouse and Truck/Trailer Lot", the "Project Scenario 2" and the "PA1 Parcel Hub Warehouse and Truck/Trailer Lot" consistent with the Oak Valley North Specific Plan Traffic Analysis prepared by Urban Crossroads, Inc. (2). Within PA 2, 223 multi-family residential units are included. However, a church facility may be developed in PA 2 instead of the multi-family residential. A third scenario is therefore included to specifically address Sunday traffic conditions with the PA 2 church. For the off-site traffic noise analysis purposes, three scenarios are evaluated with the following land uses:

a. <u>Scenario 1:</u>

- 982,232 square feet of high-cube warehouse in four buildings (PA1).
- 25.62 acres of Truck/Trailer Parking Lot (PA 1).
- 223 multi-family residential units (PA 2).

EXHIBIT 1-A: LOCATION MAP



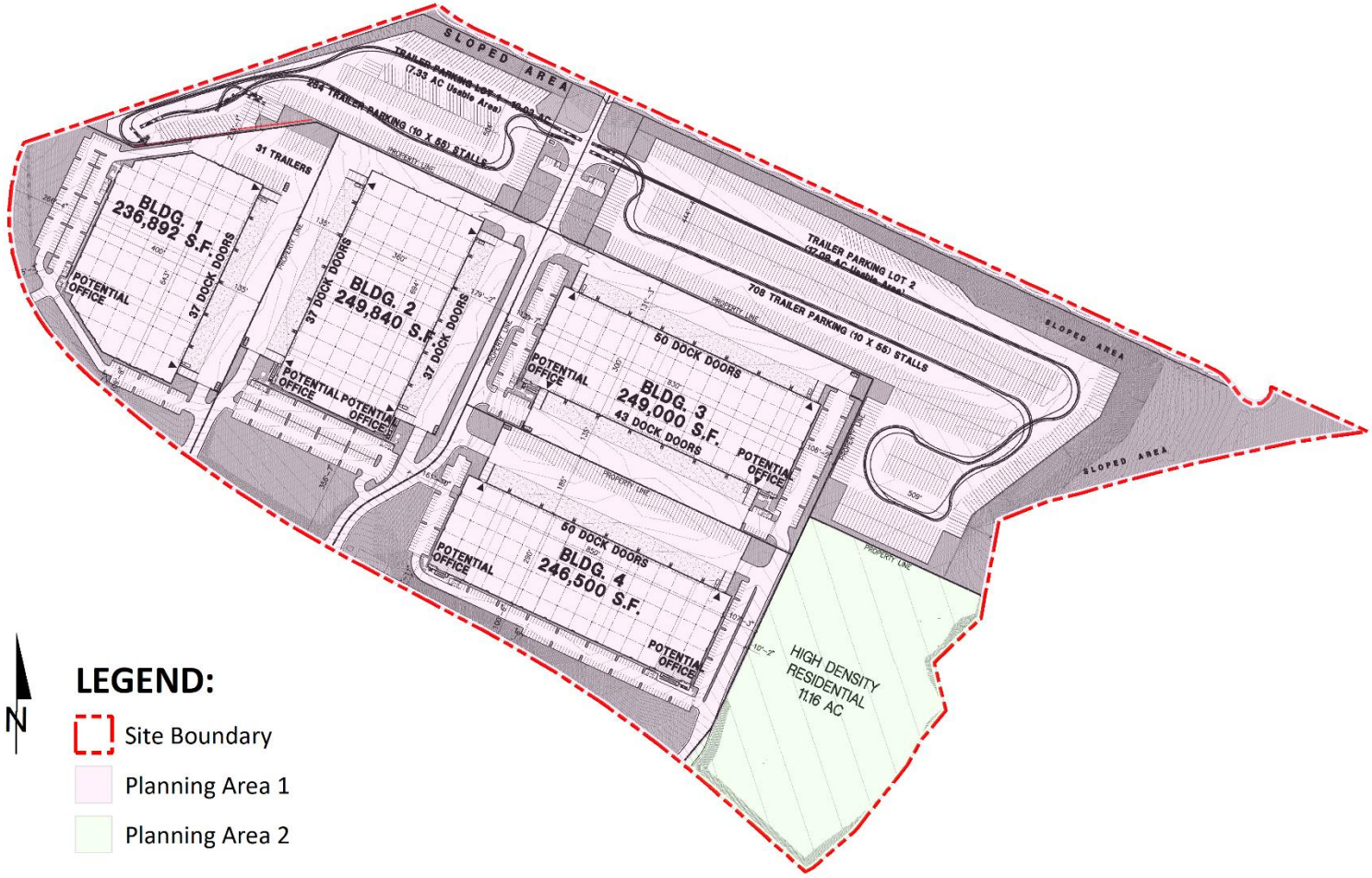
b. <u>Scenario 2:</u>

- 982,232 square feet of parcel hub warehouse in four buildings (PA 1).
- 25.62 acres of Truck/Trailer Parking Lot (PA 1).
- 223 multi-family residential units (PA 2).

c. <u>Scenario 3 (Sunday Morning Analysis with PA 2 Church):</u>

- 982,232 square feet of high-cube warehouse (PA 1).
- 25.62 acres of Truck/Trailer Parking Lot (PA 1).
- Church with 1,200 seats (PA 2).

EXHIBIT 1-B: CONCEPTUAL 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. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort. (4) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Calimesa 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. (3)

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. (5)

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. (3)

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. (6)

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

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

2.6 LAND USE COMPATIBILITY WITH NOISE

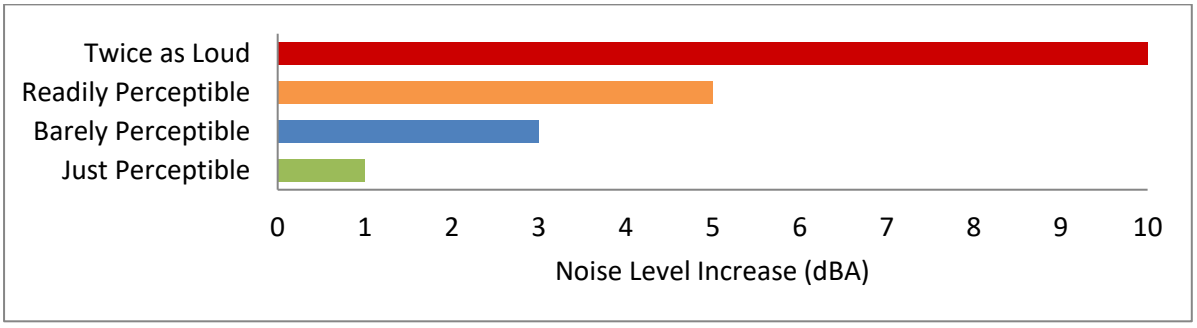
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (7)

2.7 COMMUNITY RESPONSE TO NOISE

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

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (9) According to research originally published in the Noise Effects Handbook (8), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



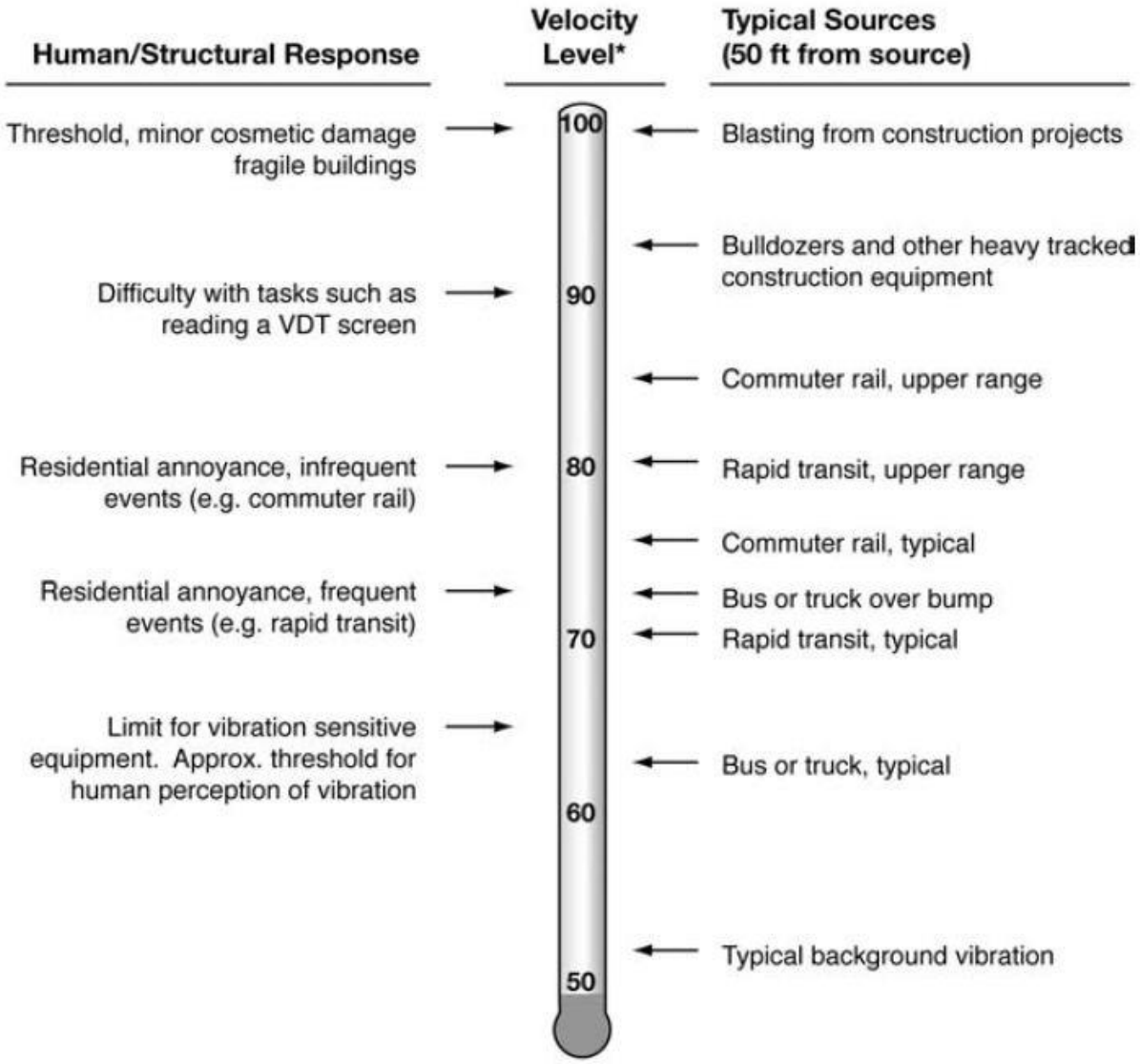
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (9) , 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). (10) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 CITY OF CALIMESA GENERAL PLAN NOISE ELEMENT

The City of Calimesa has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of the City of Calimesa from excessive exposure to noise. (11) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies several polices to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect City of Calimesa residents from excessive noise, the Noise Element contains the following policies related to the Project:

POLICY N-1: Future development that could increase ambient noise levels shall be required to mitigate the anticipated noise increase to the extent possible.

POLICY N-2: Noise-sensitive uses (such as schools, libraries, homes, hospitals, and medical facilities) shall be discouraged in areas where noise levels exceed acceptable limits.

POLICY N-3: Noise-tolerant land uses should be located in areas that are expected to be subject to noise for the foreseeable future, such as transportation corridors.

POLICY N-4: Encourage noise-tolerant land uses such as commercial or industrial development to locate in areas already committed to land uses that are noise producing.

POLICY N-7: Consider the following uses to be sensitive to noise and vibration and discourage these uses in areas where existing or projected future noise levels would be in excess of 65 dBA

CNEL and/or vibration would be more than 0.0787 peak particle velocity (inches per second): Schools, Hospitals, Rest homes, Long-term care facilities, Mental care facilities, Residential uses, Libraries and Passive recreation uses.

POLICY N-9: The City will work to create and preserve a quiet living environment for all residential neighborhoods.

POLICY N-10: When making decisions regarding changes to the General Plan or Zoning Maps, or regarding the suitability of a proposed use, the noise compatibility by land use standards (Exhibit 3-A) shall apply.

POLICY N-11: Maintain City standards for maximum exterior non-transportation noise levels shown on Exhibit 3-B to which land designated for residential land uses may be exposed for any 30-minute period on any day. Where existing ambient noise levels exceed these standards, the ambient noise level shall be highest allowable noise level as measured in dBA $L_{eq.}$

POLICY N-12: The noise levels specified in Policy N-11 shall be lowered by 5 dBA for simple tonal noises (such as humming sounds), noises consisting primarily of speech or music, or recurring impulsive noises (such as pile drivers, punch presses, and similar machinery).

POLICY N-13: The City may impose exterior noise standards which are less restrictive than those specified on Exhibit 3-B.

POLICY N-16: Developers of new residential or other noise-sensitive uses which are placed in environments subject to existing or projected noise exceeding the Completely Compatible guidelines on Exhibit 3-A shall be responsible for ensuring that acceptable exterior and interior noise levels will be achieved.

POLICY N-18: The City encourages good acoustical design in new construction.

POLICY N-21: An acoustical study shall be required for new residential development in areas within a designated CNEL contour of 60 dB or greater to determine what level of sound insulation, landscape buffer, or sound attenuation wall, if any, is required to meet the CNEL acceptable interior noise level of 45 dBA.

POLICY N-23: Residential development in areas adjacent to the freeway, arterial streets, the railroad, and other noise sources shall be designed to reduce the potential for noise impacts.

POLICY N-27: Ensure compatibility between industrial and commercial development and adjacent land uses. To achieve compatibility, industrial and commercial development projects may be required to include noise mitigation measures to avoid or minimize project impacts on adjacent uses.

POLICY N-28: Require that loading docks/delivery areas of commercial or industrial land uses and similar noise sources be designed to minimize potential noise impacts on adjacent noise-sensitive land uses.

POLICY N-31: Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.

POLICY N-32: Require that all construction equipment be kept properly tuned and use noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

3.2.1 LAND USE COMPATIBILITY GUIDELINES

The noise criteria identified in the City of Calimesa General Plan Policies N-10 and N-16 are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the city with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

EXHIBIT 3-A: NOISE COMPATIBILITY BY LAND USE TYPE

Land Use Designations	Completely Compatible	Tentatively Compatible	Normally Incompatible	Completely Incompatible
All Residential (Single- and Multi-Family)	Less than 60 dBA	60-70 dBA	70-75 dBA	Greater than 75 dBA
All Nonresidential (Commercial, Industrial & Institutional)	Less than 70 dBA	70-75 dBA	Greater than 75 dBA	(1)
Public Parks (Lands on which public parks are located or planned)	Less than 65 dBA	65-70 dBA	70-75 dBA	Greater than 75 dBA

All noise levels shown in this table are designated CNEL.
1. To be determined as part of the project review process.
City of Calimesa General Plan Table N-C

According to compatibility criteria presented on Exhibit 3-A, the noise sensitive Project land uses within PA 2 (multi-family residential or church) are considered *completely compatible* with exterior noise levels below 60 dBA CNEL, *tentatively compatible* with unmitigated exterior noise levels ranging from 60-70 dBA CNEL, *normally incompatible* with unmitigated exterior noise levels ranging from 70-75 dBA CNEL and *completely incompatible* with unmitigated exterior noise levels of greater than 75 dBA CNEL.

The non-residential Project land uses are considered *completely compatible* with unmitigated exterior noise levels of less than 70 dBA CNEL and *tentatively compatible* with unmitigated exterior noise levels ranging from 70-75 dBA CNEL, and *normally incompatible* with unmitigated exterior noise levels greater than 75 dBA CNEL.

3.2.2 NON-TRANSPORTATION RELATED (OPERATIONAL) NOISE LEVEL STANDARDS

The noise criteria identified in the City of Calimesa Noise Element Policies N-11, N-12 and N-13 are designed to control the off-site Project related non-transportation noise source activities. These standards presented on Exhibit 3-B are typically codified in the City's Municipal Code. As shown on Exhibit 3-B the General Plan identifies daytime exterior noise level standards of 60 dBA L_{eq} for the Project related off-site noise source activities to the nearest noise sensitive single family residential land uses. During the nighttime hours, the exterior noise level limit is reduced to 50 dBA L_{eq}.

EXHIBIT 3-B: EXTERIOR NOISE LEVEL STANDARDS FOR NON-TRANSPORTATION NOISE (LEQ)

Land Use Type	Time Period	Maximum Noise Level (dBA)
Single-Family Homes and Duplexes	10 P.M. to 7 A.M.	50
	7 A.M. to 10 P.M.	60
Multi-Family Residential – 3 or More Units Per Building (Triplex +)	10 P.M. to 7 A.M.	55
	7 A.M. to 10 P.M.	60

City of Calimesa General Plan Table N-D

3.3 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Oak Valley North Specific Plan Project, stationary-source (operational) noise such as the expected cold storage loading dock activity, tractor trailer storage activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and outdoor activity are typically evaluated against standards established under a jurisdiction's municipal code. The City of Calimesa Municipal Code, Chapter 8.15 Noise Abatement and Control, included in Appendix 3.1 outlines the performance standards to control the non-transportation noise impacts.

Section 8.15.040 presents the maximum one-hour average sound level (dBA L_{eq}) exterior noise limits by land use. For low density residential land use, Section 8.15.040[B] identifies a daytime exterior noise level limit of 50 dBA L_{eq} and nighttime exterior noise level limit of 40 dBA L_{eq}. This is much lower than the exterior noise standards presented in the General Plan Noise Element (Exhibit 3-B). However, consistent with General Plan Policy N-11, where the existing ambient noise levels exceed these standards, the ambient noise level shall be the highest allowable noise level as measured in dBA $L_{eq.}$ This follows General Plan Policy N-13 suggesting that the City may impose exterior noise standards which are less restrictive than those specified on Exhibit 3-B.

3.4 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the City of Calimesa has established limits to the hours of construction activities. Calimesa Municipal Code 8.15.080[A] states that *it is unlawful for any person, including the city, to operate any single or a combination of powered construction equipment at any construction site before 7:00 a.m. or after 7:00 p.m.* These limits are extended to before 10:00 a.m. or after 5:00 p.m. on weekends and holidays. To evaluate the Project construction noise activities Section 8.15.080[B] requires that construction equipment shall not *cause noise at a level in excess of 75 decibels for more than eight hours during any 24-hour period when measured at or within the property lines of any.* While Section 8.15.080 permits higher noise level limits for shorter durations, all the Project related construction activities shall be required to satisfy the construction-related noise level threshold of 75 dBA $L_{eq.}$ The FTA considers a nighttime exterior construction noise level of 70 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (9 p. 179) However,

consistent with the City of Calimesa Municipal Code, Section 8.15.040[B], a more conservative construction noise level threshold of 40 dBA L_{eq} is used in this analysis to assess the potential Project related nighttime construction impacts. In accordance with General Plan Policy N-11, where the existing ambient noise levels exceed these standards, the ambient noise level shall be the highest allowable noise level as measured in dBA $L_{eq.}$

3.5 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. (9) 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. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity. The City of Calimesa General Plan Policy N-7 identifies a readily perceptible peak particle velocity (PPV) threshold of 0.0787 inches per second to assess the potential vibration impacts at sensitive receiver locations.

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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 baseline 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 a noise impact significant.* (12) 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 level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

Sensitive receivers are areas where humans are participating in activities that may be subject to the stress of significant interference from noise and often include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries. Other receivers include office and industrial buildings, which are not considered as sensitive as single-family homes, but are still protected by the City of Calimesa land use compatibility standards, as discussed below.

4.1.1 NOISE-SENSITIVE RECEIVERS

The Federal Interagency Committee on Noise (FICON) (13) 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}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders a noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (12) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance at noise sensitive receiver locations are consistent with guidance provided by both the Federal Highway Administration (5 p. 9) and Caltrans (14 p. 2_48).

4.1.2 NON-NOISE-SENSITIVE RECEIVERS

The City of Calimesa General Plan Noise Element, *Noise Compatibility by Land Use Type* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *completely compatible* exterior noise level for non-noise-sensitive land uses is 70 dBA CNEL. To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the *completely compatible* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the City of Calimesa General Plan Noise Element, *Noise Compatibility by Land Use Type completely compatible* 70 dBA CNEL exterior noise level criteria.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of Oak Valley North Specific Plan, vibration-generating activities are appropriately evaluated using City of Calimesa General Plan Policy N-7 readily perceptible PPV threshold of 0.0787 inches per second.

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 San Bernardino International Airport (SBD) located roughly 13 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	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[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	
	Non-Noise-Sensitive[2]	If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Noise-Sensitive	Exterior Noise Level Standards[3]	50 dBA L_{eq}	40 dBA L_{eq}
		If ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		If ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise-Sensitive	Permitted between the weekday hours 7:00 a.m. and 7:00 p.m.[4]		
		Noise Level Threshold[5]	75 dBA L_{eq}	40 dBA L_{eq}[3]
		Vibration Level Threshold[6]	0.0787 PPV (in/sec)	n/a

[1] FICON, 1992.
[2] City of Calimesa General Plan Noise Element, Table N-C (See Exhibit 3-A).
[3] City of Calimesa Municipal Code Section 8.15.040. Exterior noise level standards may be adjusted to reflect the ambient conditions consistent with General Plan Policy N-11.
[4] City of Calimesa Municipal Code Section 8.15.080[A].
[5] City of Calimesa Municipal Code Section 8.15.080[B].
[6] City of Calimesa General Plan Policy N-7.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at eight 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 Tuesday, May 24, 2022 and Tuesday, July 11, 2023. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (15)

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*. (3) 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*. (9)

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. (9) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby

sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the equivalent or the energy average hourly sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) 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]		CNEL
		Daytime	Nighttime	
L1	Located Northwest of the site near the residence at 35275 Singleton Road	64.5	62.9	69.9
L2	Located north of the site near the residence at 9690 Sharondale Road	63.4	60.7	68.0
L3	Located north of the site near the residence at 35345 Beckwith Ave.	55.7	58.1	64.4
L4	Located north of the site near the residence at 35704 Beckwith Ave.	48.9	47.1	54.1
L5	Located east of the site near the residence at 10320 Calimesa Blvd #229	54.1	50.9	58.2
L6	Located east of the site near the residence at 10320 Calimesa Blvd #218	47.3	44.5	51.8
L7	Located east of the site near the residence at 10320 Calimesa Blvd #52	50.4	47.6	54.9
L8	Located south of the Project site near single-family residence at 1035 Marigold Court	60.5	60.5	67.2

[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 hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

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6 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 City of Calimesa noise compatibility by land use type (see 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. (16) 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. (17) 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. (18)

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 14 off-site study area roadway segments shown on Exhibit 6-A, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Calimesa General Plan Circulation Element, and the vehicle speeds. The ADT volumes used in this study are based on the *Oak Valley North Specific Plan Traffic Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios (2).

To describe the Project off-site traffic impacts, the receiving land use adjacent to each roadway segment is identified as a sensitive or non-sensitive land use. Sensitive land uses are limited to the existing noise sensitive residential uses based on a review of aerial imagery. It is expected that only existing receivers will experience a change in the ambient noise levels over time, since there are no existing or planned noise sensitive receivers that will perceive a substantial temporary or permanent increase in ambient noise levels.

- Existing (2022) Conditions
- Opening Year Cumulative (2025) Without Project
- Opening Year Cumulative (2025) With PA1, High-Cube Warehouse & Truck/Trailer Lot
- Opening Year Cumulative (2025) With PA1, Parcel Hub Warehouse & Truck/Trailer Lot
- Interim Year Cumulative (2028) Without Project

- Interim Year Cumulative (2028) With Project Scenario 1
- Interim Year Cumulative (2028) With Project Scenario 2
- Horizon Year (2045) Without Project
- Horizon Year (2045) With Project Scenario 1
- Horizon Year (2045) With Project Scenario 2
- Sunday Morning Horizon Year (2045) With Project Scenario 3

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Classification[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	Major	46'	40
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	Major	46'	40
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	Major	46'	40
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	Major	46'	40
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	Major	46'	35
6	5th St.	e/o Sandalwood Dr.	Sensitive	Secondary	44'	25
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	Collector	26'	25
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	Secondary	44'	35
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	Secondary	44'	45
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	Secondary	44'	45
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	Secondary	44'	45
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	Minor	26'	35
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	Minor	26'	35
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	Minor	26'	35

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to adjacent residential land uses.
[2] City of Calimesa General Plan Circulation Element functional roadway classification.
[3] Distance to receiving land use is based upon the right-of-way distances.

EXHIBIT 6-A: OFF-SITE STUDY AREA ROADWAY SEGMENTS

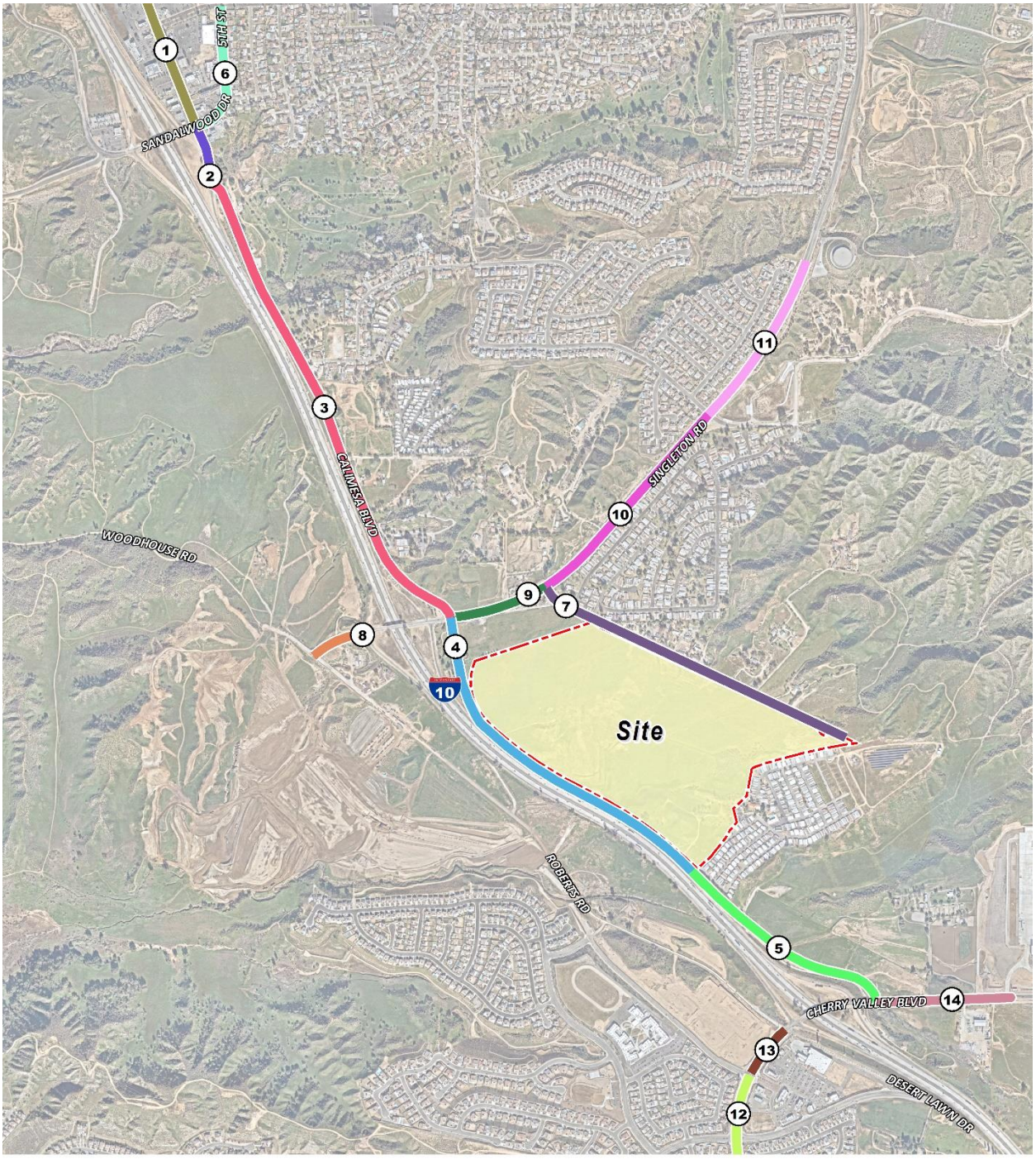

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]											
			Existing		Opening Year Cumulative (2025)			Interim Year Cumulative (2028)			HY (2045)			
			No Project	With Project	No Project	High Cube (Scenario 1)	Parcel Hub (Scenario 2)	No Project	High Cube (Scenario 1)	Parcel Hub (Scenario 2)	No Project	High Cube (Scenario 1)	Parcel Hub (Scenario 2)	Church (Scenario 3)
1	Calimesa Bl.	n/o Sandalwood Dr.	13,519	13,775	14,686	14,785	14,912	17,768	17,942	18,024	19,164	19,338	19,420	19,232
2	Calimesa Bl.	s/o Sandalwood Dr.	10,536	10,867	11,521	11,620	11,747	14,618	14,867	14,949	20,558	20,807	20,889	20,680
3	Calimesa Bl.	n/o Singleton Rd.	5,099	5,430	5,781	5,880	6,007	8,750	8,999	9,081	9,012	9,261	9,343	9,134
4	Calimesa Bl.	s/o Singleton Rd.	2,444	7,296	2,684	4,914	6,634	5,555	8,687	10,407	7,169	10,301	12,021	8,020
5	Calimesa Bl.	n/o Cherry Valley Bl.	2,470	4,764	3,021	3,977	4,714	8,144	9,701	10,438	11,840	13,397	14,134	12,513
6	5th St.	e/o Sandalwood Dr.	6,727	6,802	7,139	7,139	7,139	9,354	9,429	9,429	12,296	12,371	12,371	12,350
7	Beckwith Av.	s/o Singleton Rd.	957	957	1,016	1,016	1,016	5,946	5,946	5,946	12,212	12,212	12,212	12,244
8	Singleton Rd.	w/o I-10 EB Ramps	-	272	8,231	8,231	8,231	29,389	29,595	29,660	37,966	38,172	38,237	38,084
9	Singleton Rd.	e/o Calimesa Bl.	8,456	8,712	9,512	9,611	9,738	21,370	21,544	21,626	32,963	33,137	33,219	33,085
10	Singleton Rd.	w/o Singleton Cyn. Rd.	7,811	8,067	8,827	8,926	9,053	15,693	15,867	15,949	24,477	24,651	24,733	24,566
11	Singleton Rd.	e/o Singleton Cyn. Rd.	8,779	9,035	9,854	9,953	10,080	16,638	16,812	16,894	22,731	22,905	22,987	22,799
12	Cherry Valley Bl.	w/o Roberts Rd.	13,701	13,927	18,738	18,837	18,964	23,725	23,869	23,951	26,605	26,749	26,831	26,781
13	Cherry Valley Bl.	e/o Roberts Rd.	19,854	20,110	26,739	26,838	26,965	32,162	32,336	32,418	34,566	34,740	34,822	34,796
14	Cherry Valley Bl.	e/o Calimesa Bl.	9,863	10,119	20,797	20,896	21,023	26,252	26,426	26,508	30,742	30,916	30,998	30,864

[1] Oak Valley North Specific Plan Traffic Analysis, Urban Crossroads, 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 7.70%.

The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Oak Valley North Specific Plan Traffic Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Appendix 6.1 presents the vehicle mixes used for the with Project traffic scenarios.

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	70.60%	13.61%	15.79%	100.00%
Medium Trucks	80.34%	4.75%	14.92%	100.00%
Heavy Trucks	75.90%	8.21%	15.90%	100.00%

[1] Based on the 24-hour directional vehicle classification count collected on Cherry Valley Boulevard north of Roberts Road (Oak Valley North Specific Plan, Urban Crossroads, Inc.)
"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[1]			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	97.53%	1.49%	0.98%	100.00%

[1] Based on the 24-hour directional vehicle classification count collected on Cherry Valley Boulevard north of Roberts Road (Oak Valley North Specific Plan, Urban Crossroads, Inc.)

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7 OFF-SITE TRAFFIC NOISE ANALYSIS

As described in Section 4.1, the off-site traffic noise impacts are evaluated based on noise level increases resulting from the Project. 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. To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed for each of the project scenarios outlined in *the Oak Valley North Specific Plan Traffic Analysis* prepared by Urban Crossroads, Inc. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise levels at land uses adjacent to roadways conveying Project traffic. Tables 7-1 to 7-4 present a summary of the exterior traffic noise levels for each traffic condition. The noise contours included in Appendix 7.1 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.

7.2 EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

While not included in the *Oak Valley North Specific Plan Traffic Analysis,* this off-site traffic noise analysis evaluates the Existing (2022) with Project conditions associated with the highest trip generation (Project Scenario 2 - Parcel Hub Warehouse & Truck/Trailer Lot). In addition, the 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 2028 conditions.

Table 7-5 presents a summary of the Project off-site traffic CNEL noise level increases associated with Existing (2022) conditions. For Existing (2022) conditions, Table 7-5 shows that the Existing with Project off-site traffic noise level increases will range from 0.0 to 1.9 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to all the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to the Existing (2022) with Project conditions.

TABLE 7-1: EXISTING NOISE LEVELS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	
				Existing No Project	Existing With Project
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	69.8	70.1
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	68.7	69.2
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	77.4	77.5
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	77.2	79.1
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	77.2	78.0
6	5th St.	e/o Sandalwood Dr.	Sensitive	61.3	61.4
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	56.2	56.2
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	-	48.5
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	68.3	68.8
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	67.9	68.5
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	68.4	69.0
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	71.1	71.5
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	72.7	72.9
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	69.6	70.2

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use. Roadway segments 3-5 include the estimated I-10 Freeway off-site traffic noise levels.

TABLE 7-2: OPENING YEAR CUMULATIVE (2025) NOISE LEVELS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			
				Existing	No Project	High Cube (Scenario 1)	Parcel Hub (Scenario 2)
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	69.8	70.1	70.3	70.7
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	68.7	69.1	69.4	69.8
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	77.4	77.4	77.5	77.6
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	77.2	77.3	78.6	79.1
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	77.2	77.2	77.7	78.0
6	5th St.	e/o Sandalwood Dr.	Sensitive	61.3	61.6	61.6	61.6
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	56.2	56.4	56.4	56.4
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	-	65.5	65.5	65.5
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	68.3	68.8	69.1	69.6
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	67.9	68.5	68.8	69.4
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	68.4	68.9	69.2	69.8
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	71.1	72.4	72.6	73.0
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	72.7	74.0	74.1	74.3
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	69.6	72.9	73.0	73.4

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use. Roadway segments 3-5 include the estimated I-10 Freeway off-site traffic noise levels.

TABLE 7-3: INTERIM YEAR CUMULATIVE (2028) NOISE LEVELS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			
				Existing	No Project	High Cube (Scenario 1)	Parcel Hub (Scenario 2)
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	69.8	71.0	71.1	71.2
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	68.7	70.1	70.4	70.5
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	77.4	77.6	77.6	77.7
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	77.2	77.4	78.7	79.2
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	77.2	77.4	77.9	78.2
6	5th St.	e/o Sandalwood Dr.	Sensitive	61.3	62.8	62.8	62.8
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	56.2	64.1	64.1	64.1
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	-	71.1	71.1	71.1
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	68.3	72.3	72.5	72.5
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	67.9	71.0	71.2	71.3
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	68.4	71.2	71.4	71.5
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	71.1	73.4	73.6	73.7
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	72.7	74.8	74.9	74.9
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	69.6	73.9	74.0	74.1

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use. Roadway segments 3-5 include the estimated I-10 Freeway off-site traffic noise levels.

TABLE 7-4: HORIZON YEAR (2045) NOISE LEVELS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]				
				Existing	No Project	High Cube (Scenario 1)	Parcel Hub (Scenario 2)	Church (Scenario 3)
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	69.8	71.3	71.5	71.5	71.3
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	68.7	71.6	71.8	71.8	71.6
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	77.4	77.6	77.6	77.7	77.6
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	77.2	77.5	78.8	79.3	77.7
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	77.2	77.6	78.1	78.3	77.7
6	5th St.	e/o Sandalwood Dr.	Sensitive	61.3	63.9	64.0	64.0	64.0
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	56.2	67.2	67.2	67.2	67.2
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	-	72.2	72.2	72.2	72.2
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	68.3	74.2	74.3	74.3	74.2
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	67.9	72.9	73.0	73.1	72.9
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	68.4	72.6	72.7	72.8	72.6
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	71.1	73.9	74.1	74.1	74.0
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	72.7	75.1	75.2	75.2	75.1
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	69.6	74.6	74.7	74.7	74.6

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use. Roadway segments 3-5 include the estimated I-10 Freeway off-site traffic noise levels.

TABLE 7-5: EXISTING TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]		Project Related Noise Increase	Incremental Noise Level Increase Threshold[2]	
				Existing No Project	Existing with Project		Limit	Exceeded?
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	69.8	70.1	0.4	1.5	No
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	68.7	69.2	0.5	1.5	No
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	77.4	77.5	0.1	1.5	No
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	77.2	79.1	1.9	n/a	No
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	77.2	78.0	0.7	3.0	No
6	5th St.	e/o Sandalwood Dr.	Sensitive	61.3	61.4	0.0	3.0	No
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	56.2	56.2	0.0	5.0	No
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	-	48.5	n/a	n/a	n/a
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	68.3	68.8	0.5	1.5	No
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	67.9	68.5	0.6	1.5	No
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	68.4	69.0	0.5	1.5	No
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	71.1	71.5	0.4	1.5	No
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	72.7	72.9	0.3	3.0	No
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	69.6	70.2	0.6	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

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

"n/a" Per the City of Calimesa General Plan Noise Element Table N-C (Exhibit 3-A), a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the ambient non-noise sensitive noise level is greater than the completely compatible 70 dBA CNEL land use compatibility criteria.

7.3 SCENARIO 1 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-6 presents a summary of the Project off-site traffic CNEL noise level increases associated with Scenario 1. Table 7-6 shows that the Scenario 1 off-site traffic noise level increases will range from 0.0 to 1.3 dBA CNEL, for Opening Year Cumulative (OYC) (2025) conditions, Interim Year Cumulative (IYC) (2028) and Horizon Year (HY) (2045) conditions. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to all the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to Scenario 1.

TABLE 7-6: SCENARIO 1 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	Project Related Noise Level Increase			Highest Project Increment	Incremental Noise Level Increase Threshold[2]	
				OYC (2025)	IYC (2028)	HY (2045)		Limit	Exceeded?
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	0.2	0.1	0.2	0.2	1.5	No
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	0.3	0.3	0.2	0.3	1.5	No
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	0.0	0.0	0.0	0.0	1.5	No
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	1.3	1.3	1.3	1.3	n/a	No
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	0.5	0.5	0.5	0.5	3.0	No
6	5th St.	e/o Sandalwood Dr.	Sensitive	0.0	0.0	0.1	0.1	3.0	No
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	0.0	0.0	0.0	0.0	5.0	No
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	0.0	0.0	0.0	0.0	n/a	No
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	0.3	0.2	0.1	0.3	1.5	No
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	0.3	0.2	0.1	0.3	1.5	No
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	0.3	0.2	0.1	0.3	1.5	No
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	0.2	0.2	0.2	0.2	1.5	No
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	0.1	0.1	0.1	0.1	3.0	No
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	0.1	0.1	0.1	0.1	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a" Per the City of Calimesa General Plan Noise Element Table N-C (Exhibit 3-A), a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the ambient non-noise sensitive noise level is greater than the completely compatible 70 dBA CNEL land use compatibility criteria.

7.4 SCENARIO 2 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-7 presents a summary of the Project off-site traffic CNEL noise level increases associated with Scenario 2. Table 7-7 shows that the Scenario 1 off-site traffic noise level increases will range from 0.0 to 1.8 dBA CNEL, for Opening Year Cumulative (OYC) (2025) conditions, Interim Year Cumulative (IYC) (2028) and Horizon Year (HY) (2045) conditions. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to all the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to Scenario 2.

TABLE 7-7: SCENARIO 2 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	Project Related Noise Level Increase			Highest Project Increment	Incremental Noise Level Increase Threshold[2]	
				OYC (2025)	IYC (2028)	HY (2045)		Limit	Exceeded?
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	0.6	0.2	0.2	0.6	1.5	No
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	0.7	0.4	0.2	0.7	1.5	No
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	0.1	0.1	0.1	0.1	1.5	No
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	1.8	1.8	1.8	1.8	n/a	No
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	0.7	0.7	0.7	0.7	3.0	No
6	5th St.	e/o Sandalwood Dr.	Sensitive	0.0	0.0	0.1	0.1	3.0	No
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	0.0	0.0	0.0	0.0	5.0	No
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	0.0	0.0	0.0	0.0	n/a	No
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	0.8	0.2	0.1	0.8	1.5	No
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	0.9	0.3	0.2	0.9	1.5	No
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	0.9	0.3	0.2	0.9	1.5	No
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	0.6	0.3	0.2	0.6	1.5	No
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	0.3	0.1	0.1	0.3	3.0	No
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	0.5	0.2	0.1	0.5	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a" Per the City of Calimesa General Plan Noise Element Table N-C (Exhibit 3-A), a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the ambient non-noise sensitive noise level is greater than the completely compatible 70 dBA CNEL land use compatibility criteria.

7.5 SCENARIO 3 PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-8 presents a summary of the Project off-site traffic CNEL noise level increases associated with Scenario 3. For HY (2045) conditions, Table 7-8 shows that the Scenario 3 off-site traffic noise level increases will range from 0.0 to 0.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to all the study area roadway segments would experience *less than significant* noise level increases on receiving land uses due to Scenario 3.

TABLE 7-8: SCENARIO 3 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	HY (2045) Project Related Noise Level Increase	Incremental Noise Level Increase Threshold[2]	
					Limit	Exceeded?
1	Calimesa Bl.	n/o Sandalwood Dr.	Sensitive	0.0	1.5	No
2	Calimesa Bl.	s/o Sandalwood Dr.	Sensitive	0.0	1.5	No
3	Calimesa Bl.	n/o Singleton Rd.	Sensitive	0.0	1.5	No
4	Calimesa Bl.	s/o Singleton Rd.	Non-Sensitive	0.2	n/a	No
5	Calimesa Bl.	n/o Cherry Valley Bl.	Sensitive	0.1	3.0	No
6	5th St.	e/o Sandalwood Dr.	Sensitive	0.1	3.0	No
7	Beckwith Av.	s/o Singleton Rd.	Sensitive	0.0	5.0	No
8	Singleton Rd.	w/o I-10 EB Ramps	Non-Sensitive	0.0	n/a	No
9	Singleton Rd.	e/o Calimesa Bl.	Sensitive	0.0	1.5	No
10	Singleton Rd.	w/o Singleton Cyn. Rd.	Sensitive	0.0	1.5	No
11	Singleton Rd.	e/o Singleton Cyn. Rd.	Sensitive	0.0	1.5	No
12	Cherry Valley Bl.	w/o Roberts Rd.	Sensitive	0.1	1.5	No
13	Cherry Valley Bl.	e/o Roberts Rd.	Non-Sensitive	0.0	3.0	No
14	Cherry Valley Bl.	e/o Calimesa Bl.	Non-Sensitive	0.0	n/a	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)? "n/a" Per the City of Calimesa General Plan Noise Element Table N-C (Exhibit 3-A), a barely perceptible 3 dBA or greater noise level increase is considered a significant impact when the ambient non-noise sensitive noise level is greater than the completely compatible 70 dBA CNEL land use compatibility criteria.

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8 ON-SITE TRAFFIC NOISE ANALYSIS

An on-site exterior noise analysis has been completed to determine the noise exposure levels that would result from adjacent transportation noise sources to the noise sensitive high-density residential land use in Planning Area 2, and to identify potential noise abatement 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 the I-10 Freeway, and Calimesa Boulevard. The Project would also be exposed to nominal traffic noise from the Project's other internal roads. However, due to the distance, and low traffic volume/speed, traffic noise from these roads will not make a substantive contribution to ambient noise conditions.

A review of the existing noise level measurements presented on Table 5-1 suggests that the existing background ambient noise level near the Project site (measurement locations L1 to L7) ranges from 51.8 to 69.9 dBA CNEL. According to the City of Calimesa noise compatibility by land use type as shown on Exhibit 3-A, the Project residential land uses are considered *completely compatible* with exterior noise levels below 60 dBA CNEL, *tentatively compatible* with unmitigated exterior noise levels ranging from 60-70 dBA CNEL, *normally incompatible* with unmitigated exterior noise levels ranging from 70-75 dBA CNEL and *completely incompatible* with unmitigated exterior noise levels of greater than 75 dBA CNEL.

It is expected that the noise sensitive high density residential land uses within PA 2 will experience unmitigated exterior noise levels ranging from 51.8 to 69.9 dBA CNEL. According to compatibility criteria presented on Exhibit 3-A, the noise sensitive high density residential land uses within PA 2 will likely experience exterior noise levels that are considered *tentatively compatible.* Therefore, any new residential construction or development within the Project should be undertaken only after a detailed analysis of the noise reduction requirements is made and noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Consistent with General Plan Policy N-16, developers of new residential or other noise-sensitive uses which are placed in environments subject to existing or projected noise exceeding the Completely Compatible guidelines on Exhibit 3-A shall be responsible for ensuring that acceptable exterior and interior noise levels will be achieved.

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9 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. 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. 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, 13 receiver locations were identified. This includes FUT1 to FUT3 representing potential future noise sensitive residential land uses within the Holly Hills Specific Plan and ON1 to ON3 describing the multi-family residential units within Planning Area 2. The nearest existing noise sensitive residential receivers are located southeast of the Project site within the Rancho Calimesa Mobile Home Park at distances ranging from 32 to 37 feet. 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 Stavness Early Learning childhood education center at 35275 Singleton Road, approximately 344 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence within the Sharondale Senior Community at 9699 Crestknoll Drive, approximately 92 feet north 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 existing noise sensitive residence at 35345 Beckwith Avenue., approximately 108 feet north 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 was taken near this location, L3, to describe the existing ambient noise environment.

R4: Location R4 represents the existing noise sensitive residence at 35704 Beckwith Avenue, approximately 337 feet north 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 was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the Rancho Calimesa Mobile Home Park at 10320 Calimesa Boulevard, approximately 32 feet southeast of the Project site. R5 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents the Rancho Calimesa Mobile Home Park at 10320 Calimesa Boulevard, approximately 37 feet southeast of the Project site. R6 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

R7: Location R7 represents the Rancho Calimesa Mobile Home Park at 10320 Calimesa Boulevard, approximately 33 feet southeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R7 is placed at the building façade. A 24-hour noise measurement was taken near this location, L7, to describe the existing ambient noise environment.

R8: Location R8 represents the existing noise sensitive residence at 1035 Marigold Court, approximately 1,330 feet west of the Project site. R8 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L8, to describe the existing ambient noise environment.

FUT1: Location FUT1 represents the potential future noise sensitive residential land use located northeast of the Project site within the Holly Hills Specific Plan Planning Area 9.

FUT2: Location FUT2 represents the potential future noise sensitive residential land use located northeast of the Project site within the Holly Hills Specific Plan Planning Area 8.

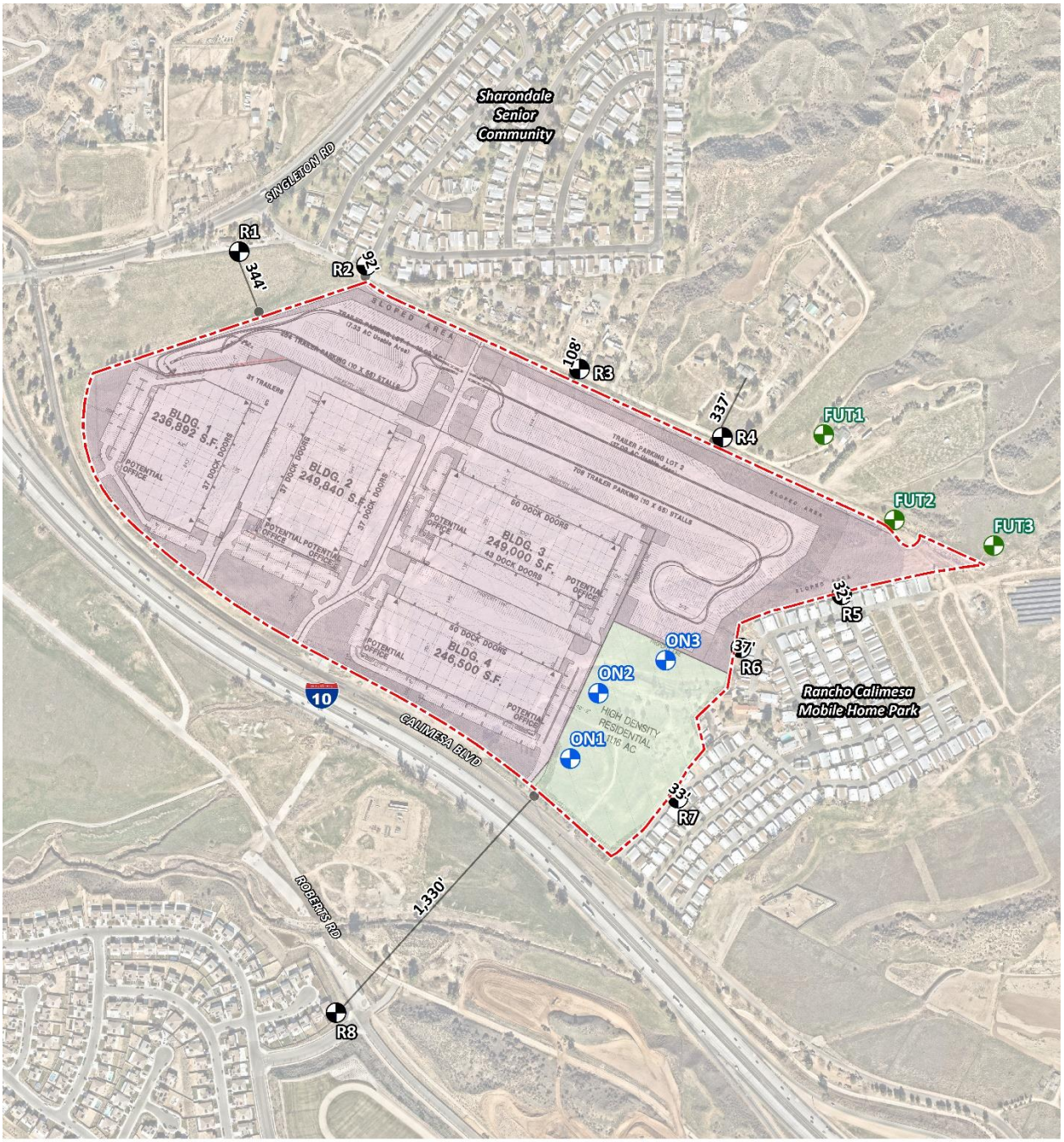
FUT3: Location FUT3 represents the potential future noise sensitive residential land use located northeast of the Project site within the Holly Hills Specific Plan Planning Area 7.

ON1: Location ON1 represents the multi-family residential units within Planning Area 2

ON2: Location ON2 represents the multi-family residential units within Planning Area 2

ON3: Location ON3 represents the multi-family residential units within Planning Area 2

EXHIBIT 9-A: RECEIVER LOCATIONS



LEGEND:

- Site Boundary
- Planning Area 1
- Planning Area 2
- Existing Receiver Locations
- Future Receiver Location
- On-Site Receiver Location
- Distance from receiver to Project site boundary (in feet)

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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 proposed Oak Valley North Specific Plan Project. Exhibit 10-A includes over 65 individual noise sources used to assess the operational noise levels and to conservatively describe the potential worst-case noise environment the noise source locations. The operational noise analysis includes the planned 12-foot-high screen walls surrounding the cold storage loading dock areas and the 8-foot-high truck/trailer parking lot screen wall. The screen wall locations shown on Exhibit 10-A are designed for screening, privacy, noise control, and security.

10.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. Consistent with similar warehouse uses, the Project business operations would primarily be conducted within the enclosed building, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: cold storage loading dock activity, tractor trailer storage activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and outdoor activity.

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 cold storage loading dock activity, tractor trailer storage activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and outdoor 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 precision 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. (15)

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS

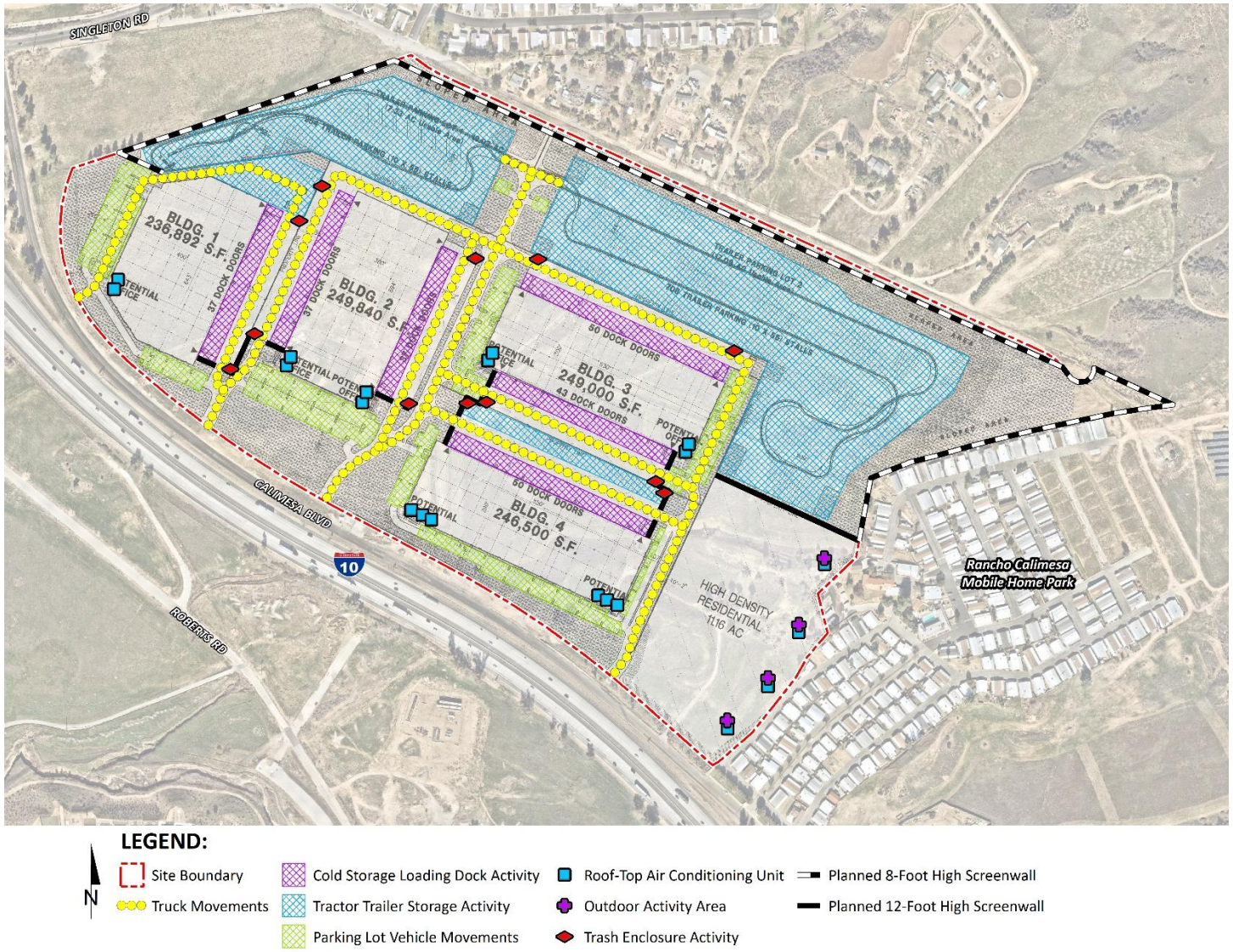

TABLE 10-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./ Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	62.8	103.4
Tractor Trailer Storage Activity	8'	60	60	62.8	103.4
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Trash Enclosure Activity	5'	60	30	57.3	89.0
Parking Lot Vehicle Activity	5'	60	60	52.6	84.3
Truck Movements	8'	60	60	59.8	93.2
Outdoor Activities	5'	60	0	49.4	81.1

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 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 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. Loading dock activity is estimated during all the daytime, evening, and nighttime hours.

10.2.3 TRACTOR TRAILER ACTIVITY

To evaluate the noise levels associated with truck idling, backup alarms, trailer movements and storage activities, Urban Crossroads collected a reference noise level measurement at an existing parcel hub facility to describe the potential operational noise levels associated with Project operational activities. The measured reference noise level at 50 feet from activity was measured at 62.8 dBA L_{eq}. The reference noise level measurement includes a semi-truck with trailer pass-by event, background switcher cab trailer towing, drop-off, idling, and backup alarm events. Tractor trailer activity is estimated during all the daytime, evening, and nighttime hours.

10.2.4 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise level is 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 and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

10.2.5 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 57.3 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.

10.2.6 PARKING LOT VEHICLE MOVEMENTS

To describe the on-site parking lot activity, a long-term reference noise level measurement was collected for twenty-nine hours in the center of activity within the staff parking lot of an Amazon warehouse distribution center. At 50 feet from the center of activity, the parking lot produced a reference noise level of 52.6 dBA L_{eq}. Parking activities are expected to take place during the full hour (60 minutes) throughout the daytime and evening hours. The parking lot noise levels are mainly due cars pulling in and out of parking spaces in combination with car doors opening and closing.

10.2.7 TRUCK MOVEMENTS

The truck movements reference noise level measurement was collected over a period of 1 hour and 28 minutes and represent multiple heavy trucks entering and exiting the outdoor loading dock area producing a reference noise level of 59.8 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for trucks entering and existing the Project driveways and maneuvering in and out of the outdoor loading dock activity area.

10.2.8 OUTDOOR ACTIVITY

To describe the outdoor common area activity, a reference noise level measurement was taken. At 50 feet, the reference outdoor activity noise level is 49.4 dBA L_{eq}. The reference noise level

measurement describes outdoor play activity, and people talking on mobile phones. Outdoor activities are limited to the daytime hours.

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 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the CadnaA noise analysis to account for mixed ground representing a combination of hard and soft surfaces. Appendix 10.1 includes the detailed noise model inputs including the 12-foot-high screen walls surrounding the cold storage loading dock areas and the 8-foot-high truck/trailer parking lot screen wall 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 cold storage loading dock activity, tractor trailer storage activity, roof-top air conditioning units, trash enclosure activity, parking lot vehicle movements, truck movements and outdoor 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 existing off-site receiver locations (R1 to R8) are expected to range from 38.1 to 47.3 dBA L_{eq}. Potential operational noise levels at receiver locations FUT1 to FUT3 and ON1 to ON3 are provided for informational purposes. Receiver

locations FUT1 to FUT3 do not currently exist and receiver locations ON1 to ON3 describe Project multi-family residential land use impacts to the environment.

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 existing off-site receiver locations (R1 to R8) are expected to range from 37.5 to 47.0 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the estimated duration of noise activity as outlined in Table 10-1 and Appendix 10.1.

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 Calimesa exterior noise level standards at the existing nearby noise-sensitive receiver locations. Table 10-4 shows the operational noise levels associated with Oak Valley North Specific Plan Project will not exceed the City of Calimesa daytime and nighttime exterior noise level standards adjusted to reflect the ambient conditions 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	R6	R7	R8	FUT1	FUT2	FUT3	ON1	ON2	ON3
Cold Storage Loading Dock Activity	39.1	41.7	41.0	39.3	37.2	40.1	37.0	34.2	37.8	36.0	35.0	35.3	45.9	43.2
Tractor Trailer Storage Activity	42.4	44.4	42.3	40.0	38.9	45.4	37.7	31.0	39.0	37.9	36.1	37.4	45.0	43.3
Roof-Top Air Conditioning Units	29.7	30.0	30.6	30.5	31.7	37.1	43.9	32.1	28.8	27.5	28.2	41.2	40.6	41.1
Trash Enclosure Activity	27.2	28.7	24.9	23.9	24.3	28.7	25.5	19.9	22.5	23.4	23.1	29.7	33.5	29.6
Parking Lot Vehicle Activity	20.2	23.0	23.1	21.1	20.5	25.3	23.5	21.1	20.1	19.1	17.5	32.2	34.0	28.0
Truck Movements	30.1	33.5	33.5	30.2	28.5	33.3	29.7	28.3	28.8	27.3	26.6	36.6	42.6	35.8
Outdoor Activities	9.6	11.1	12.5	15.1	20.0	27.7	36.4	19.2	14.7	13.5	15.6	29.9	31.1	34.5
Total (All Noise Sources)	**44.5**	**46.7**	**45.2**	**43.2**	**42.0**	**47.3**	**46.2**	**38.1**	**42.0**	**40.6**	**39.4**	**44.8**	**50.3**	**48.0**

[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	R6	R7	R8	FUT1	FUT2	FUT3	ON1	ON2	ON3
Cold Storage Loading Dock Activity	39.1	41.7	41.0	39.3	37.2	40.1	37.0	34.2	37.8	36.0	35.0	35.3	45.9	43.2
Tractor Trailer Storage Activity	42.4	44.4	42.3	40.0	38.9	45.4	37.7	31.0	39.0	37.9	36.1	37.4	45.0	43.3
Roof-Top Air Conditioning Units	27.3	27.6	28.2	28.1	29.3	34.7	41.5	29.7	26.4	25.1	25.8	38.7	38.2	38.6
Trash Enclosure Activity	23.2	24.8	21.0	19.9	20.3	24.7	21.6	15.9	18.5	19.4	19.2	25.7	29.5	25.6
Parking Lot Vehicle Activity	20.2	23.0	23.1	21.1	20.5	25.3	23.5	21.1	20.1	19.1	17.5	32.2	34.0	28.0
Truck Movements	30.1	33.5	33.5	30.2	28.5	33.3	29.7	28.3	28.8	27.3	26.6	36.6	42.6	35.8
Outdoor Activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (All Noise Sources)	**44.4**	**46.6**	**45.2**	**43.1**	**41.7**	**47.0**	**44.2**	**37.5**	**41.9**	**40.5**	**39.1**	**43.6**	**49.9**	**47.3**

[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]	Measurement Location[3]	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	L1	44.5	44.4	64.5	62.9	No	No
R2	L2	46.7	46.6	63.4	60.7	No	No
R3	L3	45.2	45.2	60.0	58.1	No	No
R4	L3	43.2	43.1	60.0	58.1	No	No
R5	L3	42.0	41.7	60.0	58.1	No	No
R6	L3	47.3	47.0	60.0	58.1	No	No
R7	L3	46.2	44.2	60.0	58.1	No	No
R8	L4	38.1	37.5	60.0	50.0	No	No
FUT1	L3	42.0	41.9	60.0	58.1	No	No
FUT2	L3	40.6	40.5	60.0	58.1	No	No
FUT3	L3	39.4	39.1	60.0	58.1	No	No
ON1	L3	44.8	43.6	60.0	58.1	No	No
ON2	L3	50.3	49.9	60.0	58.1	No	No
ON3	L3	48.0	47.3	60.0	58.1	No	No

[1] See Exhibit 10-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 10-2 and 10-3.
[3] Exterior noise level standards adjusted to reflect the ambient conditions consistent with General Plan Policy N-11.
[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. 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. (3) 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, the Project will generate a daytime operational noise level increases ranging from 0.0 to 3.0 dBA L_{eq} at the nearest receiver locations. Table 10-6 shows that the Project will generate a nighttime operational noise level increase ranging from 0.0 to 4.5 dBA L_{eq} at the nearest receiver locations.

The Project-related operational noise level increases will not exceed 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	44.5	L1	64.5	64.5	0.0	3.0	No
R2	46.7	L2	63.4	63.5	0.1	3.0	No
R3	45.2	L3	55.7	56.1	0.4	5.0	No
R4	43.2	L4	48.9	49.9	1.0	5.0	No
R5	42.0	L5	54.1	54.4	0.3	5.0	No
R6	47.3	L6	47.3	50.3	3.0	5.0	No
R7	46.2	L7	50.4	51.8	1.4	5.0	No
R8	38.1	L8	60.5	60.5	0.0	3.0	No

[1] See Exhibit 10-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	44.4	L1	62.9	63.0	0.1	3.0	No
R2	46.6	L2	60.7	60.9	0.2	3.0	No
R3	45.2	L3	58.1	58.3	0.2	5.0	No
R4	43.1	L4	47.1	48.6	1.5	5.0	No
R5	41.7	L5	50.9	51.4	0.5	5.0	No
R6	47.0	L6	44.5	49.0	4.5	5.0	No
R7	44.2	L7	47.6	49.2	1.6	5.0	No
R8	37.5	L8	60.5	60.5	0.0	3.0	No

[1] See Exhibit 10-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.

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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 activity in relation to the nearest sensitive receiver locations previously described in Section 9. To support the Project, off-site improvements will be developed on Singleton Road, Beckwith Avenue and Calimesa Boulevard. To prevent high levels of construction noise from impacting noise-sensitive land uses, City of Calimesa Municipal Code Section 8.15.080[A] restricts construction activities before 7:00 a.m. or after 7:00 p.m. These limits are extended to before 10:00 a.m. or after 5:00 p.m. on weekends and holidays.

11.1 CONSTRUCTION NOISE LEVELS

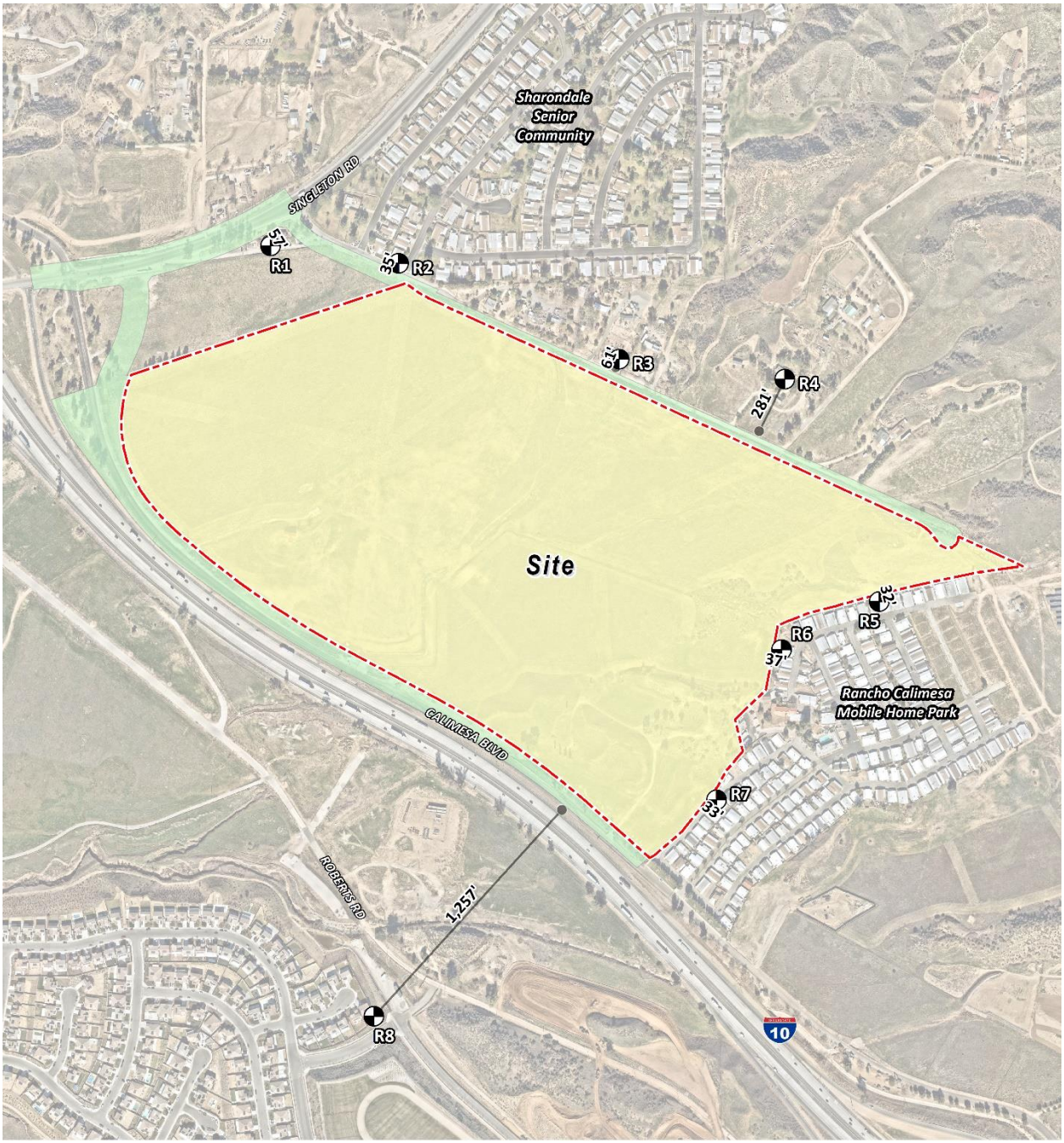
The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

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

11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (22) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 11-A: CONSTRUCTION NOISE SOURCE LOCATIONS



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. Consistent with FTA guidance for detailed construction noise assessment, Table 11-1 presents the combined noise levels for the loudest construction equipment, assuming all equipment operates at the same time. To account for the dynamic nature of construction activities, the CadnaA construction noise analysis evaluates the equipment as multiple moving point sources within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown on Table 11-2, the construction noise levels are expected to range from 48.9 to 68.0 dBA L_{eq} at the nearby receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Combined Noise Level (dBA L_{eq})[2]	Combined Sound Power Level (PWL)[3]
Site Preparation	Crawler Tractors	78	80	112
	Hauling Trucks	72		
	Rubber Tired Dozers	75		
Grading	Graders	81	83	115
	Excavators	77		
	Compactors	76		
Building Construction	Cranes	73	81	113
	Tractors	80		
	Welders	70		
Paving	Pavers	74	83	115
	Paving Equipment	82		
	Rollers	73		
Architectural Coating	Cranes	73	77	109
	Air Compressors	74		
	Generator Sets	70		

[1] FHWA Roadway Construction Noise Model (RCNM).
[2] Represents the combined noise level for all equipment assuming they operate at the same time consistent with FTA Transit Noise and Vibration Impact Assessment guidance.
[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 calibrated using the CadnaA noise model at the reference distance to the noise source.

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	64.8	67.8	65.8	67.8	61.8	67.8
R2	65.0	68.0	66.0	68.0	62.0	68.0
R3	62.6	65.6	63.6	65.6	59.6	65.6
R4	57.4	60.4	58.4	60.4	54.4	60.4
R5	59.6	62.6	60.6	62.6	56.6	62.6
R6	60.7	63.7	61.7	63.7	57.7	63.7
R7	58.5	61.5	59.5	61.5	55.5	61.5
R8	51.9	54.9	52.9	54.9	48.9	54.9

[1] Construction noise source and receiver locations are shown on Exhibit 11-A.
[2] CadnaA construction noise model inputs and calculations are included in Appendix 11.1.

11.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the nearest receiver locations will not exceed the City of Calimesa Municipal Code Section 8.15.080[B] 75 dBA L_{eq} significance threshold during Project construction activities as shown on Table 11-3, provided these activities are limited to the weekday hours before 7:00 a.m. or on weekends and holidays after 7:00 p.m. and 10:00 a.m. or after 5:00 p.m Any construction outside the hours permitted Municipal Code Section 8.15.080[A]), the Project Applicant will be required to obtain authorization for nighttime work from the City of Calimesa and satisfy the 40 dBA Leq exterior noise standards outlined in Municipal Code Section 8.15.040[B]. 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	67.8	75	No
R2	68.0	75	No
R3	65.6	75	No
R4	60.4	75	No
R5	62.6	75	No
R6	63.7	75	No
R7	61.5	75	No
R8	54.9	75	No

[1] Construction noise source and 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] City of Calimesa Municipal Code Section 8.15.080[B].
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities may occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad and loading dock areas as shown on Exhibit 11-B. Since the nighttime concrete pours will take place outside the permitted City of Calimesa Municipal Code, Section 8.15.080[A] hours of 7:00 a.m. and 7:00 p.m., the Project Applicant will be required to obtain authorization for nighttime work from the City of Calimesa. Any nighttime construction noise activity shall satisfy the residential noise level standards adjusted to reflect the ambient conditions.

11.5.1 NIGHTTIME CONCRETE POUR REFERENCE NOISE LEVEL MEASUREMENTS

To estimate the noise levels due to nighttime concrete pouring activities, sample reference noise level measurements were taken during a nighttime concrete pour at a construction site. Urban Crossroads, Inc. collected short-term nighttime concrete pour reference noise level measurements during the noise-sensitive nighttime hours between 1:00 a.m. to 2:00 a.m. at 27334 San Bernardino Avenue in the City of Redlands. The reference noise levels describe the expected concrete pour noise sources that may include concrete mixer truck movements and pouring activities, concrete paving equipment, rear mounted concrete mixer truck backup alarms, engine idling, air brakes, generators, and workers communicating/whistling.

To describe the nighttime concrete pour noise levels associated with the construction of the Oak Valley North Specific Plan, this analysis relies on reference sound pressure level of 67.7 dBA L_{eq} at 50 feet representing a sound power level of 100.3 dBA L_w. While the Project noise levels will depend on the actual duration of activities and specific equipment fleet in use at the time of construction, the reference sound power level of 100.3 dBA L_w is used to describe the expected Project nighttime concrete pour noise activities.

11.5.2 NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

As shown on Table 11-4, the noise levels associated with the nighttime concrete pour activities are estimated to range from 36.4 to 41.6 dBA L_{eq} and will not exceed the City of Calimesa nighttime exterior noise level standards adjusted to reflect the ambient conditions. Based on the results of this analysis, the nearest existing noise receiver locations will experience *less than significant* impacts due to the Project related nighttime concrete pour activities. Appendix 11.2 includes the CadnaA nighttime concrete pour noise model inputs.

EXHIBIT 11-B: NIGHTTIME CONCRETE POUR NOISE SOURCE AND RECEIVER LOCATIONS

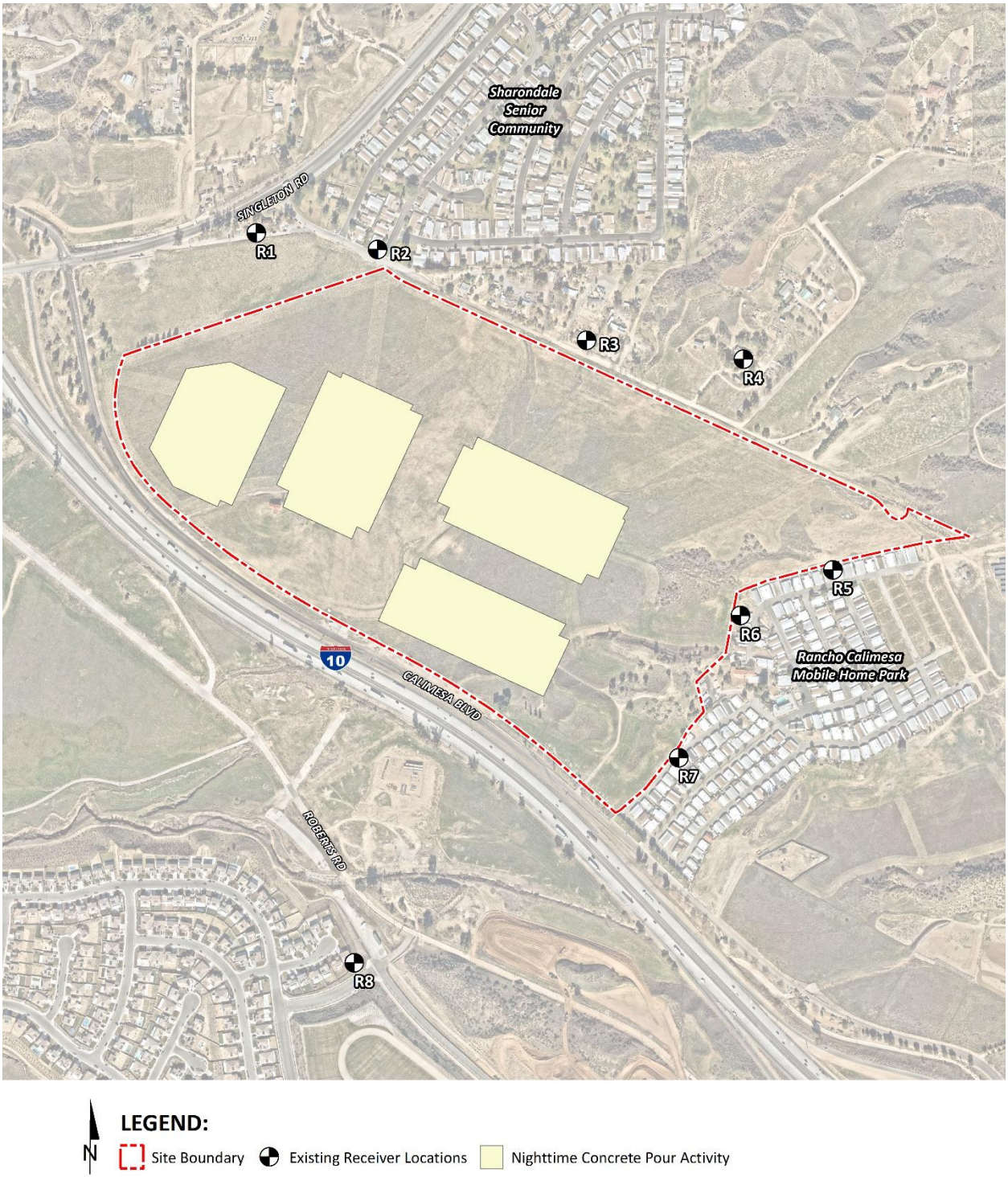


TABLE 11-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Concrete Pour Construction Noise Levels (dBA L_{eq})		
	Exterior Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	37.9	62.9	No
R2	39.8	60.7	No
R3	38.6	58.1	No
R4	39.6	58.1	No
R5	37.4	58.1	No
R6	41.6	58.1	No
R7	36.4	58.1	No
R8	37.3	50.0	No

[1] Nighttime Concrete Pour noise source and receiver locations are shown on Exhibit 11-B.
[2] Nighttime Concrete Pour noise model inputs are included in Appendix 11.2.
[3] Exterior noise level standards adjusted to reflect the ambient conditions consistent with General Plan Policy N-11.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.6 CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Construction vibration is generally associated with pile driving and rock blasting. However, no pile driving, or rock blasting activities are planned for the Project. Ground vibration levels associated with various types of construction equipment are summarized on Table 11-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 11-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 11-6 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 32 to 1,257 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.001 to 0.145 PPV (in/sec). Based on the City of Calimesa General Plan Policy N-7 readily perceptible PPV threshold of 0.0787 (in/sec), the Project construction noise levels will exceed the vibration thresholds at receiver locations R2, R5, R6, and R7. The Project-related construction vibration impacts will be *potentially significant* during the construction activities at the Project site and mitigation is required.

TABLE 11-6: PROJECT CONSTRUCTION VIBRATION LEVELS

Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
R1	57'	0.001	0.010	0.022	0.026	0.061	0.061	0.0787	No
R2	35'	0.002	0.021	0.046	0.054	0.127	0.127	0.0787	**Yes**
R3	61'	0.001	0.009	0.020	0.023	0.055	0.055	0.0787	No
R4	281'	0.000	0.001	0.002	0.002	0.006	0.006	0.0787	No
R5	32'	0.002	0.024	0.052	0.061	0.145	0.145	0.0787	**Yes**
R6	37'	0.002	0.019	0.042	0.049	0.117	0.117	0.0787	**Yes**
R7	33'	0.002	0.023	0.050	0.059	0.138	0.138	0.0787	**Yes**
R8	1,257'	0.000	0.000	0.000	0.000	0.001	0.001	0.0787	No

[1] Construction noise source and receiver locations are shown on Exhibit 11-A.
[2] Distance from receiver building facade to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 11-5).
[4] City of Calimesa General Plan Policy N-7.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

Therefore, a 50-foot buffer setback mitigation measure is required which would restrict the use of large, loaded trucks, heavy mobile equipment greater than 80,000 pounds, jack hammers and vibratory rollers within 50-feet of occupied sensitive receiver locations represented by receiver locations R2, R5, R6, and R7. Instead, small rubber-tired or alternative equipment, as well as soil compaction equipment shall be used during Project construction to reduce vibration effects on nearby structures and their occupants. Table 11-7 shows that with the 50-foot setback buffer, Project construction vibration levels will not exceed the City of Calimesa General Plan Policy N-7 readily perceptible PPV threshold of 0.0787 (in/sec).

Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities with mitigation at the Project site. Moreover, the vibration levels reported at the 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.

TABLE 11-7: MITIGATED PROJECT CONSTRUCTION VIBRATION LEVELS

Location[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]						Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Vibratory Roller	Highest Vibration Level		
R2	50'	0.001	0.012	0.027	0.031	0.074	0.074	0.0787	No
R5	50'	0.001	0.012	0.027	0.031	0.074	0.074	0.0787	No
R6	50'	0.001	0.012	0.027	0.031	0.074	0.074	0.0787	No
R7	50'	0.001	0.012	0.027	0.031	0.074	0.074	0.0787	No

[1] Construction noise source and receiver locations are shown on Exhibit 11-A.
[2] Distance from receiver building facade to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 11-5).
[4] City of Calimesa General Plan Policy N-7.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

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12 REFERENCES

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4. **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.
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19. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
20. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *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 Oak Valley North Specific Plan 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 CALIMESA MUNICIPAL CODE

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Chapter 8.15

NOISE ABATEMENT AND CONTROL

Sections:

8.15.010 Purpose and intent.

The city council finds and declares that:

A. Inadequately controlled noise presents a growing danger to the health and welfare of the residents of the city; and

B. The making and creating of disturbing, excessive, offensive or unusually loud noises within the jurisdictional limits of the city is a condition which has persisted and the level and frequency of occurrence of such noises continue to increase; and

C. The making, creation or continuance of such excessive noises which are prolonged or unusual in their time, place, and use effect and are a detriment to the public health, comfort, convenience, safety, welfare, and prosperity of the residents of the city; and

D. Every person is entitled to an environment in which the noise is not detrimental to his or her life, health, and enjoyment of property; and

E. The necessity in the public interest for the provisions and prohibitions contained in this chapter and enacted is declared to be a matter of legislative determination and public policy and it is further declared that the provisions

and prohibitions contained and enacted are in the pursuance of and for the purpose of securing and promotion of the public health, comfort, convenience, safety, welfare, prosperity, peace and quiet of the city and its inhabitants. [Ord. 91-21; Code 1990 § 4.2.01.]

8.15.020 Definitions.

Whenever the following words and phrases are used in this chapter, unless otherwise defined in this chapter, they shall have the meanings ascribed to them in this section:

"Average sound level" shall mean a sound level typical of the sound levels at a certain place during a one-hour period of time, averaged by the general rule of combination for sound levels, said general rule being set forth in American National Standard Specifications for Sound Level Meters S1.4-1971. Average sound level is also called equivalent continuous sound level.

"Commercial purpose" shall mean and include the use, operation or maintenance of any sound-amplifying equipment for the purpose of advertising any business, any goods, or any services, or for the purpose of attracting the attention of the public to, advertising for, or soliciting patronage or customers to or for any performance, show, entertainment, exhibition, or event, or for the purpose of demonstrating such sound equipment.

"Construction equipment" shall mean any tools, machinery or equipment used in connection with construction operations including all types of "special construction" equipment as defined in the pertinent sections of the California Vehicle Code when used in the construction process on any construction site, regardless of whether such construction site be located on-highway or off-highway.

"Container" shall mean any receptacle, regardless of contents, manufactured from wood, metal, plastic, paper, or any other material including but not limited to any barrel, basket, box, crate, tub, bottle, can or refuse container.

"Decibel" shall mean a unit of measure of sound (noise) level.

"Disturbing, excessive or offensive noise" shall mean:

A. Any sound or noise which constitutes a nuisance involving discomfort or annoyance to persons of normal sensitivity residing in the area;

B. Any sound or noise conflicting with criteria standards or levels as set forth in this chapter for permissible noises;

C. Any sound or noise conflicting with criteria standards or levels established by the federal or state government which are applicable in the city.

"Emergency work" shall mean work made necessary to restore property to a safe condition following a public calamity or work required to protect persons or property from imminent exposure to danger or damage or work by public or private utilities when restoring utility service.

"Fixed source" shall mean a machine or device capable of creating a noise level at the property upon which it is regularly located, including but not limited to industrial and commercial process machinery and equipment, pumps, fans, air-conditioning apparatus or refrigeration machines.

"L_{eq}" shall mean equivalent continuous sound level.

"Motor vehicles" shall mean any and all self-propelled vehicles as defined in the California Vehicle Code and shall specifically include, but not be limited to, mini-bikes and go-carts.

"Noise control officer" shall mean the director of planning services or his duly authorized representatives.

"Noise level" shall mean "sound level" and the terms may be used interchangeably in this chapter.

"Noncommercial purpose" shall mean the use, operation, or maintenance of any sound equipment for other than a commercial purpose. "Noncommercial purpose" means and includes, but is not limited to, philanthropic, political, patriotic, and charitable purposes.

"Nonstationary source" shall mean a machine or device capable of being moved from place to place for occasional or temporary use at a given location, including, but not limited to, powered and manual construction equipment not used in connection with construction operation, powered lawnmowers, chainsaws and soil tillers, but excluding motor vehicles.

"Person" shall mean a person, firm, association, copartnership, joint venture, corporation, or any entity, public or private.

"Powered model vehicles" shall mean, but is not limited to, airborne, waterborne, or landborne vehicles such as model airplanes, model boats, and model vehicles of any type or size which are not designed for carrying persons or property and which can be propelled in any form other than manpower or windpower.

"Sound-amplifying equipment" shall mean any machine or device, mobile or stationary, used to amplify music, the human voice, or any sound.

"Sound level (noise level)" shall mean, in decibels, the quantity measured using the frequency weighting-A of a sound level meter as defined in this section.

"Sound level meter" shall mean an instrument for the measurement of sound, including a microphone, an amplifier, an attenuator, networks at least for the standardized frequency weighting-A, and an indicating instrument having at least the standardized dynamic characteristic "fast," as specified in American National Standards Specifications for Sound Level Meters S1.4-1971 or the latest version thereof.

"Sound truck" shall mean any motor vehicle or other vehicle regardless of motive power, whether in motion or stationary, having mounted thereon, built in, or attached thereto any sound-amplifying equipment other than a car radio or television.

Supplemental Definitions of Technical Terms. Definitions of technical terms not defined in this section shall be obtained from the American National Standard, "Acoustical Terminology" S1.1-1961 (R-1971) or the latest revision thereof. [Ord. 91-21; Code 1990 § 4.2.02.]

8.15.030 Sound level measurement.

A. Any sound or noise level measurement made pursuant to the provisions of this chapter shall be measured with a sound level meter using the A-weighting and "slow" response pursuant to applicable manufacturer's instructions, except that for sounds of a duration of two seconds or less, the "fast" response shall be used and the average level during the occurrence of the sound reported. The L_{eq} one-hour measurement shall be used in calculating final noise level.

B. The sound level meter shall be appropriately calibrated and adjusted as necessary by means of an acoustical calibrator of the coupler type to assure meter accuracy within the tolerances set forth in American National Standards ANSI-S1.4-1971.

C. For outside measurements, the microphone shall be not less than four feet above the ground, at least four feet distance from walls or other large reflecting surfaces and shall be protected from the effects of wind noises by the use of appropriate wind screens and the location selected shall be at any point on the affected property. In cases when the microphone must be located within 10 feet of walls or similar large reflecting surfaces, the actual measured distances and orientation of sources, microphone and reflecting surfaces shall be noted and recorded. In no case shall a noise measurement be taken within five feet of the noise source.

D. For inside measurements, the microphone shall be at least three feet distant from any wall, ceiling or partition, and the average measurement of at least three microphone positions throughout the room shall be determined. [Ord. 91-21; Code 1990 § 4.2.03.]

8.15.040 Sound level limits.

A. Unless a variance has been applied for and granted pursuant to this chapter, it is unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the

boundaries of the property on which the sound is produced, exceeds the applicable limits set forth below, except that construction noise level limits shall be governed by CMC 8.15.080.

B. Public utility facilities shall be allowed to operate at 50 DBAs in any zone, continuous over 24 hours.

Zone	Applicable Limit One-Hour Average Sound Level (In Decibels)	
R-1, R-T, R-2, R-R and S-P regulations with a density of five dwelling units or less per acre	10:00 p.m. to 7:00 a.m.	40
	7:00 a.m. to 10:00 p.m.	50
R-3, S-P and PRD regulations with a density of six or more dwelling units per acre	7:00 a.m. to 7:00 p.m.	55
	7:00 p.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
C-P-S, C-P, C-O	7:00 a.m. to 7:00 p.m.	60
	7:00 p.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	55
M	7:00 a.m. to 10:00 p.m.	70
	10:00 p.m. to 7:00 a.m.	50

C. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits for the two districts; provided, however, that the noise level limit applicable to extractive industries, including but not limited to borrow pits and mines, shall be the noise level limit applicable to the M-3 zone regardless of where the extractive industry is actually located.

D. Fixed location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this section, measured at or beyond six feet from the boundary of the easement upon which the equipment is located. [Ord. 91-21; Code 1990 § 4.2.04.]

8.15.050 Motor vehicles.

Provisions for motor vehicles shall be as follows:

A. Repairs of Motor Vehicles. It is unlawful for any person within the city to repair, rebuild, or test any motor vehicle in such a manner as to cause disturbing, excessive or offensive noises as defined in CMC 8.15.020.

B. On Highway. Violations for exceeding applicable noise level limits as to persons operating motor vehicles or associated accessory equipment of any type on a public street or highway in the city shall be prosecuted under applicable California Vehicle Code provisions and under federal regulations adopted pursuant to 42 U.S.C. 4905(a)(1)(A), (B) and (C)(ii) and (iii) for which enforcement responsibility is delegated to local government agencies.

C. Off Highway. Except as otherwise provided for in this chapter, it is unlawful to operate any motor vehicle or associated accessory equipment of any type on any site other than a public street or highway as defined in the California Vehicle Code in a manner so as to cause noise in excess of:

1. Those noise levels permitted for on-highway motor vehicles as specified in the table "35 miles per hour or less speed limits" contained in Section 23130 of the California Vehicle Code as corrected for distances set forth below:

Corrections	
Distance (In Feet)	**Correction (Decibels)**
25	-6
28	-5
32	-4
35	-3
40	-2
45	-1
50 (preferred distance)	0
56	+1
63	+2
70	+3
80	+4
90	+5
100	+6

2. A measured noise level thus calibrated to the lane-to-microphone distance of 50 feet shall be deemed in violation of this section if it exceeds the applicable noise level limit specified by this section;

3. Or in excess of those sound levels permitted in CMC 8.15.040.

D. Emergency Vehicles. Nothing in this section shall apply to authorized emergency vehicles when being used in emergency situations.

E. Urban Transit Buses. Buses as defined in the California Vehicle Code shall at all times comply with the requirements of this section. [Ord. 91-21; Code 1990 § 4.2.05.]

8.15.060 Powered model vehicles.

It is unlawful for any person to operate any powered model vehicle except between the hours of 7:00 a.m. and 9:00 p.m. and then only in such a manner so as not to emit noise in excess of those levels set forth in CMC 8.15.040; however, if powered model vehicles are operated in public parks at a point more than 100 feet from the property line, the noise level shall be determined at a distance of 100 feet from the noise source instead of at the property line, and noises from powered model vehicles measured at that distance in excess of the noise limits specified in CMC 8.15.040 are prohibited. [Ord. 91-21; Code 1990 § 4.2.06.]

8.15.070 Refuse vehicles.

No person shall operate, or permit to be operated, a refuse compacting, processing, or collection vehicle within the city which when compacting creates a sound level in excess of 80 decibels when measured at a distance of 50 feet from any point of the compacting vehicle unless a variance has been applied for and granted pursuant to this chapter. [Ord. 91-21; Code 1990 § 4.2.07.]

8.15.080 Construction equipment.

Except for emergency work, it is unlawful for any person, including the city, to operate any single or a combination of powered construction equipment at any construction site, except as outlined in subsections (A) and (B) of this section:

A. It is unlawful for any person, including the city, to operate any single or a combination of powered construction equipment at any construction site before 7:00 a.m. or after 7:00 p.m. In addition, it is unlawful for any person, including the city, to operate any single or a combination of powered construction equipment at any construction site before 10:00 a.m. or after 5:00 p.m. on Saturdays and Sundays, January 1st, the last Monday in May, known as "Memorial Day," July 4th, the first Monday in September, Thanksgiving Day and December 25th. When January 1st, July 4th, or December 25th fall on a Sunday, it is unlawful for any person to operate any single or a combination of powered construction equipment at any construction site before 10:00 a.m. or after 5:00 p.m. on the following Monday.

B. No such equipment, or a combination of equipment regardless of age or date of acquisition, shall be operated so as to cause noise at a level in excess of 75 decibels for more than eight hours during any 24-hour period when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes. These sound levels shall be corrected for time duration in accordance with the following table:

Total Duration in 24 Hours	Decibel Level Allowance	Total Decibel Level
Up to 15 minutes	+15	90
Up to 30 minutes	+12	87
Up to 1 hour	+9	84
Up to 2 hours	+6	81
Up to 4 hours	+3	78
Up to 8 hours	0	75

C. In the event that lower noise limit standards are established for construction equipment pursuant to state or federal law, said lower limits shall be used as a basis for revising and amending the noise level limits specified in subsection (B) of this section. [Ord. 91-21; Code 1990 § 4.2.08.]

8.15.090 Containers and construction material.

It is unlawful for any person to handle or transport or cause to be handled or transported in any public place any container or any construction material in such a way as to create a disturbing, excessive, or offensive noise as defined in CMC 8.15.020. [Ord. 91-21; Code 1990 § 4.2.09.]

8.15.100 Signal device for food trucks.

No person shall operate or cause to have operated or used any sound signal device other than sound-amplification equipment attached to a motor vehicle wagon or manually propelled cart from which food or any other items are sold which emits a sound signal more frequently than once every 10 minutes in any one street block and with a duration of more than 10 seconds for any single emission. The sound level of this sound signal shall not exceed 90 decibels at 50 feet. [Ord. 91-21; Code 1990 § 4.2.10.]

8.15.110 Multiple-family dwelling units.

Notwithstanding any other provisions of this chapter, it is unlawful for any person to create, maintain or cause to be maintained any sound within the interior of any multiple-family dwelling unit which causes the average sound level of 45 decibels to be exceeded in any other dwelling unit for a cumulative period of five minutes in any one hour or 50 decibels for a cumulative period of one minute in any one hour or 55 decibels at any time between the hours of 10:00 p.m. of one day and 7:00 a.m. of the following day. The monitoring procedures outlined in CMC 8.15.030 shall be followed in enforcing this section. [Ord. 91-21; Code 1990 § 4.2.11.]

8.15.120 General noise regulations.

A. General Prohibitions. In the absence of objective measurement by use of a sound level meter, additionally it is unlawful for any person to make, continue, or cause to be made or continued, within the limits of the city, any disturbing, excessive or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity residing in the area.

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

1. The level of the noise;

2. Whether the nature of the noise is usual or unusual;

3. Whether the origin of the noise is natural or unnatural;

4. The level of the background noise;

5. The proximity of the noise to sleeping facilities;

6. The nature and zoning of the area within which the noise emanates;

7. The density of the inhabitation of the area within which the noise emanates;

8. The time of day or night the noise occurs;

9. The duration of the noise;

10. Whether the noise is recurrent, intermittent, or constant; and

11. Whether the noise is produced by a commercial or noncommercial activity.

C. Disturbing, Excessive or Offensive Noises. The following acts, among others, are declared to be disturbing, excessive and offensive noises in violation of this section, but said enumeration shall not be deemed to be exclusive, namely:

1. Horns, Signaling Devices, and Related Devices. Violations for disturbing, excessive or offensive noises associated with the use or operation of horns, signaling devices, and on automobiles, motorcycles, or any other vehicle, except as provided in CMC 8.15.110, shall be prosecuted under applicable provisions of the California Vehicle Code.

2. Radios, Televisions, Phonographs, and Similar Devices.

a. Uses Restricted. The use, operation or permitting to be played, used or operated of any radio receiving set, musical instrument, phonograph, television set, or other machine or device for the producing or reproducing of sound in such manner as to disturb the peace, quiet and comfort of neighboring residents or persons of normal sensitivity residing in the area;

b. Prima Facie Violations. The operation of any such set, instrument, phonograph, television set, machine or similar device between the hours of 10:00 p.m. and 8:00 a.m. in such a manner as to be plainly audible at a distance of 50 feet from the building, structure or vehicle in which it is located, shall be prima facie evidence of a violation of this section.

3. Loudspeaking Amplifiers for Advertising. The use, operation, or the permitting to be played, used or operated of any sound production or reproduction device or machine including but not limited to radio receiving sets, phonographs, musical instruments, loudspeakers, and sound amplifiers, for commercial or business advertising purposes in, upon, over, or across any street, alley, sidewalk, park, or public property in such a manner as to violate the provisions of this chapter is prohibited. This provision shall not be applicable to

sound-amplifying equipment mounted on any sound truck or vehicle for commercial or noncommercial purposes where the owner or operator complies with the following requirements:

a. The only sound permitted is music or human speech;

b. Operations are permitted between the hours of 8:00 a.m. and 9:00 p.m. or after 9:00 p.m. during public events and affairs of interest to the general public;

c. Sound-amplifying equipment shall not be operated unless the sound truck upon which such equipment is mounted is operated at a speed of at least 10 miles per hour, except when said truck is stopped or impeded by traffic. Where stopped by traffic the said sound-amplifying equipment shall not be operated for longer than one minute at each stop;

d. Sound shall not be issued within 100 yards of hospitals, schools, churches, or courthouses;

e. The human speech and music amplified shall not be profane, lewd, indecent or slanderous;

f. The volume of sound shall be controlled so that said volume is not raucous, jarring, disturbing, or a nuisance to persons within the area of audibility and so that the volume of sound shall not exceed a sound level of 65 decibels (on the "A" scale) at a distance of 50 feet from the sound-amplifying equipment as measured by a sound level meter which meets the American National Standard ANSI S1.4-1971 or the latest revision thereof;

g. No sound-amplifying equipment shall be operated unless the axis of the center of any sound-reproducing equipment used shall be parallel to the direction of travel of the sound truck; provided, however, that any sound-reproducing equipment may be so placed upon said sound truck as to not vary more than 15 degrees either side of the axis of the center of the direction of travel;

h. No sound truck with its amplifying device in operation shall be driven on the same street past the same point more than twice in a period of one hour.

4. Yelling, Shouting, and Other Such Loud Noises. Disturbing or raucous yelling, shouting, hooting, whistling or singing on the public streets, particularly between the hours of 10:00 p.m. and 8:00 a.m. or at any time or place so as to annoy or disturb the quiet, comfort, or repose of neighboring residents or persons of normal sensitivity within the area for whatever reason, is prohibited.

5. Hawkers and Peddlers. The shouting or crying out of any peddlers, hawkers, and vendors which disturbs the peace and quiet of a neighborhood or persons of normal sensitivity is prohibited. This provision shall not be construed to prohibit the selling by outcry of merchandise, food and beverages at sporting events, parades, fairs, celebrations, festivals, circuses, carnivals and other similar special events for public entertainment.

6. Drums and Other Instruments. The use of any drum or other instrument or device of any kind for the purpose of attracting attention by the creation of noise within the city is prohibited. This provision shall not apply to any person who is a participant in a school band or legally authorized parade or who has been otherwise duly authorized by the city to engage in such conduct.

7. Animals and Fowls. The keeping or maintenance, or the permitting to be kept or maintained upon any premises owned, occupied, or controlled by any person of any animal or fowl which by any frequent or long-continued noise shall cause annoyance or discomfort to persons of normal sensitivity in the vicinity is prohibited; provided, however, that nothing contained in this chapter shall be construed to apply to occasional noises emanating from legally operated dog and cat hospitals, humane societies, pounds, farm or agricultural facilities, or areas where the keeping of animals or fowls is permitted. The written affirmation by two persons having separate residences that violation of this section disturbs the peace and quiet of said persons shall be prima facie evidence of a violation of this section.

8. Schools, Courts, Churches and Hospitals. The creation of any noise on any street, sidewalk, or public place adjacent to any school, institution of learning (except recreational areas of schools), church, court or library, while the same are in use; or adjacent to a hospital, rest home, or long-term medical or mental care facility

which noise interferes with the workings of such institution or which disturbs or annoys patients in the hospital, rest home, or long-term medical or mental care facility, provided conspicuous signs are displayed in such streets, sidewalks, or public places indicating the presence of a school, institution of learning, church, court, library, rest home or long-term medical or metal care facility, is prohibited.

9. Steam Whistles. The operation, use or causing to be operated or used any steam whistle attached to any stationary boiler is prohibited except to give notice of the time to start or stop work or as a sound signal of imminent danger.

10. Engines and Motor Vehicles. Any disturbing or raucous noises caused off streets or highways by racing or accelerating the engine of any motor vehicle or accessory equipment while moving or not moving, by the willful backfiring of any engine and exhaust from the engine tailpipe or muffler, or from the screeching of tires, is prohibited.

11. Commercial and Recreational Motor Vehicles. The use, operation, or permitting the use or operation of any commercial or recreational motor vehicle or associated accessory equipment such as, but not limited to, refrigeration and air conditioning equipment between the hours of 10:00 p.m. and 7:00 a.m. the following day within hearing distance of any residence or temporary sleeping accommodations is prohibited.

12. No person shall operate or permit the operation of any sound amplification system from a motor vehicle not being operated upon a highway which can be heard from outside the vehicle from 150 or more feet, unless that system is being operated to request assistance or warn of a hazardous situation.

13. This section does not apply to authorized emergency vehicles or vehicles operated by gas, electric, communications or water utilities. This section does not apply to the sound systems of vehicles used for advertising, or in parades, political or other special events; provided, that such systems comply with all other requirements of local ordinance and state law. [Ord. 91-21; Code 1990 § 4.2.12.]

8.15.130 Responding to disorderly gatherings.

A. Definitions. For the purposes of this section, the following definitions shall apply:

1. “Loud and/or disorderly gathering or party” means a loud and/or disorderly activity attended by a group of persons on public or private property which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitivity residing in the area.

2. “Person responsible” means the person responsible for a loud and/or disorderly gathering or party and shall be deemed to be, in order of priority:

a. The owner(s) of the premises where the loud and/or disorderly gathering or party takes place, if the premises are owner-occupied property;

b. The tenant(s) of the premises where the loud and/or disorderly gathering or party takes place, if the premises are tenant-occupied property;

c. The person(s) responsible for organizing the loud and/or disorderly gathering or party. If the person is a minor, then the parents or guardians of that minor will be jointly or severally liable for reimbursement of the police expenses and any other public safety expenses incurred.

3. “Special security assignments” means the assignment of peace officers and other public safety service personnel during a second or subsequent call to a location after providing a warning that the loud and/or disorderly gathering or party violates the law.

B. Duty to Maintain Public Peace. Each person who sponsors a gathering or party, or who allows his or her property to be utilized for a gathering or party, shall maintain such in a quiet or orderly fashion so as to protect the public peace. Violation of this duty constitutes a public nuisance.

C. Cost of Police and Other Public Safety Service Personnel Response. When a loud and/or disorderly gathering or party occurs, the person or persons responsible will be held jointly and severally liable for payment of the public safety service expenses for special security assignments.

D. Billing of Public Safety Expenses. For the purposes of this section, the city's finance department shall cause the person responsible for a loud and/or disorderly gathering or party to be billed the actual cost for the police services provided in responding to the disturbance and any other city and/or public safety expenses incurred. (These costs shall include, but shall not be limited to, damages to city property and/or injuries to city personnel, and city administrative costs. The police department shall accumulate the costs of all services provided in responding to the disturbance and forward the same to the finance department within 15 days of the disturbance for billing.) Such bills shall be due and payable within 30 days after the billing date.

E. Appeal Process. Any person receiving a cost recovery fee bill for public safety services pursuant to this section may, within 15 days after the billing date, file with the city clerk a written request appealing the imposition of such charges. Any billing sent pursuant to this section shall inform the billed party of the right to appeal said billing. All appeals shall be made in writing, shall state the grounds for such appeal, shall specify the factual basis for the appeal and shall contain a signature verifying the truth of all matters asserted. Any appeal regarding such billing shall be heard by the city manager, or by his or her designee, as the hearing officer. Notice of the hearing shall be sent by certified or registered mail to the appellant (unless such mail is refused or unclaimed; then the city shall subsequently send the mail via first class postage prepaid mail and such mailing shall be deemed actual service). Within 10 days after the hearing, the hearing officer shall give written notice of the decision of the hearing officer. If the appeal is denied in part or in full, all amounts due to the city shall be paid within 30 days after the notice of the decision of the hearing officer is sent by certified mail or registered mail to the appellant (unless such mail is refused or unclaimed; then the city shall subsequently send the mail via first class postage prepaid mail and such mailing shall be deemed actual service). The decision of the hearing officer may be appealed pursuant to CMC 8.05.070(A). If such a decision is not appealed, then the decision is final upon expiration of the appeal period.

F. Recovery of Public Safety Expenses. All amounts under this section shall be a debt to the city by the property owner and all persons responsible for the loud and/or disorderly gathering or party and may be collected as set forth in CMC 8.05.130. [Ord. 213 § 3, 2004; Code 1990 § 4.2.12A.]

8.15.140 Burglar alarms.

A. Any building burglar alarm must have an automatic cutoff, capable of terminating its operation within 30 minutes of the time it is activated, unless such an alarm is located within an agricultural or estate zone. Notwithstanding the requirements of this provision, any member of the police department of the city shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm during the period of its activation.

B. No owner of a motor vehicle shall have in operation an audible burglar alarm therein unless such burglar alarm shall be capable of terminating its operation within 15 minutes of the time it is activated. Notwithstanding the requirements of this provision, any member of the police department of the city shall have the right to take such steps as may be reasonable and necessary to disconnect any such alarm installed on a motor vehicle at any time during the period of its activation.

C. Any motor vehicle upon which a burglar alarm has been installed shall, when parked on a public highway or parking lot open to the public, prominently display the telephone number at which communication may be made with the owner of such motor vehicle. [Ord. 91-21; Code 1990 § 4.2.13.]

8.15.150 Exemptions.

A. Emergency Work. The provisions of this chapter shall not apply to any emergency work as defined in this chapter; provided, that:

1. The noise control officer has been notified in advance, if possible, or as soon as practical after said emergency; and

2. Any vehicle, device, apparatus, or equipment used, related to or connected with emergency work is designed, modified, or equipped to reduce sounds produced to the lowest possible level consistent with effective operation of such vehicle, device, apparatus, or equipment.

B. Sporting, Entertainment and Public Events. The provisions of this chapter shall not apply to:

1. Those reasonable sounds emanating from authorized school bands, school athletic and school entertainment events;

2. Sporting, entertainment and public events which are conducted pursuant to a license or permit issued by the city for which noise has been a consideration;

3. Those reasonable sounds emanating from a sporting, entertainment, or public event; provided, however, it is unlawful to exceed those levels set forth in CMC 8.15.040 when measured at or within the property lines of any property which is developed and used either in part or in whole for residential purposes unless a variance has been granted allowing sounds in excess of said levels.

C. Federal or State Preempted Activities. The provisions of this chapter shall not apply to any activity to the extent regulation thereof has been preempted by state or federal law.

D. Minor Maintenance to Residential Property. The provisions of CMC 8.15.040 shall not apply to noise sources associated with minor maintenance to property used either in part or in whole for residential purposes provided said activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day except Sunday, or between the hours of 10:00 a.m. and 8:00 p.m. on Sunday.

E. Agricultural Operations. The provisions of CMC 8.15.040 shall not apply to equipment associated with agricultural operations conducted on agriculturally zoned property; provided, that all equipment and machinery powered by internal-combustion engines is equipped with a proper muffler and air intake silencer in good working order; and provided further, that:

1. Operations do not take place between 7:00 p.m and the following 7:00 a.m.; or

2. Such operations and equipment are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions; or

3. Such operations and equipment are associated with agricultural pest control through pesticide application, provided the application is made in accordance with permits issued by, or regulations enforced by, the county department of agriculture. [Ord. 91-21; Code 1990 § 4.2.14.]

8.15.160 Manner of enforcement.
The city manager shall have primary responsibility for the enforcement of the provisions of this chapter. Pursuant to Penal Code Section 836.5, the city manager may arrest a person without a warrant when he has reasonable cause to believe that the person has committed an infraction in his presence which is a violation of this chapter. Violations of this chapter will be prosecuted in the same manner as other infraction violations of the municipal code; however, nothing in these regulations shall prevent the city manager or his duly authorized representatives from efforts to obtain voluntary compliance by way of warning, notice or educational means. [Ord. 91-21; Code 1990 § 4.2.15.]

8.15.170 False statement.
No person shall knowingly make a false statement or submit a false document to the city manager as to any matter within his jurisdiction. [Ord. 91-21; Code 1990 § 4.2.16.]

8.15.180 Reproductions of permits.
No person shall make, reproduce, alter, or cause to be made, reproduced, or altered a permit, certificate, or other document issued by the city manager or required by this chapter if the purpose of such reproduction or alteration is to evade or violate the provisions of this chapter. [Ord. 91-21; Code 1990 § 4.2.17.]

8.15.190 Display of permits.
Any permit, certificate, or other notice required in this chapter shall be displayed or maintained on the premises designated thereon. [Ord. 91-21; Code 1990 § 4.2.18.]

8.15.200 Variances.
A. The planning director shall evaluate all applications for variances from the requirements of this chapter and may grant said variances with respect to time for compliance, subject to such terms, conditions, and requirements as he may deem reasonable to achieving compliance with the provisions of this chapter. Each such variance shall set forth in detail the approved method of achieving compliance and a time schedule for its accomplishment.

B. If in the judgment of the planning director the time for compliance cannot be reasonably determined, a variance to cause the noise may be issued for a specified period of time, subject to revocation or modification after review by the planning director at interim times to be designated by the planning director in the variance.

C. In determining the reasonableness of the terms of any proposed variance, said planning director shall consider the magnitude of nuisance caused by the offensive noise, the uses of property within the area of impingement by the noise, operations carried on under existing nonconforming rights or conditional use permits or zone variances, the time factors related to study, design, financing and construction of remedial work, the economic factors related to age and useful life of the equipment and general public interest and welfare. [Ord. 91-21; Code 1990 § 4.2.19.]

8.15.210 Applications for permits and variances.
Every applicant for a permit or variance required by this chapter shall file with the planning director a written application on a form prescribed by the planning director. The applications shall state the name and address of the applicant, the nature of the noise source involved, and such other information as the planning director may require. [Ord. 91-21; Code 1990 § 4.2.20.]

8.15.220 Application fees.
A. Every applicant, except any state or local governmental agency or public district, shall pay a fee of $25.00 for each application for variance.

B. A request for a duplicate permit or variance shall be made in writing to the planning director within 10 days after the destruction, loss, or defacement of a permit or variance. A fee of $5.00 shall be charged, except to any state or local government agency or public district, for issuing a duplicate permit or variance. [Ord. 91-21; Code 1990 § 4.2.21.]

8.15.230 Extension fees.
If a permit or variance is to be extended beyond the original use termination on date of permit or variance, the extension fee shall be $25.00. [Ord. 91-21; Code 1990 § 4.2.22.]

8.15.240 Actions on applications.
A. The planning director shall act, within 30 days, if possible, on an application for a permit or variance and shall notify the applicant in writing by mail or in person of the action taken, namely approval, conditional approval, or denial. Notice of the action taken shall be deemed to have been given when the written notification has been deposited in the mail, postage paid, addressed to the address shown on the application, or when personally delivered to the applicant or his representative. Before acting on an application for a variance or permit, the planning director may require the applicant to furnish further information or further plans or specifications. Failure of the applicant to provide such further information or further plans or specifications within 10 days shall be grounds for denial of the permit or variance.

B. In the event of denial of an application for a permit or variance, the planning director shall notify the applicant in writing of the reasons therefor. Service of this notification may be made by mail, and such service may be proved by the written acknowledgement of the persons served or affidavit of the person making the service. The planning director shall not accept a further application unless the applicant has complied with the objections specified by the planning director as his reasons for denial. [Ord. 91-21; Code 1990 § 4.2.23.]

8.15.250 Applications deemed denied.
The applicant may at his option deem the permit or variance denied if the planning director fails to act on the application within 30 days after filing, or within 10 days after the applicant furnishes the further information, plans and specifications requested by the planning director, whichever is later. [Ord. 91-21; Code 1990 § 4.2.24.]

8.15.260 Filing fee.
Request for hearing shall be initiated by the filing of a petition in triplicate with the city clerk and the payment of a fee of $25.00. A copy of the petition shall also be made in person or by mail and service may be proved by written acknowledgment of the person served or by the affidavit of the person making the service. [Ord. 91-21; Code 1990 § 4.2.25.]

8.15.270 Contents of petition.
A petition to review a denial or conditional approval of a permit or variance shall include a copy of the permit or variance application, and a copy of the planning director's action setting forth the reasons for the denial or the conditions of the approval, and the reasons for appeal. A petition to review a permit or variance revocation shall include a copy of the permit or variance, the planning director's revocation notice, including his reasons for revocation, and the reasons for appeal. [Ord. 91-21; Code 1990 § 4.2.26.]

8.15.280 Dismissal of petition.
The petitioner may dismiss his petition at any time before submission of the case to the city council, without a hearing or meeting of the city council. The city clerk shall notify all interested persons of such dismissal. [Ord. 91-21; Code 1990 § 4.2.27.]

8.15.290 Place of hearing.
All hearings shall be held at the Norton Younglove Multipurpose Senior Center, 908 Park Avenue, Calimesa, California, unless some other place is designated by the city council. [Ord. 91-21; Code 1990 § 4.2.28.]

8.15.300 Evidence.
A. Oral evidence shall be taken only on oath or affirmation.

B. Each party shall have these rights: to call and examine witnesses; to introduce exhibits; to cross-examine opposing witnesses on any matter relevant to the issues even though the matter was not covered in the direct examination; to impeach any witness regardless of which party first called him to testify; and to rebut the evidence against him. If petitioner does not testify in his own behalf, he may be called and examined as if under cross-examination.

C. The hearing need not be conducted according to technical rules relating to evidence and witnesses. Any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs, regardless of the existence of any common law or statutory rule which might make improper the admission of such evidence, but shall not be sufficient in itself to support a finding unless it would be admissible over objection in civil actions. The rules of privilege shall be effective to the same extent that they are now or hereafter may be recognized in civil actions and irrelevant and unduly repetitious evidence shall be excluded. [Ord. 91-21; Code 1990 § 4.2.29.]

8.15.310 Effective date.
The decision shall become effective 15 days after delivering or mailing a copy of the decision, or the hearing board may order that the decision shall become effective sooner. [Ord. 91-21; Code 1990 § 4.2.30.]

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:13594

13594_L1_B 1.North
33, 58' 44.780000"117, 2' 38.290000"

13594_L1_B 2.South
33, 58' 44.770000"117, 2' 38.260000"

13594_L1_B 3.East
33, 58' 44.780000"117, 2' 38.260000"

13594_L1_B 4.West
33, 58' 44.770000"117, 2' 38.310000"

JN:13594

13594_L2_A 1.North
33, 58' 45.400000"117, 2' 36.500000"

13594_L2_A 2.South
33, 58' 45.380000"117, 2' 36.530000"

13594_L2_A 3.East
33, 58' 45.360000"117, 2' 36.500000"

13594_L2_A 4.West
33, 58' 45.390000"117, 2' 36.530000"

JN:13594

13594_L3_C 1.North
33, 58' 41.820000"117, 2' 26.800000"

13594_L3_C 2.South
33, 58' 41.790000"117, 2' 26.800000"

13594_L3_C 3.East
33, 58' 41.790000"117, 2' 26.800000"

13594_L3_C 4.West
33, 58' 41.780000"117, 2' 26.890000"

13594_L4_D 1.North
33, 58' 38.660000"117, 2' 18.370000"

13594_L4_D 2.South
33, 58' 38.630000"117, 2' 18.370000"

13594_L4_D 3.East
33, 58' 38.620000"117, 2' 18.370000"

13594_L5_E 1.North
33, 58' 30.750000"117, 2' 11.010000"

13594_L5_E 2.South
33, 58' 30.680000"117, 2' 10.900000"

13594_L5_E 3.East
33, 58' 30.560000"117, 2' 10.850000"

13594_L5_E 4.West
33, 58' 30.590000"117, 2' 10.850000"

13594_L6_F 1.North
33, 58' 29.640000"117, 2' 15.460000"

13594_L6_F 2.South
33, 58' 29.470000"117, 2' 15.490000"

13594_L6_F 3.East
33, 58' 29.340000"117, 2' 15.600000"

13594_L6_F 4.West
33, 58' 29.320000"117, 2' 15.600000"

13594_L7_H 1.North
33, 58' 22.730000"117, 2' 20.350000"

13594_L7_H 2.South
33, 58' 22.620000"117, 2' 20.460000"

13594_L7_H 3.East
33, 58' 22.540000"117, 2' 20.490000"

13594_L7_H 4.West
33, 58' 22.500000"117, 2' 20.520000"

13594_L8_L4_E
33, 58' 13.130000"117, 2' 37.350000"

13594_L8_L4_N
33, 58' 13.140000"117, 2' 37.380000"

13594_L8_L4_S
33, 58' 13.130000"117, 2' 37.350000"

13594_L8_L4_W
33, 58' 13.160000"117, 2' 37.350000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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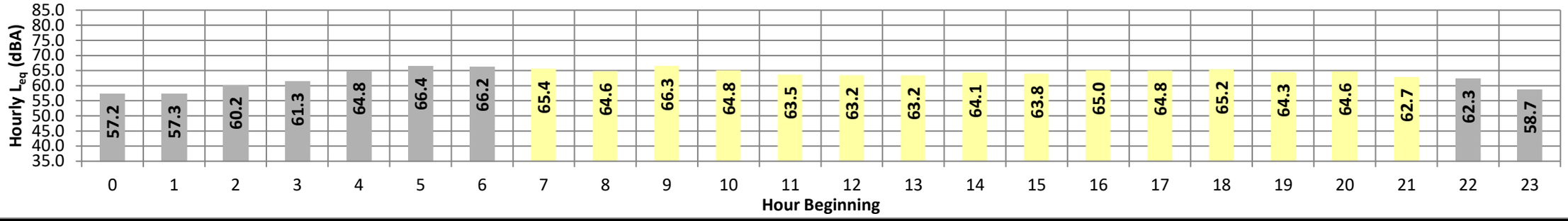
24-Hour Noise Level Measurement Summary

Date: Tuesday, July 11, 2023 *Location:* L1 - Located Northwest of the site near the residence at 35275 *Meter:* Piccolo II *JN:* 13594

Project: Oak Valley North *Source:* Singleton Road *Analyst:* z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	57.2	66.0	51.6	65.7	65.0	62.6	60.7	57.0	55.3	52.8	52.3	51.7	57.2	10.0	67.2
	1	57.3	67.0	49.7	66.5	65.8	63.3	61.5	56.5	54.4	51.2	50.5	49.9	57.3	10.0	67.3
	2	60.2	71.8	50.2	71.4	71.0	68.4	64.5	56.3	54.6	51.7	51.0	50.4	60.2	10.0	70.2
	3	61.3	71.8	54.1	71.4	70.6	67.5	65.3	60.1	57.9	55.4	54.8	54.3	61.3	10.0	71.3
	4	64.8	73.5	58.6	73.1	72.4	70.3	69.2	64.9	62.1	59.7	59.2	58.8	64.8	10.0	74.8
	5	66.4	74.6	60.7	74.2	73.4	71.6	70.5	66.8	63.9	61.6	61.3	60.8	66.4	10.0	76.4
	6	66.2	75.2	58.4	74.7	73.9	71.9	70.6	66.8	62.8	59.4	59.0	58.5	66.2	10.0	76.2
Day	7	65.4	74.4	55.6	74.0	73.3	71.2	69.9	66.3	61.9	56.8	56.3	55.7	65.4	0.0	65.4
	8	64.6	73.1	55.1	72.7	72.0	70.3	69.3	65.5	61.2	56.4	55.8	55.3	64.6	0.0	64.6
	9	66.3	78.9	54.1	78.4	77.2	73.1	70.0	64.6	60.1	55.2	54.7	54.2	66.3	0.0	66.3
	10	64.8	75.5	53.9	75.1	74.4	71.3	69.2	64.7	60.2	54.9	54.4	54.0	64.8	0.0	64.8
	11	63.5	73.5	54.0	73.1	72.2	69.6	68.1	63.8	59.5	55.1	54.6	54.2	63.5	0.0	63.5
	12	63.2	72.6	54.5	72.2	71.4	69.2	67.8	63.4	59.9	55.5	55.1	54.6	63.2	0.0	63.2
	13	63.2	72.1	54.3	71.7	70.9	69.0	67.9	63.8	60.0	55.4	54.9	54.4	63.2	0.0	63.2
	14	64.1	73.7	54.8	73.4	72.7	70.7	69.0	63.9	59.9	55.8	55.4	54.9	64.1	0.0	64.1
	15	63.8	71.8	56.6	71.4	70.8	69.2	68.1	64.5	61.3	57.5	57.1	56.7	63.8	0.0	63.8
	16	65.0	74.3	56.2	73.8	73.1	71.0	69.4	65.2	61.8	57.4	56.8	56.3	65.0	0.0	65.0
	17	64.8	74.0	56.1	73.5	72.7	70.4	68.9	65.2	62.1	57.4	56.8	56.3	64.8	0.0	64.8
	18	65.2	74.6	56.6	74.2	73.5	71.5	69.7	65.2	62.1	57.8	57.2	56.7	65.2	0.0	65.2
	19	64.3	73.3	56.8	72.9	72.2	69.9	68.5	64.5	61.6	58.1	57.5	57.0	64.3	5.0	69.3
	20	64.6	75.1	57.0	74.7	74.2	70.9	68.4	63.9	61.0	58.0	57.6	57.1	64.6	5.0	69.6
	21	62.7	72.5	55.5	72.0	71.0	68.4	66.8	62.5	59.8	56.6	56.2	55.6	62.7	5.0	67.7
Night	22	62.3	71.8	54.7	71.5	70.8	68.5	66.7	61.9	58.7	55.9	55.4	54.9	62.3	10.0	72.3
	23	58.7	66.5	54.1	66.2	65.6	63.1	61.7	58.8	57.2	55.1	54.7	54.3	58.7	10.0	68.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	62.7	71.8	53.9	71.4	70.8	68.4	66.8	62.5	59.5	54.9	54.4	54.0
	Max	66.3	78.9	57.0	78.4	77.2	73.1	70.0	66.3	62.1	58.1	57.6	57.1
Energy Average		64.5	Average:		73.5	72.8	70.4	68.7	64.5	60.8	56.5	56.0	55.5
Night	Min	57.2	66.0	49.7	65.7	65.0	62.6	60.7	56.3	54.4	51.2	50.5	49.9
	Max	66.4	75.2	60.7	74.7	73.9	71.9	70.6	66.8	63.9	61.6	61.3	60.8
Energy Average		62.9	Average:		70.5	69.8	67.5	65.6	61.0	58.5	55.9	55.4	54.8

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
69.9	**64.5**	**62.9**

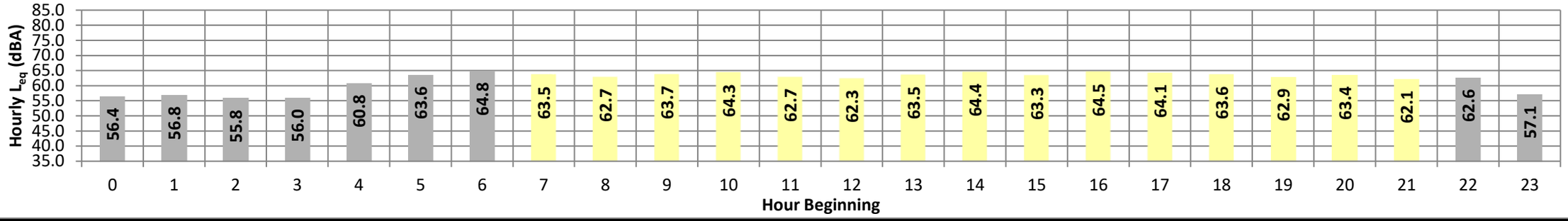
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 11, 2023 *Location:* L2 - Located north of the site near the residence at 9690 *Meter:* Piccolo II *JN:* 13594

Project: Oak Valley North *Source:* Sharondale Road *Analyst:* z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	56.4	68.2	49.6	67.5	66.3	63.2	60.1	53.7	52.3	50.6	50.2	49.8	56.4	10.0	66.4
	1	56.8	69.3	47.4	68.9	68.0	64.0	60.5	53.3	50.5	48.5	48.1	47.6	56.8	10.0	66.8
	2	55.8	68.2	47.1	67.5	66.4	62.9	59.8	52.5	50.4	48.3	47.8	47.3	55.8	10.0	65.8
	3	56.0	68.2	48.3	67.8	66.7	62.9	59.9	52.5	50.7	49.2	48.9	48.5	56.0	10.0	66.0
	4	60.8	73.3	53.5	72.9	71.8	67.5	64.2	56.7	55.7	54.5	54.2	53.7	60.8	10.0	70.8
	5	63.6	74.8	57.6	74.3	73.3	70.3	67.9	60.9	59.3	58.4	58.2	57.8	63.6	10.0	73.6
	6	64.8	76.7	57.6	76.3	75.4	71.8	68.8	61.4	59.4	58.3	58.1	57.8	64.8	10.0	74.8
Day	7	63.5	75.4	52.8	74.8	73.8	70.9	68.8	61.2	55.8	54.0	53.7	53.1	63.5	0.0	63.5
	8	62.7	74.5	50.4	74.0	73.0	70.4	68.3	59.9	53.7	51.3	51.0	50.6	62.7	0.0	62.7
	9	63.7	77.0	49.7	76.2	74.9	71.1	68.2	60.0	53.6	50.5	50.2	49.8	63.7	0.0	63.7
	10	64.3	77.9	48.8	77.0	75.5	71.2	68.6	60.7	53.8	49.8	49.4	49.0	64.3	0.0	64.3
	11	62.7	75.1	49.2	74.5	73.5	70.3	68.3	59.1	53.1	50.3	49.9	49.4	62.7	0.0	62.7
	12	62.3	73.5	51.0	73.1	72.2	69.5	67.8	60.7	54.7	51.9	51.5	51.1	62.3	0.0	62.3
	13	63.5	74.9	51.1	74.3	73.3	70.6	68.6	62.5	56.2	52.1	51.6	51.2	63.5	0.0	63.5
	14	64.4	77.3	52.0	76.4	75.2	70.9	68.7	62.3	56.2	53.0	52.6	52.2	64.4	0.0	64.4
	15	63.3	74.4	52.3	73.8	72.8	70.1	68.3	62.4	56.5	53.2	52.8	52.4	63.3	0.0	63.3
	16	64.5	76.4	52.0	75.7	74.7	71.6	69.4	62.8	56.8	53.0	52.5	52.1	64.5	0.0	64.5
	17	64.1	76.0	51.6	75.1	73.9	71.1	69.1	63.2	56.6	52.5	52.1	51.7	64.1	0.0	64.1
	18	63.6	74.7	51.0	74.1	73.3	70.8	69.0	62.7	55.7	52.0	51.6	51.2	63.6	0.0	63.6
	19	62.9	73.5	51.2	73.0	72.2	70.1	68.5	62.0	55.5	52.3	51.8	51.3	62.9	5.0	67.9
	20	63.4	75.1	51.6	74.6	73.7	70.5	68.7	61.4	55.4	52.4	52.1	51.7	63.4	5.0	68.4
	21	62.1	74.4	51.6	73.9	72.8	69.4	66.7	59.2	55.0	52.6	52.2	51.8	62.1	5.0	67.1
Night	22	62.6	74.8	50.0	74.4	73.6	70.4	67.1	59.2	53.7	50.9	50.6	50.2	62.6	10.0	72.6
	23	57.1	68.4	50.2	67.8	67.0	63.8	61.3	54.6	53.2	51.3	50.8	50.3	57.1	10.0	67.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	62.1	73.5	48.8	73.0	72.2	69.4	66.7	59.1	53.1	49.8	49.4	49.0
	Max	64.5	77.9	52.8	77.0	75.5	71.6	69.4	63.2	56.8	54.0	53.7	53.1
Energy Average		63.4	Average:		74.7	73.7	70.6	68.5	61.3	55.2	52.1	51.7	51.2
Night	Min	55.8	68.2	47.1	67.5	66.3	62.9	59.8	52.5	50.4	48.3	47.8	47.3
	Max	64.8	76.7	57.6	76.3	75.4	71.8	68.8	61.4	59.4	58.4	58.2	57.8
Energy Average		60.7	Average:		70.8	69.8	66.3	63.3	56.1	53.9	52.2	51.9	51.4

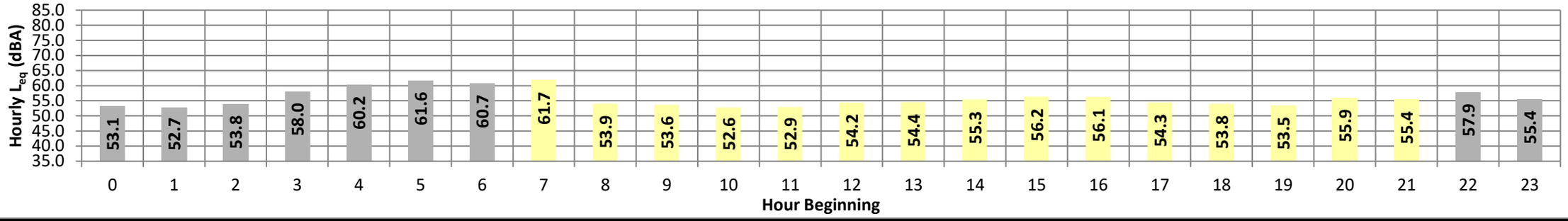
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
68.0	**63.4**	**60.7**

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 11, 2023 *Location:* L3 - Located north of the site near the residence at 35345 *Meter:* Piccolo II *JN:* 13594

Project: Oak Valley North *Source:* Beckwith Ave. *Analyst:* z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.1	56.6	50.3	56.3	56.0	55.3	54.9	53.7	52.7	51.1	50.8	50.4	53.1	10.0	63.1
	1	52.7	57.4	49.2	57.1	56.7	55.9	55.2	53.4	52.0	50.2	49.8	49.3	52.7	10.0	62.7
	2	53.8	57.4	50.7	57.1	56.8	56.2	55.7	54.5	53.5	51.7	51.3	50.8	53.8	10.0	63.8
	3	58.0	61.0	55.6	60.8	60.5	60.0	59.6	58.6	57.7	56.4	56.0	55.7	58.0	10.0	68.0
	4	60.2	62.2	58.5	62.0	61.9	61.6	61.4	60.6	60.0	59.0	58.8	58.6	60.2	10.0	70.2
	5	61.6	63.9	59.6	63.7	63.6	63.2	62.9	62.1	61.4	60.2	60.0	59.7	61.6	10.0	71.6
	6	60.7	65.0	58.9	64.4	63.6	62.7	62.2	60.9	60.3	59.4	59.2	59.0	60.7	10.0	70.7
Day	7	61.7	77.3	50.2	76.1	73.7	67.0	62.2	56.3	53.2	50.9	50.6	50.3	61.7	0.0	61.7
	8	53.9	60.2	50.8	59.2	58.4	57.0	56.3	54.4	53.2	51.5	51.2	50.9	53.9	0.0	53.9
	9	53.6	57.6	50.8	57.2	56.8	56.2	55.8	54.2	53.2	51.6	51.3	50.9	53.6	0.0	53.6
	10	52.6	58.7	49.8	58.0	57.5	56.4	55.4	52.8	51.7	50.4	50.1	49.9	52.6	0.0	52.6
	11	52.9	56.9	50.5	56.6	56.3	55.4	54.9	53.4	52.4	51.1	50.9	50.6	52.9	0.0	52.9
	12	54.2	58.6	51.3	58.3	57.9	57.1	56.6	54.9	53.6	52.0	51.7	51.4	54.2	0.0	54.2
	13	54.4	59.4	51.2	58.9	58.5	57.6	56.9	55.0	53.6	52.0	51.6	51.3	54.4	0.0	54.4
	14	55.3	61.0	51.5	60.6	60.2	59.0	58.4	55.8	54.2	52.3	52.0	51.6	55.3	0.0	55.3
	15	56.2	61.8	52.2	61.4	61.0	60.1	59.3	57.0	55.3	53.1	52.8	52.4	56.2	0.0	56.2
	16	56.1	63.5	51.6	62.8	62.2	61.0	60.2	55.8	54.4	52.5	52.1	51.7	56.1	0.0	56.1
	17	54.3	58.2	51.5	57.8	57.5	56.9	56.4	54.9	53.8	52.3	52.0	51.6	54.3	0.0	54.3
	18	53.8	60.1	50.8	59.8	59.5	57.5	55.9	53.9	52.8	51.5	51.3	50.9	53.8	0.0	53.8
	19	53.5	56.6	51.0	56.4	56.1	55.6	55.3	54.0	53.0	51.7	51.5	51.1	53.5	5.0	58.5
	20	55.9	64.5	52.9	64.0	63.4	60.9	58.1	55.3	54.4	53.4	53.2	53.0	55.9	5.0	60.9
	21	55.4	59.1	53.4	58.7	58.1	57.0	56.6	55.8	55.1	54.1	53.8	53.5	55.4	5.0	60.4
Night	22	57.9	64.0	53.4	63.7	63.5	62.5	61.8	58.5	55.8	54.0	53.8	53.5	57.9	10.0	67.9
	23	55.4	57.3	53.4	57.2	57.0	56.8	56.6	56.0	55.3	54.1	53.9	53.5	55.4	10.0	65.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	52.6	56.6	49.8	56.4	56.1	55.4	54.9	52.8	51.7	50.4	50.1	49.9
	Max	61.7	77.3	53.4	76.1	73.7	67.0	62.2	57.0	55.3	54.1	53.8	53.5
Energy Average		55.7	Average:		60.4	59.8	58.3	57.2	54.9	53.6	52.0	51.7	51.4
Night	Min	52.7	56.6	49.2	56.3	56.0	55.3	54.9	53.4	52.0	50.2	49.8	49.3
	Max	61.6	65.0	59.6	64.4	63.6	63.2	62.9	62.1	61.4	60.2	60.0	59.7
Energy Average		58.1	Average:		60.3	59.9	59.3	58.9	57.6	56.5	55.1	54.8	54.5

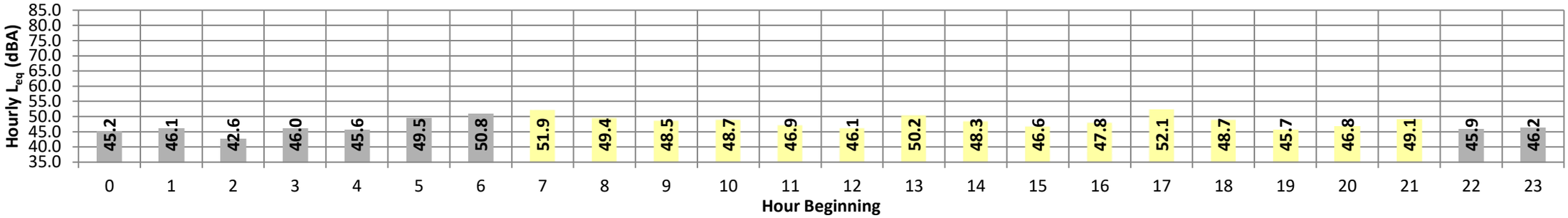
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
64.4	**55.7**	**58.1**

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 11, 2023 *Location:* L4 - Located north of the site near the residence at 35704 *Meter:* Piccolo II *JN:* 13594

Project: Oak Valley North *Source:* Beckwith Ave. *Analyst:* z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	45.2	50.0	41.1	49.7	49.3	48.2	47.7	46.0	44.4	42.3	41.8	41.3	45.2	10.0	55.2
	1	46.1	51.7	40.7	51.3	50.9	50.0	49.5	47.6	44.4	42.0	41.5	40.9	46.1	10.0	56.1
	2	42.6	47.0	38.9	46.6	46.1	45.4	44.9	43.5	42.2	40.0	39.6	39.1	42.6	10.0	52.6
	3	46.0	51.7	40.7	51.1	50.5	49.5	49.0	47.2	45.2	41.7	41.4	40.8	46.0	10.0	56.0
	4	45.6	50.6	41.6	50.2	49.8	48.9	48.3	46.3	44.8	42.6	42.2	41.7	45.6	10.0	55.6
	5	49.5	53.4	46.6	53.1	52.8	52.0	51.6	50.2	49.1	47.5	47.2	46.8	49.5	10.0	59.5
	6	50.8	57.6	47.6	57.0	56.1	53.6	52.8	51.2	50.1	48.3	48.0	47.7	50.8	10.0	60.8
Day	7	51.9	59.1	48.4	58.8	58.2	56.0	54.8	51.9	50.8	49.2	48.8	48.5	51.9	0.0	51.9
	8	49.4	57.1	44.0	56.5	56.0	54.3	52.9	49.6	47.8	45.1	44.6	44.1	49.4	0.0	49.4
	9	48.5	59.4	37.3	58.4	57.5	55.6	53.9	47.1	43.4	38.7	38.0	37.4	48.5	0.0	48.5
	10	48.7	57.0	41.9	55.9	55.0	53.6	52.6	49.6	47.0	43.2	42.7	42.1	48.7	0.0	48.7
	11	46.9	57.0	36.6	56.5	55.9	54.2	52.4	46.4	42.4	37.9	37.3	36.7	46.9	0.0	46.9
	12	46.1	53.2	36.7	52.6	52.2	51.1	50.3	46.9	44.7	37.8	37.3	36.8	46.1	0.0	46.1
	13	50.2	58.7	44.3	58.3	57.8	56.3	54.6	50.3	46.9	44.8	44.6	44.4	50.2	0.0	50.2
	14	48.3	58.5	38.2	57.8	56.8	54.0	52.6	48.7	44.2	40.1	39.4	38.5	48.3	0.0	48.3
	15	46.6	56.3	36.8	55.8	55.2	53.4	51.5	46.6	42.9	38.0	37.5	37.0	46.6	0.0	46.6
	16	47.8	58.0	41.1	57.7	56.9	54.4	52.2	46.4	44.2	42.0	41.6	41.2	47.8	0.0	47.8
	17	52.1	59.4	46.8	59.2	58.8	57.9	56.9	52.0	49.5	47.7	47.4	47.1	52.1	0.0	52.1
	18	48.7	58.8	43.0	58.4	57.7	54.8	52.3	47.6	45.9	43.7	43.4	43.1	48.7	0.0	48.7
	19	45.7	51.6	42.4	51.1	50.4	48.5	47.9	46.3	44.9	43.3	42.9	42.6	45.7	5.0	50.7
	20	46.8	51.4	43.8	51.0	50.5	49.6	49.0	47.3	46.2	44.6	44.3	43.9	46.8	5.0	51.8
	21	49.1	53.7	45.5	53.4	53.0	52.2	51.7	49.8	48.4	46.4	46.0	45.6	49.1	5.0	54.1
Night	22	45.9	50.9	41.9	50.5	50.1	49.3	48.7	46.7	45.1	43.0	42.6	42.0	45.9	10.0	55.9
	23	46.2	52.2	42.0	52.0	51.6	49.9	49.1	46.9	45.2	43.0	42.6	42.2	46.2	10.0	56.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	45.7	51.4	36.6	51.0	50.4	48.5	47.9	46.3	42.4	37.8	37.3	36.7
	Max	52.1	59.4	48.4	59.2	58.8	57.9	56.9	52.0	50.8	49.2	48.8	48.5
Energy Average		48.9	Average:		56.1	55.5	53.7	52.4	48.4	45.9	42.8	42.4	41.9
Night	Min	42.6	47.0	38.9	46.6	46.1	45.4	44.9	43.5	42.2	40.0	39.6	39.1
	Max	50.8	57.6	47.6	57.0	56.1	53.6	52.8	51.2	50.1	48.3	48.0	47.7
Energy Average		47.1	Average:		51.3	50.8	49.6	49.1	47.3	45.6	43.4	43.0	42.5

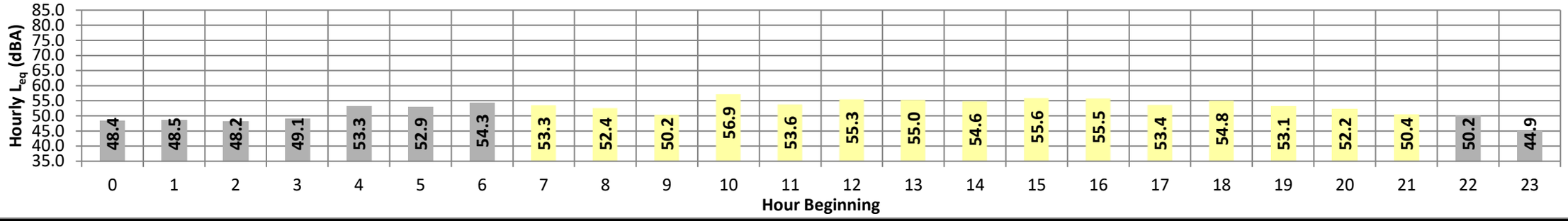
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
54.1	48.9	47.1

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 11, 2023 *Location:* L5 - Located east of the site near the residence at 10320 *Meter:* Piccolo II *JN:* 13594

Project: Oak Valley North *Source:* Calimesa Blvd #229 *Analyst:* z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	48.4	58.9	41.2	58.3	57.4	55.0	52.7	46.7	45.1	42.6	42.1	41.4	48.4	10.0	58.4
	1	48.5	56.1	43.6	55.7	55.1	53.1	51.5	48.6	47.2	44.9	44.5	43.9	48.5	10.0	58.5
	2	48.2	58.6	41.7	57.6	56.4	53.6	52.3	47.4	45.9	43.4	42.8	42.0	48.2	10.0	58.2
	3	49.1	56.1	45.5	55.8	55.3	53.4	51.7	49.0	47.9	46.3	46.0	45.6	49.1	10.0	59.1
	4	53.3	63.6	49.0	63.0	62.3	58.9	56.4	51.8	50.7	49.6	49.3	49.1	53.3	10.0	63.3
	5	52.9	61.4	48.9	61.1	60.5	58.0	56.1	52.4	51.0	49.6	49.4	49.0	52.9	10.0	62.9
	6	54.3	65.0	47.3	64.6	64.0	61.4	58.8	52.0	49.7	48.0	47.7	47.4	54.3	10.0	64.3
Day	7	53.3	64.2	40.4	63.7	63.0	60.5	58.6	52.1	47.2	41.4	41.0	40.5	53.3	0.0	53.3
	8	52.4	63.6	41.4	63.2	62.6	60.0	57.7	50.3	45.6	42.4	42.0	41.5	52.4	0.0	52.4
	9	50.2	60.0	40.7	59.6	59.0	56.7	55.1	50.2	45.5	41.5	41.2	40.8	50.2	0.0	50.2
	10	56.9	69.6	41.7	69.2	68.4	65.2	61.8	52.5	46.4	42.6	42.3	41.9	56.9	0.0	56.9
	11	53.6	66.1	42.8	65.6	64.5	61.3	58.3	49.6	46.0	43.4	43.2	42.9	53.6	0.0	53.6
	12	55.3	66.7	46.9	66.1	65.3	62.5	60.3	52.9	49.8	47.5	47.3	47.0	55.3	0.0	55.3
	13	55.0	65.9	46.1	65.6	65.2	62.8	60.4	52.8	49.3	46.8	46.5	46.2	55.0	0.0	55.0
	14	54.6	67.0	45.3	66.2	65.4	62.0	58.8	51.4	48.2	45.9	45.7	45.4	54.6	0.0	54.6
	15	55.6	64.2	48.7	63.6	62.8	60.3	58.8	55.8	53.9	50.7	49.8	48.9	55.6	0.0	55.6
	16	55.5	64.9	47.0	64.4	63.7	61.7	60.4	55.3	51.6	48.4	47.8	47.1	55.5	0.0	55.5
	17	53.4	64.5	43.5	64.0	63.3	60.4	57.8	52.1	48.4	44.8	44.2	43.7	53.4	0.0	53.4
	18	54.8	66.9	44.3	66.2	65.2	61.4	58.8	52.9	49.5	45.6	45.0	44.4	54.8	0.0	54.8
	19	53.1	63.2	43.6	63.0	62.6	60.4	58.2	51.9	48.4	44.8	44.3	43.8	53.1	5.0	58.1
	20	52.2	62.7	43.0	62.3	61.8	59.8	57.3	50.3	46.9	44.0	43.6	43.1	52.2	5.0	57.2
	21	50.4	60.5	41.3	60.2	59.7	57.4	55.3	49.7	45.9	42.3	41.9	41.5	50.4	5.0	55.4
Night	22	50.2	58.1	39.4	57.9	57.6	56.5	55.4	51.4	45.9	40.7	40.2	39.6	50.2	10.0	60.2
	23	44.9	52.4	40.4	52.2	51.7	49.9	48.4	45.1	43.0	41.1	40.9	40.5	44.9	10.0	54.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.2	60.0	40.4	59.6	59.0	56.7	55.1	49.6	45.5	41.4	41.0	40.5
	Max	56.9	69.6	48.7	69.2	68.4	65.2	61.8	55.8	53.9	50.7	49.8	48.9
Energy Average		54.1	Average:		64.2	63.5	60.8	58.5	52.0	48.2	44.8	44.4	43.9
Night	Min	44.9	52.4	39.4	52.2	51.7	49.9	48.4	45.1	43.0	40.7	40.2	39.6
	Max	54.3	65.0	49.0	64.6	64.0	61.4	58.8	52.4	51.0	49.6	49.4	49.1
Energy Average		50.9	Average:		58.5	57.8	55.5	53.7	49.4	47.4	45.1	44.8	44.3

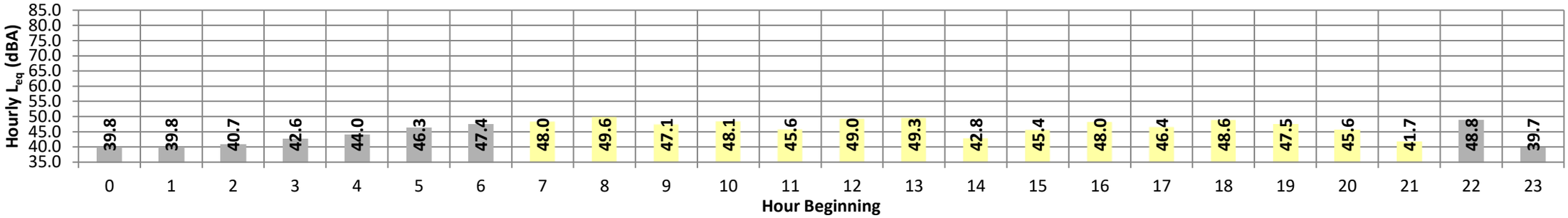
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
58.2	**54.1**	**50.9**

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 11, 2023 *Location:* L6 - Located east of the site near the residence at 10320 *Meter:* Piccolo II *JN:* 13594

Project: Oak Valley North *Source:* Calimesa Blvd #218 *Analyst:* z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	39.8	42.7	37.3	42.5	42.2	41.7	41.4	40.5	39.6	38.0	37.8	37.4	39.8	10.0	49.8
	1	39.8	44.4	36.7	43.9	43.4	42.5	41.9	40.5	39.4	37.3	37.0	36.8	39.8	10.0	49.8
	2	40.7	45.1	37.1	44.8	44.5	43.6	43.2	41.4	40.1	38.0	37.6	37.2	40.7	10.0	50.7
	3	42.6	45.3	40.4	45.1	45.0	44.5	44.2	43.2	42.4	41.1	40.8	40.5	42.6	10.0	52.6
	4	44.0	45.8	42.8	45.6	45.5	45.0	44.8	44.3	43.9	43.2	43.1	42.9	44.0	10.0	54.0
	5	46.3	50.2	44.6	49.5	49.1	48.2	47.8	46.6	45.9	45.0	44.9	44.6	46.3	10.0	56.3
	6	47.4	55.7	42.6	54.9	54.1	52.0	50.6	47.6	45.7	43.6	43.3	42.8	47.4	10.0	57.4
Day	7	48.0	59.5	38.9	58.4	57.4	54.7	52.9	47.3	42.7	39.8	39.5	39.1	48.0	0.0	48.0
	8	49.6	58.4	42.8	56.7	55.9	54.4	53.3	50.4	47.8	44.3	43.7	43.1	49.6	0.0	49.6
	9	47.1	56.3	39.8	55.6	55.0	53.0	51.6	47.8	43.4	40.7	40.3	40.0	47.1	0.0	47.1
	10	48.1	57.2	39.3	56.1	55.3	53.3	52.2	48.8	45.9	41.4	40.5	39.6	48.1	0.0	48.1
	11	45.6	53.2	40.1	52.5	51.9	50.5	49.4	46.4	43.8	41.1	40.7	40.3	45.6	0.0	45.6
	12	49.0	55.9	41.5	55.2	54.7	53.8	53.1	50.3	47.2	42.7	42.1	41.6	49.0	0.0	49.0
	13	49.3	57.5	41.5	56.6	56.0	54.6	53.6	50.4	46.7	42.5	42.1	41.7	49.3	0.0	49.3
	14	42.8	47.4	40.4	46.8	46.2	45.2	44.8	43.4	42.3	41.0	40.8	40.5	42.8	0.0	42.8
	15	45.4	50.5	42.5	49.9	49.3	48.2	47.6	46.0	44.7	43.3	43.0	42.6	45.4	0.0	45.4
	16	48.0	55.4	42.6	54.8	54.2	53.0	52.0	48.8	46.1	43.5	43.1	42.7	48.0	0.0	48.0
	17	46.4	55.2	41.5	53.9	53.1	51.6	49.6	46.6	44.5	42.3	42.0	41.6	46.4	0.0	46.4
	18	48.6	55.4	42.2	54.7	54.2	53.2	52.6	49.9	46.7	43.4	43.0	42.4	48.6	0.0	48.6
	19	47.5	57.1	42.2	56.0	54.2	52.0	50.9	47.8	45.5	43.2	42.8	42.3	47.5	5.0	52.5
	20	45.6	55.1	41.3	54.0	53.0	50.5	49.1	45.3	43.3	41.8	41.6	41.4	45.6	5.0	50.6
	21	41.7	48.7	39.0	47.8	47.2	45.6	44.1	41.7	40.7	39.6	39.4	39.1	41.7	5.0	46.7
Night	22	48.8	56.5	37.8	56.2	56.0	55.6	55.0	49.4	41.9	38.7	38.3	37.9	48.8	10.0	58.8
	23	39.7	42.1	37.8	41.8	41.6	41.3	41.1	40.3	39.5	38.4	38.2	37.9	39.7	10.0	49.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	41.7	47.4	38.9	46.8	46.2	45.2	44.1	41.7	40.7	39.6	39.4	39.1
	Max	49.6	59.5	42.8	58.4	57.4	54.7	53.6	50.4	47.8	44.3	43.7	43.1
Energy Average		47.3	Average:		53.9	53.2	51.6	50.4	47.4	44.7	42.0	41.6	41.2
Night	Min	39.7	42.1	36.7	41.8	41.6	41.3	41.1	40.3	39.4	37.3	37.0	36.8
	Max	48.8	56.5	44.6	56.2	56.0	55.6	55.0	49.4	45.9	45.0	44.9	44.6
Energy Average		44.5	Average:		47.2	46.8	46.1	45.5	43.8	42.0	40.4	40.1	39.8

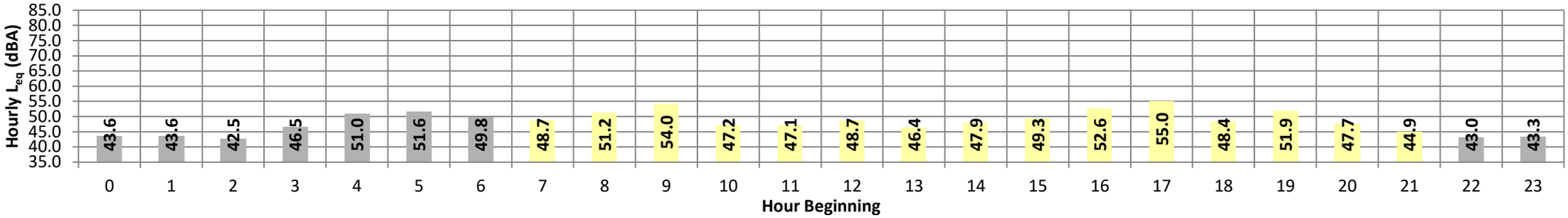
24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
51.8	**47.3**	**44.5**

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 11, 2023 *Location:* L7 - Located east of the site near the residence at 10320 *Meter:* Piccolo II *JN:* 13594

Project: Oak Valley North *Source:* Calimesa Blvd #52 *Analyst:* z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	43.6	50.1	40.7	49.3	48.2	47.2	46.0	43.8	42.8	41.3	41.1	40.8	43.6	10.0	53.6
	1	43.6	53.8	39.2	53.2	52.2	48.6	46.2	42.6	41.4	39.8	39.5	39.2	43.6	10.0	53.6
	2	42.5	46.3	39.8	46.0	45.7	45.0	44.5	43.1	42.1	40.5	40.2	39.9	42.5	10.0	52.5
	3	46.5	49.8	44.2	49.6	49.4	48.8	48.3	47.0	46.2	44.9	44.6	44.3	46.5	10.0	56.5
	4	51.0	55.2	49.1	54.7	54.4	53.4	52.8	51.5	50.4	49.5	49.4	49.2	51.0	10.0	61.0
	5	51.6	55.5	49.7	54.8	54.4	53.8	53.4	52.1	51.2	50.3	50.1	49.8	51.6	10.0	61.6
	6	49.8	55.0	47.7	54.4	54.0	52.7	51.6	49.9	49.2	48.3	48.1	47.8	49.8	10.0	59.8
Day	7	48.7	56.2	44.3	55.5	54.8	53.1	51.8	48.8	47.6	45.0	44.7	44.4	48.7	0.0	48.7
	8	51.2	58.6	46.2	57.7	57.0	55.5	54.6	51.7	49.8	47.3	46.9	46.4	51.2	0.0	51.2
	9	54.0	66.9	45.7	65.3	62.9	59.5	57.5	53.2	50.5	47.3	46.8	46.0	54.0	0.0	54.0
	10	47.2	54.2	43.7	53.7	53.3	52.5	51.4	46.8	45.3	44.2	44.0	43.8	47.2	0.0	47.2
	11	47.1	54.9	43.4	54.2	53.6	52.1	50.5	46.8	45.6	44.1	43.8	43.5	47.1	0.0	47.1
	12	48.7	56.8	44.0	55.7	54.7	52.7	51.8	49.3	47.2	45.0	44.7	44.1	48.7	0.0	48.7
	13	46.4	53.2	43.3	52.7	52.3	50.8	49.6	46.2	44.9	43.8	43.6	43.4	46.4	0.0	46.4
	14	47.9	56.5	43.3	56.0	55.6	54.3	52.7	46.6	45.1	43.9	43.6	43.4	47.9	0.0	47.9
	15	49.3	56.4	46.3	55.2	54.3	52.4	51.3	49.5	48.4	47.1	46.8	46.5	49.3	0.0	49.3
	16	52.6	60.5	46.0	59.7	59.3	58.3	57.3	53.1	49.5	46.7	46.4	46.1	52.6	0.0	52.6
	17	55.0	61.0	49.0	60.5	59.9	58.7	58.0	55.8	54.1	51.2	50.5	49.5	55.0	0.0	55.0
	18	48.4	56.0	44.9	55.5	54.8	53.2	51.8	48.2	46.8	45.5	45.2	45.0	48.4	0.0	48.4
	19	51.9	58.3	46.6	57.9	57.5	56.4	55.2	52.4	50.9	48.2	47.6	46.9	51.9	5.0	56.9
	20	47.7	56.2	43.9	55.4	54.5	52.6	51.0	47.5	46.0	44.5	44.3	44.0	47.7	5.0	52.7
	21	44.9	51.9	41.9	51.6	51.3	49.9	48.4	44.4	43.5	42.5	42.3	42.0	44.9	5.0	49.9
Night	22	43.0	47.7	40.7	47.3	46.8	45.7	44.7	43.3	42.5	41.3	41.1	40.8	43.0	10.0	53.0
	23	43.3	45.6	41.4	45.4	45.2	44.9	44.7	43.9	43.2	42.0	41.8	41.5	43.3	10.0	53.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	44.9	51.9	41.9	51.6	51.3	49.9	48.4	44.4	43.5	42.5	42.3	42.0
	Max	55.0	66.9	49.0	65.3	62.9	59.5	58.0	55.8	54.1	51.2	50.5	49.5
Energy Average		50.4	Average:		56.4	55.7	54.1	52.9	49.4	47.7	45.7	45.4	45.0
Night	Min	42.5	45.6	39.2	45.4	45.2	44.9	44.5	42.6	41.4	39.8	39.5	39.2
	Max	51.6	55.5	49.7	54.8	54.4	53.8	53.4	52.1	51.2	50.3	50.1	49.8
Energy Average		47.6	Average:		50.5	50.0	48.9	48.0	46.4	45.4	44.2	44.0	43.7

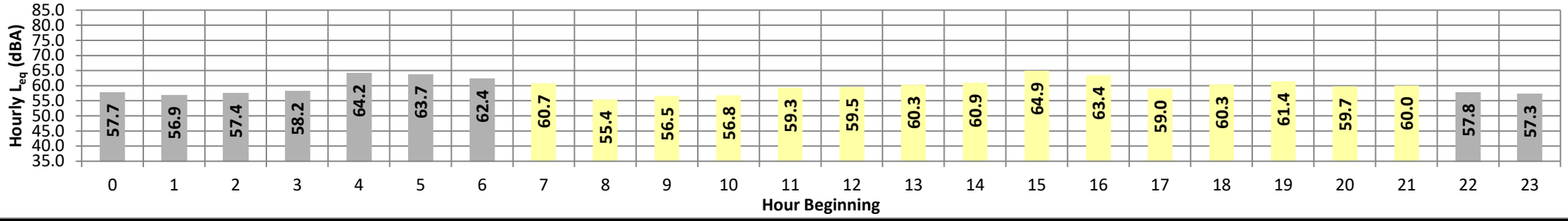
24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
54.9	**50.4**	**47.6**

24-Hour Noise Level Measurement Summary

Date: Tuesday, May 24, 2022 *Location:* L4 - Located south of the Project site near single-family *Meter:* Piccolo II *JN:* 13594

Project: Oak Valley North *Source:* residence at 1035 Marigold Court. *Analyst:* B. Lawson

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	57.7	60.4	55.7	60.2	60.0	59.5	59.1	58.2	57.4	56.2	56.0	55.8	57.7	10.0	67.7
	1	56.9	60.4	54.0	60.2	60.0	59.4	59.0	57.7	56.5	54.8	54.5	54.2	56.9	10.0	66.9
	2	57.4	60.8	54.2	60.6	60.4	59.8	59.6	58.3	57.0	55.1	54.8	54.3	57.4	10.0	67.4
	3	58.2	62.0	55.0	61.7	61.5	61.0	60.5	58.9	57.7	55.9	55.5	55.1	58.2	10.0	68.2
	4	64.2	73.3	57.6	72.8	72.4	70.4	69.5	62.9	60.8	58.6	58.2	57.8	64.2	10.0	74.2
	5	63.7	67.4	60.7	67.2	66.9	66.3	65.9	64.5	63.2	61.5	61.2	60.8	63.7	10.0	73.7
	6	62.4	66.8	59.6	66.5	66.1	65.5	65.0	62.9	61.8	60.3	60.1	59.7	62.4	10.0	72.4
Day	7	60.7	71.1	53.6	70.6	70.0	67.7	65.5	60.1	55.9	54.3	54.0	53.7	60.7	0.0	60.7
	8	55.4	63.0	50.9	62.7	62.4	61.4	60.3	54.8	53.1	51.5	51.3	51.1	55.4	0.0	55.4
	9	56.5	64.7	51.7	64.2	63.6	62.7	61.1	56.0	54.2	52.4	52.1	51.9	56.5	0.0	56.5
	10	56.8	64.7	51.9	64.4	64.0	62.4	61.0	56.2	54.5	52.8	52.5	52.1	56.8	0.0	56.8
	11	59.3	67.3	53.5	66.9	66.2	65.4	63.6	59.5	57.0	54.4	54.0	53.6	59.3	0.0	59.3
	12	59.5	65.6	54.5	65.1	64.7	63.6	62.9	60.4	58.2	55.6	55.1	54.6	59.5	0.0	59.5
	13	60.3	69.3	54.5	69.0	68.5	67.3	65.9	59.0	56.8	55.2	55.0	54.6	60.3	0.0	60.3
	14	60.9	72.8	53.5	72.3	71.6	68.6	64.8	57.1	55.7	54.2	53.9	53.6	60.9	0.0	60.9
	15	64.9	77.2	53.7	76.9	76.5	73.7	69.4	57.6	56.0	54.5	54.3	53.8	64.9	0.0	64.9
	16	63.4	76.0	56.5	75.4	74.2	70.9	67.0	59.0	58.0	57.0	56.8	56.6	63.4	0.0	63.4
	17	59.0	66.1	56.4	65.5	65.1	63.1	61.4	58.7	58.0	56.9	56.7	56.5	59.0	0.0	59.0
	18	60.3	68.7	56.4	68.3	68.0	65.9	63.5	59.8	58.2	57.0	56.8	56.5	60.3	0.0	60.3
	19	61.4	67.1	58.8	66.8	66.5	65.6	64.3	61.2	60.4	59.4	59.2	58.9	61.4	5.0	66.4
	20	59.7	66.5	56.9	66.2	65.4	63.3	62.0	59.6	58.8	57.5	57.3	57.1	59.7	5.0	64.7
	21	60.0	65.2	56.5	64.9	64.7	64.0	63.1	60.8	58.8	57.2	56.9	56.7	60.0	5.0	65.0
Night	22	57.8	61.7	55.4	61.4	61.2	60.4	59.7	58.3	57.4	56.0	55.8	55.5	57.8	10.0	67.8
	23	57.3	60.2	54.9	60.0	59.8	59.3	58.9	57.9	57.0	55.6	55.3	55.0	57.3	10.0	67.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.4	63.0	50.9	62.7	62.4	61.4	60.3	54.8	53.1	51.5	51.3	51.1
	Max	64.9	77.2	58.8	76.9	76.5	73.7	69.4	61.2	60.4	59.4	59.2	58.9
Energy Average		60.5	Average:		68.0	67.4	65.7	63.7	58.7	56.9	55.3	55.1	54.8
Night	Min	56.9	60.2	54.0	60.0	59.8	59.3	58.9	57.7	56.5	54.8	54.5	54.2
	Max	64.2	73.3	60.7	72.8	72.4	70.4	69.5	64.5	63.2	61.5	61.2	60.8
Energy Average		60.5	Average:		63.4	63.1	62.4	61.9	59.9	58.8	57.1	56.8	56.5

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
67.2	60.5	60.5

APPENDIX 6.1:

WITH PROJECT VEHICLE MIX

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SegmentID	Alternative	Roadway	Segment	A_Daily	MT_Daily	HT_Daily
1	E	Calimesa Bl.	n/o Sandalwood Dr.	97.53%	1.49%	0.98%
1	EP	Calimesa Bl.	n/o Sandalwood Dr.	97.25%	1.51%	1.24%
1	2025 NP	Calimesa Bl.	n/o Sandalwood Dr.	97.53%	1.49%	0.98%
1	2025 S1	Calimesa Bl.	n/o Sandalwood Dr.	97.36%	1.49%	1.15%
1	2025 S2	Calimesa Bl.	n/o Sandalwood Dr.	96.97%	1.56%	1.47%
1	2028 NP	Calimesa Bl.	n/o Sandalwood Dr.	97.53%	1.49%	0.98%
1	2028 S1	Calimesa Bl.	n/o Sandalwood Dr.	97.40%	1.48%	1.12%
1	2028 S2	Calimesa Bl.	n/o Sandalwood Dr.	97.32%	1.50%	1.18%
1	HY NP	Calimesa Bl.	n/o Sandalwood Dr.	97.53%	1.49%	0.98%
1	HY S1	Calimesa Bl.	n/o Sandalwood Dr.	97.41%	1.48%	1.11%
1	HY S2	Calimesa Bl.	n/o Sandalwood Dr.	97.33%	1.50%	1.16%
1	HY S3	Calimesa Bl.	n/o Sandalwood Dr.	97.52%	1.48%	1.00%
2	E	Calimesa Bl.	s/o Sandalwood Dr.	97.53%	1.49%	0.98%
2	EP	Calimesa Bl.	s/o Sandalwood Dr.	97.19%	1.51%	1.30%
2	2025 NP	Calimesa Bl.	s/o Sandalwood Dr.	97.53%	1.49%	0.98%
2	2025 S1	Calimesa Bl.	s/o Sandalwood Dr.	97.31%	1.49%	1.20%
2	2025 S2	Calimesa Bl.	s/o Sandalwood Dr.	96.81%	1.58%	1.61%
2	2028 NP	Calimesa Bl.	s/o Sandalwood Dr.	97.53%	1.49%	0.98%
2	2028 S1	Calimesa Bl.	s/o Sandalwood Dr.	97.38%	1.48%	1.14%
2	2028 S2	Calimesa Bl.	s/o Sandalwood Dr.	97.29%	1.50%	1.21%
2	HY NP	Calimesa Bl.	s/o Sandalwood Dr.	97.53%	1.49%	0.98%
2	HY S1	Calimesa Bl.	s/o Sandalwood Dr.	97.43%	1.48%	1.10%
2	HY S2	Calimesa Bl.	s/o Sandalwood Dr.	97.36%	1.50%	1.15%
2	HY S3	Calimesa Bl.	s/o Sandalwood Dr.	97.53%	1.48%	0.99%
3	E	Calimesa Bl.	n/o Singleton Rd.	97.53%	1.49%	0.98%
3	EP	Calimesa Bl.	n/o Singleton Rd.	96.85%	1.53%	1.62%
3	2025 NP	Calimesa Bl.	n/o Singleton Rd.	97.53%	1.49%	0.98%
3	2025 S1	Calimesa Bl.	n/o Singleton Rd.	97.09%	1.50%	1.41%
3	2025 S2	Calimesa Bl.	n/o Singleton Rd.	96.13%	1.67%	2.20%
3	2028 NP	Calimesa Bl.	n/o Singleton Rd.	97.53%	1.49%	0.98%
3	2028 S1	Calimesa Bl.	n/o Singleton Rd.	97.29%	1.47%	1.24%
3	2028 S2	Calimesa Bl.	n/o Singleton Rd.	97.13%	1.51%	1.36%
3	HY NP	Calimesa Bl.	n/o Singleton Rd.	97.53%	1.49%	0.98%
3	HY S1	Calimesa Bl.	n/o Singleton Rd.	97.29%	1.47%	1.24%
3	HY S2	Calimesa Bl.	n/o Singleton Rd.	97.14%	1.51%	1.35%
3	HY S3	Calimesa Bl.	n/o Singleton Rd.	97.52%	1.47%	1.01%
4	E	Calimesa Bl.	s/o Singleton Rd.	97.53%	1.49%	0.98%
4	EP	Calimesa Bl.	s/o Singleton Rd.	77.58%	3.95%	18.47%
4	2025 NP	Calimesa Bl.	s/o Singleton Rd.	97.53%	1.49%	0.98%
4	2025 S1	Calimesa Bl.	s/o Singleton Rd.	78.51%	2.42%	19.07%
4	2025 S2	Calimesa Bl.	s/o Singleton Rd.	75.25%	4.40%	20.35%
4	2028 NP	Calimesa Bl.	s/o Singleton Rd.	97.53%	1.49%	0.98%
4	2028 S1	Calimesa Bl.	s/o Singleton Rd.	87.03%	1.86%	11.11%
4	2028 S2	Calimesa Bl.	s/o Singleton Rd.	83.54%	3.22%	13.24%
4	HY NP	Calimesa Bl.	s/o Singleton Rd.	97.53%	1.49%	0.98%
4	HY S1	Calimesa Bl.	s/o Singleton Rd.	88.67%	1.80%	9.52%

SegmentID	Alternative	Roadway	Segment	A_Daily	MT_Daily	HT_Daily
4	HY S2	Calimesa Bl.	s/o Singleton Rd.	85.42%	2.98%	11.60%
4	HY S3	Calimesa Bl.	s/o Singleton Rd.	96.07%	1.47%	2.46%
5	E	Calimesa Bl.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
5	EP	Calimesa Bl.	n/o Cherry Valley Bl.	84.55%	3.04%	12.42%
5	2025 NP	Calimesa Bl.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
5	2025 S1	Calimesa Bl.	n/o Cherry Valley Bl.	87.46%	1.98%	10.56%
5	2025 S2	Calimesa Bl.	n/o Cherry Valley Bl.	84.09%	3.24%	12.66%
5	2028 NP	Calimesa Bl.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
5	2028 S1	Calimesa Bl.	n/o Cherry Valley Bl.	93.56%	1.60%	4.85%
5	2028 S2	Calimesa Bl.	n/o Cherry Valley Bl.	91.60%	2.19%	6.20%
5	HY NP	Calimesa Bl.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
5	HY S1	Calimesa Bl.	n/o Cherry Valley Bl.	94.65%	1.57%	3.78%
5	HY S2	Calimesa Bl.	n/o Cherry Valley Bl.	93.15%	2.01%	4.84%
5	HY S3	Calimesa Bl.	n/o Cherry Valley Bl.	97.19%	1.44%	1.36%
6	E	5th St.	e/o Sandalwood Dr.	97.53%	1.49%	0.98%
6	EP	5th St.	e/o Sandalwood Dr.	97.56%	1.47%	0.97%
6	2025 NP	5th St.	e/o Sandalwood Dr.	97.53%	1.49%	0.98%
6	2025 S1	5th St.	e/o Sandalwood Dr.	97.53%	1.49%	0.98%
6	2025 S2	5th St.	e/o Sandalwood Dr.	97.53%	1.49%	0.98%
6	2028 NP	5th St.	e/o Sandalwood Dr.	97.53%	1.49%	0.98%
6	2028 S1	5th St.	e/o Sandalwood Dr.	97.55%	1.47%	0.97%
6	2028 S2	5th St.	e/o Sandalwood Dr.	97.55%	1.47%	0.97%
6	HY NP	5th St.	e/o Sandalwood Dr.	97.53%	1.49%	0.98%
6	HY S1	5th St.	e/o Sandalwood Dr.	97.55%	1.48%	0.98%
6	HY S2	5th St.	e/o Sandalwood Dr.	97.55%	1.48%	0.98%
6	HY S3	5th St.	e/o Sandalwood Dr.	97.54%	1.48%	0.98%
7	E	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	EP	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	2025 NP	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	2025 S1	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	2025 S2	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	2028 NP	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	2028 S1	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	2028 S2	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	HY NP	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	HY S1	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	HY S2	Beckwith Av.	s/o Singleton Rd.	97.53%	1.49%	0.98%
7	HY S3	Beckwith Av.	s/o Singleton Rd.	97.54%	1.48%	0.98%
8	E	Singleton Rd.	w/o I-10 EB Ramps	97.53%	1.49%	0.98%
8	EP	Singleton Rd.	w/o I-10 EB Ramps	99.99%	0.01%	0.00%
8	2025 NP	Singleton Rd.	w/o I-10 EB Ramps	97.53%	1.49%	0.98%
8	2025 S1	Singleton Rd.	w/o I-10 EB Ramps	97.53%	1.49%	0.98%
8	2025 S2	Singleton Rd.	w/o I-10 EB Ramps	97.53%	1.49%	0.98%
8	2028 NP	Singleton Rd.	w/o I-10 EB Ramps	97.53%	1.49%	0.98%
8	2028 S1	Singleton Rd.	w/o I-10 EB Ramps	97.55%	1.48%	0.98%
8	2028 S2	Singleton Rd.	w/o I-10 EB Ramps	97.55%	1.47%	0.97%

SegmentID	Alternative	Roadway	Segment	A_Daily	MT_Daily	HT_Daily
8	HY NP	Singleton Rd.	w/o I-10 EB Ramps	97.53%	1.49%	0.98%
8	HY S1	Singleton Rd.	w/o I-10 EB Ramps	97.55%	1.48%	0.98%
8	HY S2	Singleton Rd.	w/o I-10 EB Ramps	97.55%	1.48%	0.98%
8	HY S3	Singleton Rd.	w/o I-10 EB Ramps	97.54%	1.48%	0.98%
9	E	Singleton Rd.	e/o Calimesa Bl.	97.53%	1.49%	0.98%
9	EP	Singleton Rd.	e/o Calimesa Bl.	97.09%	1.53%	1.39%
9	2025 NP	Singleton Rd.	e/o Calimesa Bl.	97.53%	1.49%	0.98%
9	2025 S1	Singleton Rd.	e/o Calimesa Bl.	97.26%	1.49%	1.24%
9	2025 S2	Singleton Rd.	e/o Calimesa Bl.	96.66%	1.60%	1.74%
9	2028 NP	Singleton Rd.	e/o Calimesa Bl.	97.53%	1.49%	0.98%
9	2028 S1	Singleton Rd.	e/o Calimesa Bl.	97.42%	1.48%	1.09%
9	2028 S2	Singleton Rd.	e/o Calimesa Bl.	97.35%	1.50%	1.15%
9	HY NP	Singleton Rd.	e/o Calimesa Bl.	97.53%	1.49%	0.98%
9	HY S1	Singleton Rd.	e/o Calimesa Bl.	97.46%	1.49%	1.06%
9	HY S2	Singleton Rd.	e/o Calimesa Bl.	97.42%	1.50%	1.09%
9	HY S3	Singleton Rd.	e/o Calimesa Bl.	97.53%	1.48%	0.99%
10	E	Singleton Rd.	w/o Singleton Cyn. R	97.53%	1.49%	0.98%
10	EP	Singleton Rd.	w/o Singleton Cyn. R	97.05%	1.53%	1.42%
10	2025 NP	Singleton Rd.	w/o Singleton Cyn. R	97.53%	1.49%	0.98%
10	2025 S1	Singleton Rd.	w/o Singleton Cyn. R	97.24%	1.49%	1.26%
10	2025 S2	Singleton Rd.	w/o Singleton Cyn. R	96.60%	1.61%	1.79%
10	2028 NP	Singleton Rd.	w/o Singleton Cyn. R	97.53%	1.49%	0.98%
10	2028 S1	Singleton Rd.	w/o Singleton Cyn. R	97.38%	1.48%	1.14%
10	2028 S2	Singleton Rd.	w/o Singleton Cyn. R	97.29%	1.51%	1.20%
10	HY NP	Singleton Rd.	w/o Singleton Cyn. R	97.53%	1.49%	0.98%
10	HY S1	Singleton Rd.	w/o Singleton Cyn. R	97.43%	1.48%	1.08%
10	HY S2	Singleton Rd.	w/o Singleton Cyn. R	97.38%	1.50%	1.12%
10	HY S3	Singleton Rd.	w/o Singleton Cyn. R	97.52%	1.48%	0.99%
11	E	Singleton Rd.	e/o Singleton Cyn. R	97.53%	1.49%	0.98%
11	EP	Singleton Rd.	e/o Singleton Cyn. R	97.10%	1.52%	1.37%
11	2025 NP	Singleton Rd.	e/o Singleton Cyn. R	97.53%	1.49%	0.98%
11	2025 S1	Singleton Rd.	e/o Singleton Cyn. R	97.27%	1.49%	1.23%
11	2025 S2	Singleton Rd.	e/o Singleton Cyn. R	96.69%	1.60%	1.71%
11	2028 NP	Singleton Rd.	e/o Singleton Cyn. R	97.53%	1.49%	0.98%
11	2028 S1	Singleton Rd.	e/o Singleton Cyn. R	97.39%	1.48%	1.13%
11	2028 S2	Singleton Rd.	e/o Singleton Cyn. R	97.30%	1.51%	1.19%
11	HY NP	Singleton Rd.	e/o Singleton Cyn. R	97.53%	1.49%	0.98%
11	HY S1	Singleton Rd.	e/o Singleton Cyn. R	97.43%	1.48%	1.09%
11	HY S2	Singleton Rd.	e/o Singleton Cyn. R	97.36%	1.50%	1.14%
11	HY S3	Singleton Rd.	e/o Singleton Cyn. R	97.52%	1.48%	1.00%
12	E	Cherry Valley Bl	w/o Roberts Rd.	97.53%	1.49%	0.98%
12	EP	Cherry Valley Bl	w/o Roberts Rd.	97.25%	1.51%	1.24%
12	2025 NP	Cherry Valley Bl	w/o Roberts Rd.	97.53%	1.49%	0.98%
12	2025 S1	Cherry Valley Bl	w/o Roberts Rd.	97.39%	1.49%	1.11%
12	2025 S2	Cherry Valley Bl	w/o Roberts Rd.	97.09%	1.54%	1.37%
12	2028 NP	Cherry Valley Bl	w/o Roberts Rd.	97.53%	1.49%	0.98%

SegmentID	Alternative	Roadway	Segment	A_Daily	MT_Daily	HT_Daily
12	2028 S1	Cherry Valley Bl	w/o Roberts Rd.	97.43%	1.49%	1.09%
12	2028 S2	Cherry Valley Bl	w/o Roberts Rd.	97.37%	1.50%	1.13%
12	HY NP	Cherry Valley Bl	w/o Roberts Rd.	97.53%	1.49%	0.98%
12	HY S1	Cherry Valley Bl	w/o Roberts Rd.	97.44%	1.49%	1.07%
12	HY S2	Cherry Valley Bl	w/o Roberts Rd.	97.38%	1.50%	1.11%
12	HY S3	Cherry Valley Bl	w/o Roberts Rd.	97.53%	1.48%	0.99%
13	E	Cherry Valley Bl	e/o Roberts Rd.	97.53%	1.49%	0.98%
13	EP	Cherry Valley Bl	e/o Roberts Rd.	97.34%	1.50%	1.16%
13	2025 NP	Cherry Valley Bl	e/o Roberts Rd.	97.53%	1.49%	0.98%
13	2025 S1	Cherry Valley Bl	e/o Roberts Rd.	97.44%	1.49%	1.08%
13	2025 S2	Cherry Valley Bl	e/o Roberts Rd.	97.22%	1.53%	1.25%
13	2028 NP	Cherry Valley Bl	e/o Roberts Rd.	97.53%	1.49%	0.98%
13	2028 S1	Cherry Valley Bl	e/o Roberts Rd.	97.46%	1.48%	1.06%
13	2028 S2	Cherry Valley Bl	e/o Roberts Rd.	97.41%	1.50%	1.09%
13	HY NP	Cherry Valley Bl	e/o Roberts Rd.	97.53%	1.49%	0.98%
13	HY S1	Cherry Valley Bl	e/o Roberts Rd.	97.46%	1.49%	1.05%
13	HY S2	Cherry Valley Bl	e/o Roberts Rd.	97.42%	1.50%	1.08%
13	HY S3	Cherry Valley Bl	e/o Roberts Rd.	97.54%	1.48%	0.99%
14	E	Cherry Valley Bl	e/o Calimesa Bl.	97.53%	1.49%	0.98%
14	EP	Cherry Valley Bl	e/o Calimesa Bl.	97.15%	1.52%	1.33%
14	2025 NP	Cherry Valley Bl	e/o Calimesa Bl.	97.53%	1.49%	0.98%
14	2025 S1	Cherry Valley Bl	e/o Calimesa Bl.	97.41%	1.49%	1.10%
14	2025 S2	Cherry Valley Bl	e/o Calimesa Bl.	97.13%	1.54%	1.33%
14	2028 NP	Cherry Valley Bl	e/o Calimesa Bl.	97.53%	1.49%	0.98%
14	2028 S1	Cherry Valley Bl	e/o Calimesa Bl.	97.44%	1.48%	1.07%
14	2028 S2	Cherry Valley Bl	e/o Calimesa Bl.	97.39%	1.50%	1.12%
14	HY NP	Cherry Valley Bl	e/o Calimesa Bl.	97.53%	1.49%	0.98%
14	HY S1	Cherry Valley Bl	e/o Calimesa Bl.	97.45%	1.48%	1.06%
14	HY S2	Cherry Valley Bl	e/o Calimesa Bl.	97.41%	1.50%	1.10%
14	HY S3	Cherry Valley Bl	e/o Calimesa Bl.	97.53%	1.48%	0.99%
15	E	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	EP	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	2025 NP	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	2025 S1	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	2025 S2	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	2028 NP	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	2028 S1	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	2028 S2	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	HY NP	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	HY S1	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	HY S2	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%
15	HY S3	I-10 Fwy.	n/o Cherry Valley Bl.	97.53%	1.49%	0.98%

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,519 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,041 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.26	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-19.43	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.23	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	64.8	63.7	59.6	67.2	67.7
Medium Trucks:	59.1	58.5	52.2	52.4	60.1	60.3
Heavy Trucks:	62.6	61.7	58.1	56.2	63.7	64.1
Vehicle Noise:	68.2	67.2	65.0	61.8	69.4	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	90	193	417
CNEL:	44	96	206	444

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,686 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,131 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.90	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-19.07	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.87	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.2	64.1	59.9	67.5	68.0
Medium Trucks:	59.4	58.8	52.6	52.8	60.5	60.7
Heavy Trucks:	62.9	62.1	58.4	56.5	64.1	64.4
Vehicle Noise:	68.6	67.5	65.4	62.1	69.7	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	95	204	440
CNEL:	47	101	218	469

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,785 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,138 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.36%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.15%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.88	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-19.03	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.15	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.2	64.1	60.0	67.6	68.1
Medium Trucks:	59.5	58.9	52.6	52.8	60.5	60.7
Heavy Trucks:	63.6	62.8	59.1	57.2	64.8	65.1
Vehicle Noise:	68.8	67.8	65.5	62.3	69.9	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	98	212	456
CNEL:	49	105	225	485

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,912 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,148 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	96.97%
Medium Trucks:	80.3%	4.7%	14.9%	1.56%
Heavy Trucks:	75.9%	8.2%	15.9%	1.47%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.86	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-18.79	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.04	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.2	64.1	60.0	67.6	68.1
Medium Trucks:	59.7	59.1	52.8	53.0	60.7	60.9
Heavy Trucks:	64.7	63.9	60.3	58.4	65.9	66.2
Vehicle Noise:	69.2	68.2	65.8	62.7	70.4	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	105	225	486
CNEL:	52	111	239	516

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,768 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,368 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.07	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-18.24	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.04	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	66.0	64.9	60.8	68.4	68.9
Medium Trucks:	60.3	59.7	53.4	53.6	61.3	61.5
Heavy Trucks:	63.7	62.9	59.3	57.4	64.9	65.2
Vehicle Noise:	69.4	68.4	66.2	62.9	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	232	500
CNEL:	53	115	247	532

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,942 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,382 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.40%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.12%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.04	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-18.21	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.44	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	66.1	64.9	60.8	68.4	68.9
Medium Trucks:	60.3	59.7	53.4	53.6	61.3	61.5
Heavy Trucks:	64.3	63.5	59.9	58.0	65.5	65.8
Vehicle Noise:	69.6	68.6	66.3	63.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	111	239	516
CNEL:	55	118	255	549

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,024 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,388 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.32%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.18%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.02	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-18.13	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.19	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.2	66.1	64.9	60.8	68.4	68.9
Medium Trucks:	60.4	59.8	53.5	53.7	61.4	61.6
Heavy Trucks:	64.6	63.7	60.1	58.2	65.8	66.1
Vehicle Noise:	69.7	68.7	66.4	63.2	70.8	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	113	243	523
CNEL:	56	120	258	557

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,164 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,476 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.26	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.92	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.72	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	66.4	65.2	61.1	68.7	69.2
Medium Trucks:	60.6	60.0	53.7	53.9	61.6	61.8
Heavy Trucks:	64.1	63.2	59.6	57.7	65.3	65.6
Vehicle Noise:	69.7	68.7	66.5	63.3	70.9	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	113	244	526
CNEL:	56	121	260	560

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | *Project Name:* Oak Valley North SP
Road Name: Calimesa Bl. | *Job Number:* 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,338 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,489 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.41%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.11%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.29	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.88	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.15	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	66.4	65.3	61.1	68.7	69.2
Medium Trucks:	60.6	60.0	53.8	54.0	61.7	61.8
Heavy Trucks:	64.6	63.8	60.1	58.2	65.8	66.1
Vehicle Noise:	69.9	68.9	66.7	63.5	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	117	251	541
CNEL:	58	124	267	576

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | *Project Name:* Oak Valley North SP
Road Name: Calimesa Bl. | *Job Number:* 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,420 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,495 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.33%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.16%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.30	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.81	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.92	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	66.4	65.3	61.1	68.7	69.2
Medium Trucks:	60.7	60.1	53.8	54.0	61.7	61.9
Heavy Trucks:	64.9	64.0	60.4	58.5	66.1	66.4
Vehicle Noise:	70.0	69.0	66.7	63.5	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	255	548
CNEL:	58	126	271	584

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | *Project Name:* Oak Valley North SP
Road Name: Calimesa Bl. | *Job Number:* 13594
Road Segment: n/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,232 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,481 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.52%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.27	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.91	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.63	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	66.4	65.2	61.1	68.7	69.2
Medium Trucks:	60.6	60.0	53.7	53.9	61.6	61.8
Heavy Trucks:	64.2	63.3	59.7	57.8	65.3	65.7
Vehicle Noise:	69.7	68.7	66.5	63.3	70.9	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	114	245	528
CNEL:	56	121	261	563

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | *Project Name:* Oak Valley North SP
Road Name: Calimesa Bl. | *Job Number:* 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,536 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	811 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.34	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-20.51	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.31	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	63.8	62.6	58.5	66.1	66.6
Medium Trucks:	58.0	57.4	51.1	51.3	59.0	59.2
Heavy Trucks:	61.5	60.6	57.0	55.1	62.7	63.0
Vehicle Noise:	67.1	66.1	63.9	60.7	68.3	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	76	164	353
CNEL:	38	81	174	376

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,521 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	887 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.95	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-20.13	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.93	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	64.1	63.0	58.9	66.5	67.0
Medium Trucks:	58.4	57.8	51.5	51.7	59.4	59.6
Heavy Trucks:	61.9	61.0	57.4	55.5	63.1	63.4
Vehicle Noise:	67.5	66.5	64.3	61.1	68.7	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	81	174	375
CNEL:	40	86	185	399

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,620 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	895 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.31%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.20%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.93	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-20.07	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.03	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	64.2	63.0	58.9	66.5	67.0
Medium Trucks:	58.4	57.8	51.6	51.8	59.5	59.7
Heavy Trucks:	62.8	61.9	58.3	56.4	64.0	64.3
Vehicle Noise:	67.8	66.8	64.5	61.3	68.9	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	182	391
CNEL:	42	90	193	417

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,747 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	904 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	96.81%
Medium Trucks:	80.3%	4.7%	14.9%	1.58%
Heavy Trucks:	75.9%	8.2%	15.9%	1.61%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.90	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-19.78	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.70	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	64.2	63.1	58.9	66.5	67.0
Medium Trucks:	58.7	58.1	51.9	52.1	59.8	60.0
Heavy Trucks:	64.1	63.2	59.6	57.7	65.3	65.6
Vehicle Noise:	68.3	67.3	64.9	61.9	69.5	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	91	196	423
CNEL:	45	97	209	450

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,618 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,126 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.92	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-19.09	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.89	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.3	65.2	64.0	59.9	67.5	68.0
Medium Trucks:	59.4	58.8	52.5	52.8	60.5	60.6
Heavy Trucks:	62.9	62.0	58.4	56.5	64.1	64.4
Vehicle Noise:	68.5	67.5	65.3	62.1	69.7	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	95	204	439
CNEL:	47	101	217	467

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,867 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,145 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.38%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.14%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.85	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-19.05	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.17	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.2	64.1	60.0	67.6	68.1
Medium Trucks:	59.5	58.9	52.6	52.8	60.5	60.7
Heavy Trucks:	63.6	62.8	59.1	57.2	64.8	65.1
Vehicle Noise:	68.8	67.8	65.5	62.3	70.0	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	98	212	457
CNEL:	49	105	225	486

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,949 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,151 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.29%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.21%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.83	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-18.95	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.88	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.3	64.1	60.0	67.6	68.1
Medium Trucks:	59.6	59.0	52.7	52.9	60.6	60.8
Heavy Trucks:	63.9	63.1	59.4	57.5	65.1	65.4
Vehicle Noise:	68.9	67.9	65.6	62.5	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	100	216	465
CNEL:	49	106	229	494

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,558 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,583 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.56	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.61	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.41	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.7	65.5	61.4	69.0	69.5
Medium Trucks:	60.9	60.3	54.0	54.2	61.9	62.1
Heavy Trucks:	64.4	63.5	59.9	58.0	65.6	65.9
Vehicle Noise:	70.0	69.0	66.8	63.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	256	551
CNEL:	59	126	272	587

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,807 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,602 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.43%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.61	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.58	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.88	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	66.7	65.6	61.5	69.0	69.5
Medium Trucks:	60.9	60.3	54.1	54.3	62.0	62.2
Heavy Trucks:	64.9	64.1	60.4	58.5	66.1	66.4
Vehicle Noise:	70.2	69.2	67.0	63.8	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	122	263	567
CNEL:	60	130	280	603

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,889 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,608 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.36%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.15%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.62	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.51	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.66	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	66.7	65.6	61.5	69.1	69.6
Medium Trucks:	61.0	60.4	54.1	54.3	62.0	62.2
Heavy Trucks:	65.1	64.3	60.6	58.7	66.3	66.6
Vehicle Noise:	70.3	69.3	67.0	63.8	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	124	266	574
CNEL:	61	132	283	611

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,680 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,592 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.99%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.59	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.61	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.33	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	66.7	65.6	61.4	69.0	69.5
Medium Trucks:	60.9	60.3	54.0	54.2	61.9	62.1
Heavy Trucks:	64.5	63.6	60.0	58.1	65.6	66.0
Vehicle Noise:	70.1	69.0	66.8	63.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	554
CNEL:	59	127	274	590

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,099 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	393 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.49	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-23.67	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.47	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	60.6	59.5	55.3	62.9	63.4
Medium Trucks:	54.8	54.2	48.0	48.2	55.9	56.1
Heavy Trucks:	58.3	57.5	53.8	51.9	59.5	59.8
Vehicle Noise:	64.0	63.0	60.8	57.5	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	22	47	101	218
CNEL:	23	50	108	232

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,781 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	445 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.95	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-23.12	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.92	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.3	61.1	60.0	55.9	63.5	64.0
Medium Trucks:	55.4	54.8	48.5	48.7	56.4	56.6
Heavy Trucks:	58.9	58.0	54.4	52.5	60.1	60.4
Vehicle Noise:	64.5	63.5	61.3	58.1	65.7	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	51	110	237
CNEL:	25	54	117	252

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,880 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	453 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.09%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.41%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.90	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-23.01	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.28	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.4	61.2	60.1	55.9	63.5	64.0
Medium Trucks:	55.5	54.9	48.6	48.8	56.5	56.7
Heavy Trucks:	60.5	59.7	56.0	54.1	61.7	62.0
Vehicle Noise:	65.1	64.1	61.7	58.6	66.2	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	26	56	120	258
CNEL:	27	59	127	274

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,007 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	463 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	96.13%
Medium Trucks:	80.3%	4.7%	14.9%	1.67%
Heavy Trucks:	75.9%	8.2%	15.9%	2.20%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.85	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-22.45	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.24	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.4	61.3	60.1	56.0	63.6	64.1
Medium Trucks:	56.1	55.5	49.2	49.4	57.1	57.3
Heavy Trucks:	62.5	61.7	58.1	56.2	63.7	64.0
Vehicle Noise:	66.0	65.0	62.4	59.5	67.1	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	64	137	296
CNEL:	31	68	146	314

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,750 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	674 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.15	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-21.32	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.12	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.1	62.9	61.8	57.7	65.3	65.8
Medium Trucks:	57.2	56.6	50.3	50.5	58.2	58.4
Heavy Trucks:	60.7	59.8	56.2	54.3	61.9	62.2
Vehicle Noise:	66.3	65.3	63.1	59.9	67.5	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	67	145	312
CNEL:	33	72	154	332

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,999 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	693 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.29%
Medium Trucks:	80.3%	4.7%	14.9%	1.47%
Heavy Trucks:	75.9%	8.2%	15.9%	1.24%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.04	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-21.25	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.97	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	63.1	61.9	57.8	65.4	65.9
Medium Trucks:	57.3	56.7	50.4	50.6	58.3	58.5
Heavy Trucks:	61.8	61.0	57.3	55.4	63.0	63.3
Vehicle Noise:	66.7	65.7	63.4	60.3	67.9	68.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	33	72	154	332
CNEL:	35	76	164	354

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,081 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	699 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.13%
Medium Trucks:	80.3%	4.7%	14.9%	1.51%
Heavy Trucks:	75.9%	8.2%	15.9%	1.36%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.01	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-21.09	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.54	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	63.1	62.0	57.8	65.4	65.9
Medium Trucks:	57.4	56.8	50.6	50.8	58.5	58.6
Heavy Trucks:	62.3	61.4	57.8	55.9	63.4	63.7
Vehicle Noise:	66.9	65.9	63.6	60.5	68.1	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	74	159	342
CNEL:	36	78	169	363

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,012 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	694 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.02	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-21.19	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.99	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	63.1	61.9	57.8	65.4	65.9
Medium Trucks:	57.3	56.7	50.4	50.7	58.4	58.5
Heavy Trucks:	60.8	59.9	56.3	54.4	62.0	62.3
Vehicle Noise:	66.4	65.4	63.2	60.0	67.6	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	69	148	318
CNEL:	34	73	157	339

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,261 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	713 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.29%
Medium Trucks:	80.3%	4.7%	14.9%	1.47%
Heavy Trucks:	75.9%	8.2%	15.9%	1.24%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.91	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-21.12	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.87	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	63.2	62.1	57.9	65.5	66.0
Medium Trucks:	57.4	56.8	50.5	50.7	58.4	58.6
Heavy Trucks:	61.9	61.1	57.4	55.5	63.1	63.4
Vehicle Noise:	66.8	65.8	63.6	60.4	68.0	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	73	157	338
CNEL:	36	78	167	360

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,343 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	719 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.14%
Medium Trucks:	80.3%	4.7%	14.9%	1.51%
Heavy Trucks:	75.9%	8.2%	15.9%	1.35%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.88	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-20.97	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.45	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	63.2	62.1	58.0	65.6	66.1
Medium Trucks:	57.5	56.9	50.7	50.9	58.6	58.8
Heavy Trucks:	62.3	61.5	57.8	55.9	63.5	63.8
Vehicle Noise:	67.0	66.0	63.7	60.6	68.2	68.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	75	161	348
CNEL:	37	80	172	370

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,134 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	703 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.52%
Medium Trucks:	80.3%	4.7%	14.9%	1.47%
Heavy Trucks:	75.9%	8.2%	15.9%	1.01%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.96	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-21.18	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.82	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	63.1	62.0	57.9	65.5	66.0
Medium Trucks:	57.3	56.7	50.5	50.7	58.4	58.5
Heavy Trucks:	61.0	60.1	56.5	54.6	62.2	62.5
Vehicle Noise:	66.5	65.5	63.3	60.1	67.7	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	32	69	150	322
CNEL:	34	74	159	343

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,444 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	188 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.69	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-26.86	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.66	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.6	57.4	56.3	52.2	59.8	60.3
Medium Trucks:	51.7	51.0	44.8	45.0	52.7	52.9
Heavy Trucks:	55.1	54.3	50.6	48.7	56.3	56.6
Vehicle Noise:	60.8	59.8	57.6	54.3	61.9	62.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	29	62	133
CNEL:	14	31	66	142

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,684 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	207 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.28	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-26.45	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-28.25	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.0	57.8	56.7	52.6	60.2	60.7
Medium Trucks:	52.1	51.5	45.2	45.4	53.1	53.3
Heavy Trucks:	55.5	54.7	51.0	49.1	56.7	57.0
Vehicle Noise:	61.2	60.2	58.0	54.7	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	31	66	142
CNEL:	15	33	70	151

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,914 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	378 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	78.51%
Medium Trucks:	80.3%	4.7%	14.9%	2.42%
Heavy Trucks:	75.9%	8.2%	15.9%	19.07%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.60	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-21.70	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-12.74	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.7	59.5	58.4	54.2	61.8	62.3
Medium Trucks:	56.8	56.2	49.9	50.1	57.8	58.0
Heavy Trucks:	71.0	70.2	66.5	64.7	72.2	72.5
Vehicle Noise:	71.6	70.7	67.2	65.2	72.8	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	326	702
CNEL:	74	159	342	738

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,634 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	511 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	75.25%
Medium Trucks:	80.3%	4.7%	14.9%	4.40%
Heavy Trucks:	75.9%	8.2%	15.9%	20.35%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.48	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.81	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-11.16	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	60.6	59.5	55.4	63.0	63.5
Medium Trucks:	60.7	60.1	53.8	54.0	61.7	61.9
Heavy Trucks:	72.6	71.8	68.1	66.2	73.8	74.1
Vehicle Noise:	73.2	72.4	68.8	66.8	74.4	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	90	195	420	905
CNEL:	95	205	441	949

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,555 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	428 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.12	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-23.29	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.09	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.1	61.0	59.8	55.7	63.3	63.8
Medium Trucks:	55.2	54.6	48.3	48.5	56.2	56.4
Heavy Trucks:	58.7	57.8	54.2	52.3	59.9	60.2
Vehicle Noise:	64.3	63.3	61.1	57.9	65.5	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	23	50	107	230
CNEL:	25	53	114	245

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,687 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	669 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	87.03%
Medium Trucks:	80.3%	4.7%	14.9%	1.86%
Heavy Trucks:	75.9%	8.2%	15.9%	11.11%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.68	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-20.37	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-12.62	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.6	62.4	61.3	57.2	64.8	65.3
Medium Trucks:	58.1	57.5	51.3	51.5	59.2	59.4
Heavy Trucks:	71.2	70.3	66.7	64.8	72.4	72.7
Vehicle Noise:	72.1	71.2	67.9	65.6	73.2	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	163	351	756
CNEL:	79	171	369	795

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,407 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	801 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	83.54%
Medium Trucks:	80.3%	4.7%	14.9%	3.22%
Heavy Trucks:	75.9%	8.2%	15.9%	13.24%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.07	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-17.22	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-11.07	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	63.0	61.9	57.8	65.4	65.9
Medium Trucks:	61.3	60.7	54.4	54.6	62.3	62.5
Heavy Trucks:	72.7	71.9	68.2	66.3	73.9	74.2
Vehicle Noise:	73.6	72.7	69.3	67.1	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	205	442	952
CNEL:	100	215	464	1,000

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,169 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	552 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.02	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-22.19	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.99	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.3	62.1	61.0	56.8	64.4	64.9
Medium Trucks:	56.3	55.7	49.5	49.7	57.4	57.5
Heavy Trucks:	59.8	58.9	55.3	53.4	61.0	61.3
Vehicle Noise:	65.4	64.4	62.2	59.0	66.6	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	27	59	127	273
CNEL:	29	63	135	291

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,301 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	793 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	88.67%
Medium Trucks:	80.3%	4.7%	14.9%	1.80%
Heavy Trucks:	75.9%	8.2%	15.9%	9.52%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.85	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-19.77	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-12.54	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	63.2	62.1	58.0	65.6	66.1
Medium Trucks:	58.7	58.1	51.9	52.1	59.8	60.0
Heavy Trucks:	71.2	70.4	66.7	64.9	72.4	72.7
Vehicle Noise:	72.3	71.4	68.1	65.8	73.4	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	168	362	780
CNEL:	82	177	381	821

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,021 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	926 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	85.42%
Medium Trucks:	80.3%	4.7%	14.9%	2.98%
Heavy Trucks:	75.9%	8.2%	15.9%	11.60%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.35	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-16.91	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-11.02	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	63.8	62.6	58.5	66.1	66.6
Medium Trucks:	61.6	61.0	54.7	54.9	62.6	62.8
Heavy Trucks:	72.8	71.9	68.3	66.4	74.0	74.3
Vehicle Noise:	73.7	72.8	69.5	67.3	74.9	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	210	452	974
CNEL:	102	220	475	1,023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,020 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	618 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	96.07%
Medium Trucks:	80.3%	4.7%	14.9%	1.47%
Heavy Trucks:	75.9%	8.2%	15.9%	2.46%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.59	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	77.72	-21.76	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.50	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.7	62.5	61.4	57.3	64.8	65.3
Medium Trucks:	56.8	56.1	49.9	50.1	57.8	58.0
Heavy Trucks:	64.3	63.4	59.8	57.9	65.5	65.8
Vehicle Noise:	67.4	66.4	63.8	61.0	68.6	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	171	369
CNEL:	39	84	181	391

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,470 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	190 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-8.06	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-26.23	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-28.03	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.0	55.8	54.7	50.6	58.2	58.7
Medium Trucks:	50.3	49.7	43.4	43.6	51.3	51.5
Heavy Trucks:	54.3	53.5	49.8	47.9	55.5	55.8
Vehicle Noise:	59.4	58.4	56.2	53.0	60.6	61.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	23	50	109
CNEL:	12	25	54	116

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,021 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	233 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-7.19	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-25.36	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-27.16	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.9	56.7	55.6	51.4	59.0	59.5
Medium Trucks:	51.2	50.6	44.3	44.5	52.2	52.4
Heavy Trucks:	55.2	54.3	50.7	48.8	56.4	56.7
Vehicle Noise:	60.3	59.3	57.0	53.9	61.5	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	27	58	124
CNEL:	13	28	61	132

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,977 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	306 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	87.46%
Medium Trucks:	80.3%	4.7%	14.9%	1.98%
Heavy Trucks:	75.9%	8.2%	15.9%	10.56%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-6.47	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-22.91	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-15.65	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.6	57.4	56.3	52.2	59.8	60.3
Medium Trucks:	53.6	53.0	46.8	47.0	54.7	54.8
Heavy Trucks:	66.7	65.9	62.2	60.3	67.9	68.2
Vehicle Noise:	67.5	66.6	63.3	61.1	68.7	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	81	175	377
CNEL:	40	85	184	396

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,714 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	363 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	84.09%
Medium Trucks:	80.3%	4.7%	14.9%	3.24%
Heavy Trucks:	75.9%	8.2%	15.9%	12.66%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-5.90	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-20.04	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-14.12	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.2	58.0	56.9	52.7	60.3	60.8
Medium Trucks:	56.5	55.9	49.6	49.8	57.5	57.7
Heavy Trucks:	68.2	67.4	63.7	61.8	69.4	69.7
Vehicle Noise:	69.0	68.1	64.7	62.6	70.2	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	102	219	473
CNEL:	50	107	230	497

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,144 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	627 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.88	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-21.05	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.85	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.2	61.0	59.9	55.8	63.3	63.8
Medium Trucks:	55.5	54.9	48.6	48.8	56.5	56.7
Heavy Trucks:	59.5	58.7	55.0	53.1	60.7	61.0
Vehicle Noise:	64.6	63.6	61.3	58.2	65.8	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	52	112	241
CNEL:	26	55	119	256

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,701 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	747 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	93.56%
Medium Trucks:	80.3%	4.7%	14.9%	1.60%
Heavy Trucks:	75.9%	8.2%	15.9%	4.85%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.30	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-19.98	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-15.16	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.8	61.6	60.5	56.3	63.9	64.4
Medium Trucks:	56.6	56.0	49.7	49.9	57.6	57.8
Heavy Trucks:	67.2	66.3	62.7	60.8	68.4	68.7
Vehicle Noise:	68.8	67.9	64.9	62.4	70.0	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	99	213	459
CNEL:	48	104	225	484

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,438 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	804 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	91.60%
Medium Trucks:	80.3%	4.7%	14.9%	2.19%
Heavy Trucks:	75.9%	8.2%	15.9%	6.20%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.08	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-18.28	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-13.77	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.8	60.7	56.6	64.2	64.7
Medium Trucks:	58.3	57.7	51.4	51.6	59.3	59.5
Heavy Trucks:	68.6	67.7	64.1	62.2	69.8	70.1
Vehicle Noise:	70.0	69.1	65.9	63.5	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	254	547
CNEL:	58	124	267	576

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,840 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	912 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.26	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-19.43	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-21.23	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.8	62.6	61.5	57.4	65.0	65.5
Medium Trucks:	57.1	56.5	50.2	50.4	58.2	58.3
Heavy Trucks:	61.1	60.3	56.6	54.7	62.3	62.6
Vehicle Noise:	66.2	65.2	63.0	59.8	67.4	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	67	143	309
CNEL:	33	71	153	329

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,397 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,032 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	94.65%
Medium Trucks:	80.3%	4.7%	14.9%	1.57%
Heavy Trucks:	75.9%	8.2%	15.9%	3.78%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.85	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-18.66	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-14.84	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	63.0	61.9	57.8	65.4	65.9
Medium Trucks:	57.9	57.3	51.0	51.2	58.9	59.1
Heavy Trucks:	67.5	66.7	63.0	61.1	68.7	69.0
Vehicle Noise:	69.5	68.6	65.7	63.1	70.7	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	110	237	510
CNEL:	54	116	250	539

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,134 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,088 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	93.15%
Medium Trucks:	80.3%	4.7%	14.9%	2.01%
Heavy Trucks:	75.9%	8.2%	15.9%	4.84%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.69	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-17.35	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-13.53	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	63.2	62.1	57.9	65.5	66.0
Medium Trucks:	59.2	58.6	52.3	52.5	60.2	60.4
Heavy Trucks:	68.8	68.0	64.3	62.4	70.0	70.3
Vehicle Noise:	70.5	69.6	66.5	64.1	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	59	128	276	594
CNEL:	63	135	291	627

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Calimesa Bl. | Job Number: 13594
Road Segment: n/o Cherry Valley Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,513 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	964 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	57 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	46.0 feet
Centerline Dist. to Observer:	46.0 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:	70.6%	13.6%	15.8%	97.19%
Medium Trucks:	80.3%	4.7%	14.9%	1.44%
Heavy Trucks:	75.9%	8.2%	15.9%	1.36%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.452
Medium Trucks:	36.209
Heavy Trucks:	36.232

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.03	1.96	-1.20	-4.63	0.000	0.000
Medium Trucks:	75.75	-19.31	2.00	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-19.56	1.99	-1.20	-5.47	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.0	62.9	61.7	57.6	65.2	65.7
Medium Trucks:	57.2	56.6	50.4	50.6	58.3	58.5
Heavy Trucks:	62.8	62.0	58.3	56.4	64.0	64.3
Vehicle Noise:	67.0	66.0	63.6	60.5	68.1	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	74	160	345
CNEL:	37	79	170	366

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,727 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	518 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-2.25	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-20.42	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-22.22	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.6	55.4	54.3	50.1	57.7	58.2
Medium Trucks:	50.5	49.9	43.6	43.8	51.5	51.7
Heavy Trucks:	55.9	55.0	51.4	49.5	57.1	57.4
Vehicle Noise:	59.8	58.8	56.3	53.3	60.9	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	24	51	110
CNEL:	12	25	54	116

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,139 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.99	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-20.16	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-21.96	1.31	-1.20	-5.50	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:	56.8	55.6	54.5	50.4	58.0	58.5
Medium Trucks:	50.7	50.1	43.9	44.1	51.8	52.0
Heavy Trucks:	56.1	55.3	51.6	49.7	57.3	57.6
Vehicle Noise:	60.0	59.1	56.6	53.6	61.2	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	25	53	114
CNEL:	12	26	56	121

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,139 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.99	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-20.16	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-21.96	1.31	-1.20	-5.50	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:	56.8	55.6	54.5	50.4	58.0	58.5
Medium Trucks:	50.7	50.1	43.9	44.1	51.8	52.0
Heavy Trucks:	56.1	55.3	51.6	49.7	57.3	57.6
Vehicle Noise:	60.0	59.1	56.6	53.6	61.2	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	25	53	114
CNEL:	12	26	56	121

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,139 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-1.99	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-20.16	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-21.96	1.31	-1.20	-5.50	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:	56.8	55.6	54.5	50.4	58.0	58.5
Medium Trucks:	50.7	50.1	43.9	44.1	51.8	52.0
Heavy Trucks:	56.1	55.3	51.6	49.7	57.3	57.6
Vehicle Noise:	60.0	59.1	56.6	53.6	61.2	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	25	53	114
CNEL:	12	26	56	121

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,354 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	720 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.82	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-18.99	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-20.79	1.31	-1.20	-5.50	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:	58.0	56.8	55.7	51.6	59.2	59.7
Medium Trucks:	51.9	51.3	45.0	45.2	52.9	53.1
Heavy Trucks:	57.3	56.4	52.8	50.9	58.5	58.8
Vehicle Noise:	61.2	60.2	57.7	54.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	29	63	136
CNEL:	14	31	67	145

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,429 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	726 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.55%
Medium Trucks:	80.3%	4.7%	14.9%	1.47%
Heavy Trucks:	75.9%	8.2%	15.9%	0.97%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.78	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-18.99	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-20.79	1.31	-1.20	-5.50	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:	58.0	56.9	55.7	51.6	59.2	59.7
Medium Trucks:	51.9	51.3	45.0	45.2	52.9	53.1
Heavy Trucks:	57.3	56.4	52.8	50.9	58.5	58.8
Vehicle Noise:	61.2	60.3	57.8	54.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	29	64	137
CNEL:	15	31	67	145

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,429 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	726 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.55%
Medium Trucks:	80.3%	4.7%	14.9%	1.47%
Heavy Trucks:	75.9%	8.2%	15.9%	0.97%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-0.78	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-18.99	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-20.79	1.31	-1.20	-5.50	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:	58.0	56.9	55.7	51.6	59.2	59.7
Medium Trucks:	51.9	51.3	45.0	45.2	52.9	53.1
Heavy Trucks:	57.3	56.4	52.8	50.9	58.5	58.8
Vehicle Noise:	61.2	60.3	57.8	54.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	29	64	137
CNEL:	15	31	67	145

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,296 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	947 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.37	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-17.80	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-19.60	1.31	-1.20	-5.50	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	58.0	56.9	52.8	60.4	60.9
Medium Trucks:	53.1	52.5	46.2	46.4	54.1	54.3
Heavy Trucks:	58.5	57.6	54.0	52.1	59.7	60.0
Vehicle Noise:	62.4	61.4	58.9	56.0	63.6	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	164
CNEL:	17	37	81	174

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,371 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	953 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.55%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.40	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-17.80	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-19.60	1.31	-1.20	-5.50	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	58.0	56.9	52.8	60.4	60.9
Medium Trucks:	53.1	52.5	46.2	46.4	54.1	54.3
Heavy Trucks:	58.5	57.6	54.0	52.1	59.7	60.0
Vehicle Noise:	62.4	61.4	58.9	56.0	63.6	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	164
CNEL:	17	38	81	174

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,371 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	953 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.55%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.40	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-17.80	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-19.60	1.31	-1.20	-5.50	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	58.0	56.9	52.8	60.4	60.9
Medium Trucks:	53.1	52.5	46.2	46.4	54.1	54.3
Heavy Trucks:	58.5	57.6	54.0	52.1	59.7	60.0
Vehicle Noise:	62.4	61.4	58.9	56.0	63.6	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	164
CNEL:	17	38	81	174

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: 5th St. | Job Number: 13594
Road Segment: e/o Sandalwood Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,350 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	951 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.54%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.39	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	70.80	-17.80	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	77.97	-19.60	1.31	-1.20	-5.50	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	58.0	56.9	52.8	60.4	60.9
Medium Trucks:	53.1	52.5	46.2	46.4	54.1	54.3
Heavy Trucks:	58.5	57.6	54.0	52.1	59.7	60.0
Vehicle Noise:	62.4	61.4	58.9	56.0	63.6	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	164
CNEL:	17	37	81	174

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Beckwith Av. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	957 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	74 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-10.72	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-28.89	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-30.69	4.63	-1.20	-5.90	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:	51.4	50.2	49.1	44.9	52.5	53.0
Medium Trucks:	45.3	44.7	38.5	38.7	46.4	46.6
Heavy Trucks:	50.7	49.9	46.2	44.3	51.9	52.2
Vehicle Noise:	54.6	53.6	51.1	48.2	55.8	56.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	6	14	29
CNEL:	3	7	14	31

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Beckwith Av. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,016 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	78 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-10.46	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-28.63	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-30.43	4.63	-1.20	-5.90	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:	51.6	50.4	49.3	45.2	52.8	53.3
Medium Trucks:	45.6	45.0	38.7	38.9	46.6	46.8
Heavy Trucks:	51.0	50.1	46.5	44.6	52.2	52.5
Vehicle Noise:	54.9	53.9	51.4	48.4	56.0	56.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	7	14	30
CNEL:	3	7	15	32

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 — *Project Name:* Oak Valley North SP
Road Name: Beckwith Av. — *Job Number:* 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,016 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	78 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-10.46	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-28.63	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-30.43	4.63	-1.20	-5.90	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:	51.6	50.4	49.3	45.2	52.8	53.3
Medium Trucks:	45.6	45.0	38.7	38.9	46.6	46.8
Heavy Trucks:	51.0	50.1	46.5	44.6	52.2	52.5
Vehicle Noise:	54.9	53.9	51.4	48.4	56.0	56.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	7	14	30
CNEL:	3	7	15	32

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 — *Project Name:* Oak Valley North SP
Road Name: Beckwith Av. — *Job Number:* 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,016 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	78 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-10.46	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-28.63	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-30.43	4.63	-1.20	-5.90	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:	51.6	50.4	49.3	45.2	52.8	53.3
Medium Trucks:	45.6	45.0	38.7	38.9	46.6	46.8
Heavy Trucks:	51.0	50.1	46.5	44.6	52.2	52.5
Vehicle Noise:	54.9	53.9	51.4	48.4	56.0	56.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	7	14	30
CNEL:	3	7	15	32

Monday, July 3, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP — *Project Name:* Oak Valley North SP
Road Name: Beckwith Av. — *Job Number:* 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,946 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	458 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-2.79	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-20.96	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-22.76	4.63	-1.20	-5.90	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:	59.3	58.1	57.0	52.9	60.5	61.0
Medium Trucks:	53.3	52.7	46.4	46.6	54.3	54.5
Heavy Trucks:	58.6	57.8	54.1	52.2	59.8	60.1
Vehicle Noise:	62.5	61.6	59.1	56.1	63.7	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	46	99
CNEL:	10	23	49	105

Monday, July 3, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 — *Project Name:* Oak Valley North SP
Road Name: Beckwith Av. — *Job Number:* 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,946 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	458 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-2.79	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-20.96	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-22.76	4.63	-1.20	-5.90	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:	59.3	58.1	57.0	52.9	60.5	61.0
Medium Trucks:	53.3	52.7	46.4	46.6	54.3	54.5
Heavy Trucks:	58.6	57.8	54.1	52.2	59.8	60.1
Vehicle Noise:	62.5	61.6	59.1	56.1	63.7	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	46	99
CNEL:	10	23	49	105

Monday, July 3, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | *Project Name:* Oak Valley North SP
Road Name: Beckwith Av. | *Job Number:* 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,946 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	458 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	-2.79	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-20.96	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-22.76	4.63	-1.20	-5.90	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:	59.3	58.1	57.0	52.9	60.5	61.0
Medium Trucks:	53.3	52.7	46.4	46.6	54.3	54.5
Heavy Trucks:	58.6	57.8	54.1	52.2	59.8	60.1
Vehicle Noise:	62.5	61.6	59.1	56.1	63.7	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	21	46	99
CNEL:	10	23	49	105

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | *Project Name:* Oak Valley North SP
Road Name: Beckwith Av. | *Job Number:* 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,212 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	940 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.34	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-17.83	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-19.63	4.63	-1.20	-5.90	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	61.2	60.1	56.0	63.6	64.1
Medium Trucks:	56.4	55.8	49.5	49.7	57.4	57.6
Heavy Trucks:	61.8	60.9	57.3	55.4	63.0	63.3
Vehicle Noise:	65.7	64.7	62.2	59.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	74	160
CNEL:	17	37	79	169

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | *Project Name:* Oak Valley North SP
Road Name: Beckwith Av. | *Job Number:* 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,212 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	940 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.34	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-17.83	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-19.63	4.63	-1.20	-5.90	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	61.2	60.1	56.0	63.6	64.1
Medium Trucks:	56.4	55.8	49.5	49.7	57.4	57.6
Heavy Trucks:	61.8	60.9	57.3	55.4	63.0	63.3
Vehicle Noise:	65.7	64.7	62.2	59.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	74	160
CNEL:	17	37	79	169

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | *Project Name:* Oak Valley North SP
Road Name: Beckwith Av. | *Job Number:* 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,212 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	940 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.34	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-17.83	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-19.63	4.63	-1.20	-5.90	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	61.2	60.1	56.0	63.6	64.1
Medium Trucks:	56.4	55.8	49.5	49.7	57.4	57.6
Heavy Trucks:	61.8	60.9	57.3	55.4	63.0	63.3
Vehicle Noise:	65.7	64.7	62.2	59.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	74	160
CNEL:	17	37	79	169

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Beckwith Av. | Job Number: 13594
Road Segment: s/o Singleton Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,244 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	943 vehicles
Vehicle Speed:	25 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.54%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	58.73	0.35	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	70.80	-17.83	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	77.97	-19.63	4.63	-1.20	-5.90	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	61.3	60.1	56.0	63.6	64.1
Medium Trucks:	56.4	55.8	49.5	49.7	57.4	57.6
Heavy Trucks:	61.8	60.9	57.3	55.4	63.0	63.3
Vehicle Noise:	65.7	64.7	62.2	59.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	74	160
CNEL:	17	37	79	170

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o I-10 EB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	0 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-41.99	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-60.16	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-61.96	1.31	-1.20	-5.50	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:	22.4	21.2	20.1	16.0	23.6	24.1
Medium Trucks:	15.7	15.1	8.8	9.0	16.7	16.9
Heavy Trucks:	19.7	18.9	15.2	13.3	20.9	21.2
Vehicle Noise:	24.8	23.8	21.6	18.4	26.0	26.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	0	1
CNEL:	0	0	0	1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o I-10 EB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,231 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	634 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.84	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-21.01	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.81	1.31	-1.20	-5.50	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	60.4	59.2	55.1	62.7	63.2
Medium Trucks:	54.9	54.2	48.0	48.2	55.9	56.1
Heavy Trucks:	58.9	58.0	54.4	52.5	60.1	60.4
Vehicle Noise:	64.0	63.0	60.7	57.5	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	45	97	209
CNEL:	22	48	103	222

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o I-10 EB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,231 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	634 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.84	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-21.01	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.81	1.31	-1.20	-5.50	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	60.4	59.2	55.1	62.7	63.2
Medium Trucks:	54.9	54.2	48.0	48.2	55.9	56.1
Heavy Trucks:	58.9	58.0	54.4	52.5	60.1	60.4
Vehicle Noise:	64.0	63.0	60.7	57.5	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	45	97	209
CNEL:	22	48	103	222

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o I-10 EB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,231 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	634 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.84	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-21.01	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.81	1.31	-1.20	-5.50	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	60.4	59.2	55.1	62.7	63.2
Medium Trucks:	54.9	54.2	48.0	48.2	55.9	56.1
Heavy Trucks:	58.9	58.0	54.4	52.5	60.1	60.4
Vehicle Noise:	64.0	63.0	60.7	57.5	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	45	97	209
CNEL:	22	48	103	222

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o I-10 EB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,389 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,263 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.69	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-15.48	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.28	1.31	-1.20	-5.50	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:	67.1	65.9	64.8	60.6	68.2	68.7
Medium Trucks:	60.4	59.8	53.5	53.7	61.4	61.6
Heavy Trucks:	64.4	63.5	59.9	58.0	65.6	65.9
Vehicle Noise:	69.5	68.5	66.2	63.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	105	226	488
CNEL:	52	112	241	519

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o I-10 EB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,595 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,279 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.55%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.72	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-15.48	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.28	1.31	-1.20	-5.50	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:	67.1	65.9	64.8	60.7	68.3	68.8
Medium Trucks:	60.4	59.8	53.5	53.7	61.4	61.6
Heavy Trucks:	64.4	63.5	59.9	58.0	65.6	65.9
Vehicle Noise:	69.5	68.5	66.3	63.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	105	227	489
CNEL:	52	112	242	521

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o I-10 EB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,660 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,284 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.55%
Medium Trucks:	80.3%	4.7%	14.9%	1.47%
Heavy Trucks:	75.9%	8.2%	15.9%	0.97%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.73	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-15.48	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-17.28	1.31	-1.20	-5.50	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:	67.1	65.9	64.8	60.7	68.3	68.8
Medium Trucks:	60.4	59.8	53.5	53.7	61.4	61.6
Heavy Trucks:	64.4	63.5	59.9	58.0	65.6	65.9
Vehicle Noise:	69.5	68.5	66.3	63.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	106	227	490
CNEL:	52	112	242	521

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP
Road Name: Singleton Rd.
Road Segment: w/o I-10 EB Ramps
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,966 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,923 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.80	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-14.37	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-16.17	1.31	-1.20	-5.50	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:	68.2	67.0	65.9	61.8	69.4	69.9
Medium Trucks:	61.5	60.9	54.6	54.8	62.5	62.7
Heavy Trucks:	65.5	64.7	61.0	59.1	66.7	67.0
Vehicle Noise:	70.6	69.6	67.3	64.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	579
CNEL:	62	133	286	616

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1
Road Name: Singleton Rd.
Road Segment: w/o I-10 EB Ramps
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,172 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,939 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.55%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.83	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-14.37	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-16.17	1.31	-1.20	-5.50	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:	68.2	67.0	65.9	61.8	69.4	69.9
Medium Trucks:	61.5	60.9	54.6	54.8	62.5	62.7
Heavy Trucks:	65.5	64.7	61.0	59.1	66.7	67.0
Vehicle Noise:	70.6	69.6	67.4	64.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	580
CNEL:	62	133	286	617

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2
Road Name: Singleton Rd.
Road Segment: w/o I-10 EB Ramps
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,237 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,944 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.55%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.84	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-14.37	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-16.17	1.31	-1.20	-5.50	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:	68.2	67.0	65.9	61.8	69.4	69.9
Medium Trucks:	61.5	60.9	54.6	54.8	62.5	62.7
Heavy Trucks:	65.5	64.7	61.0	59.1	66.7	67.0
Vehicle Noise:	70.6	69.6	67.4	64.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	580
CNEL:	62	133	287	617

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3
Road Name: Singleton Rd.
Road Segment: w/o I-10 EB Ramps
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,084 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,932 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.54%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.82	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	75.75	-14.37	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-16.17	1.31	-1.20	-5.50	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:	68.2	67.0	65.9	61.8	69.4	69.9
Medium Trucks:	61.5	60.9	54.6	54.8	62.5	62.7
Heavy Trucks:	65.5	64.7	61.0	59.1	66.7	67.0
Vehicle Noise:	70.6	69.6	67.4	64.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	579
CNEL:	62	133	286	616

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,526 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	426 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.66	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-23.83	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-25.63	1.31	-1.20	-5.50	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	61.7	60.6	56.5	64.1	64.6
Medium Trucks:	55.7	55.1	48.9	49.1	56.8	56.9
Heavy Trucks:	58.7	57.9	54.2	52.3	59.9	60.2
Vehicle Noise:	64.9	63.8	61.7	58.4	66.0	66.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	51	111	239
CNEL:	25	55	118	255

Monday, July 3, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,342 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	565 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.42	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-22.59	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-24.39	1.31	-1.20	-5.50	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:	64.1	62.9	61.8	57.7	65.3	65.8
Medium Trucks:	57.0	56.4	50.1	50.3	58.0	58.2
Heavy Trucks:	60.0	59.1	55.5	53.6	61.2	61.5
Vehicle Noise:	66.1	65.1	63.0	59.6	67.3	67.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	29	62	134	289
CNEL:	31	66	143	308

Monday, July 3, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,374 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	722 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	88.11%
Medium Trucks:	80.3%	4.7%	14.9%	1.96%
Heavy Trucks:	75.9%	8.2%	15.9%	9.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.80	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-20.33	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-13.28	1.31	-1.20	-5.50	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:	64.7	63.6	62.4	58.3	65.9	66.4
Medium Trucks:	59.2	58.6	52.4	52.6	60.3	60.4
Heavy Trucks:	71.1	70.2	66.6	64.7	72.3	72.6
Vehicle Noise:	72.2	71.3	68.1	65.8	73.4	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	159	343	740
CNEL:	78	168	362	779

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,841 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	835 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	85.45%
Medium Trucks:	80.3%	4.7%	14.9%	3.07%
Heavy Trucks:	75.9%	8.2%	15.9%	11.48%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.30	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.76	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-12.02	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	64.1	62.9	58.8	66.4	66.9
Medium Trucks:	61.8	61.2	54.9	55.1	62.8	63.0
Heavy Trucks:	72.3	71.5	67.8	65.9	73.5	73.8
Vehicle Noise:	73.4	72.5	69.2	67.0	74.6	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	192	414	891
CNEL:	94	202	435	937

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,258 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,714 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.39	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.78	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.58	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	67.8	66.6	62.5	70.1	70.6
Medium Trucks:	61.8	61.2	54.9	55.1	62.8	63.0
Heavy Trucks:	64.8	63.9	60.3	58.4	66.0	66.3
Vehicle Noise:	70.9	69.9	67.8	64.5	72.1	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	281	605
CNEL:	64	139	299	644

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,966 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,922 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	94.06%
Medium Trucks:	80.3%	4.7%	14.9%	1.62%
Heavy Trucks:	75.9%	8.2%	15.9%	4.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.74	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-16.89	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-12.65	1.31	-1.20	-5.50	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:	69.3	68.1	67.0	62.8	70.4	70.9
Medium Trucks:	62.7	62.1	55.8	56.0	63.7	63.9
Heavy Trucks:	71.7	70.9	67.2	65.3	72.9	73.2
Vehicle Noise:	74.0	73.1	70.3	67.6	75.2	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	210	452	974
CNEL:	103	222	478	1,030

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,523 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,042 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	92.33%
Medium Trucks:	80.3%	4.7%	14.9%	2.14%
Heavy Trucks:	75.9%	8.2%	15.9%	5.53%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.92	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-15.43	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-11.31	1.31	-1.20	-5.50	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:	69.5	68.3	67.2	63.0	70.6	71.1
Medium Trucks:	64.1	63.5	57.3	57.5	65.2	65.4
Heavy Trucks:	73.1	72.2	68.6	66.7	74.2	74.5
Vehicle Noise:	75.0	74.1	71.1	68.6	76.2	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	244	526	1,134
CNEL:	120	258	556	1,197

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,159 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,630 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.25	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-15.92	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.72	1.31	-1.20	-5.50	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	69.6	68.5	64.4	72.0	72.5
Medium Trucks:	63.6	63.0	56.8	57.0	64.7	64.9
Heavy Trucks:	66.6	65.8	62.1	60.2	67.8	68.1
Vehicle Noise:	72.8	71.8	69.6	66.3	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	173	373	805
CNEL:	86	185	398	857

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | *Project Name:* Oak Valley North SP
Road Name: Singleton Rd. | *Job Number:* 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,867 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,839 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	95.18%
Medium Trucks:	80.3%	4.7%	14.9%	1.58%
Heavy Trucks:	75.9%	8.2%	15.9%	3.24%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.48	1.28	-1.20	*-4.61*	0.000	0.000
Medium Trucks:	79.45	-15.32	1.31	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.20	1.31	-1.20	*-5.50*	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	69.8	68.7	64.6	72.2	72.7
Medium Trucks:	64.2	63.6	57.4	57.6	65.3	65.5
Heavy Trucks:	72.2	71.3	67.7	65.8	73.3	73.7
Vehicle Noise:	75.0	74.1	71.4	68.6	76.2	76.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	114	245	528	1,137
CNEL:	120	259	559	1,204

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | *Project Name:* Oak Valley North SP
Road Name: Singleton Rd. | *Job Number:* 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,424 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,959 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	93.94%
Medium Trucks:	80.3%	4.7%	14.9%	1.94%
Heavy Trucks:	75.9%	8.2%	15.9%	4.12%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.60	1.28	-1.20	*-4.61*	0.000	0.000
Medium Trucks:	79.45	-14.25	1.31	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-10.98	1.31	-1.20	*-5.50*	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	70.0	68.8	64.7	72.3	72.8
Medium Trucks:	65.3	64.7	58.4	58.6	66.3	66.5
Heavy Trucks:	73.4	72.5	68.9	67.0	74.6	74.9
Vehicle Noise:	75.8	74.9	72.1	69.4	77.0	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	129	277	597	1,287
CNEL:	136	293	631	1,360

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | *Project Name:* Oak Valley North SP
Road Name: Singleton Rd. | *Job Number:* 13594
Road Segment: w/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,767 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,677 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.20%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.32	1.28	-1.20	*-4.61*	0.000	0.000
Medium Trucks:	79.45	-15.83	1.31	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-16.39	1.31	-1.20	*-5.50*	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	69.7	68.6	64.4	72.0	72.5
Medium Trucks:	63.7	63.1	56.9	57.1	64.8	64.9
Heavy Trucks:	68.0	67.1	63.5	61.6	69.2	69.5
Vehicle Noise:	73.2	72.2	69.9	66.7	74.3	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	86	185	398	857
CNEL:	91	197	423	912

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | *Project Name:* Oak Valley North SP
Road Name: Singleton Rd. | *Job Number:* 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,456 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	651 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.81	1.28	-1.20	*-4.61*	0.000	0.000
Medium Trucks:	79.45	-21.98	1.31	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-23.78	1.31	-1.20	*-5.50*	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:	64.7	63.6	62.4	58.3	65.9	66.4
Medium Trucks:	57.6	57.0	50.7	50.9	58.6	58.8
Heavy Trucks:	60.6	59.7	56.1	54.2	61.8	62.1
Vehicle Noise:	66.7	65.7	63.6	60.3	67.9	68.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	32	68	147	317
CNEL:	34	73	157	338

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,512 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	732 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.30	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.47	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.27	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	64.1	62.9	58.8	66.4	66.9
Medium Trucks:	58.1	57.5	51.2	51.4	59.1	59.3
Heavy Trucks:	61.1	60.2	56.6	54.7	62.3	62.6
Vehicle Noise:	67.2	66.2	64.1	60.8	68.4	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	74	159	343
CNEL:	37	79	170	366

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,611 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	740 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.26%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.24%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.27	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.40	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.20	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	64.1	63.0	58.8	66.4	66.9
Medium Trucks:	58.2	57.6	51.3	51.5	59.2	59.4
Heavy Trucks:	62.2	61.3	57.7	55.8	63.3	63.7
Vehicle Noise:	67.5	66.5	64.3	61.1	68.7	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	36	78	167	360
CNEL:	38	83	178	383

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,738 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	750 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	96.66%
Medium Trucks:	80.3%	4.7%	14.9%	1.60%
Heavy Trucks:	75.9%	8.2%	15.9%	1.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.24	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.05	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.69	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	64.1	63.0	58.9	66.5	67.0
Medium Trucks:	58.5	57.9	51.6	51.8	59.5	59.7
Heavy Trucks:	63.7	62.8	59.2	57.3	64.9	65.2
Vehicle Noise:	68.1	67.1	64.7	61.6	69.2	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	182	392
CNEL:	42	90	193	416

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,370 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,645 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.22	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.95	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.75	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.6	66.5	62.3	69.9	70.4
Medium Trucks:	61.6	61.0	54.7	54.9	62.6	62.8
Heavy Trucks:	64.6	63.8	60.1	58.2	65.8	66.1
Vehicle Noise:	70.7	69.7	67.6	64.3	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	59	127	273	588
CNEL:	63	135	291	627

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,544 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,659 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.42%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.09%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.25	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.92	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.25	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.6	66.5	62.4	70.0	70.5
Medium Trucks:	61.6	61.0	54.8	55.0	62.7	62.9
Heavy Trucks:	65.1	64.3	60.6	58.7	66.3	66.6
Vehicle Noise:	70.9	69.9	67.7	64.4	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	280	602
CNEL:	64	138	298	642

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,626 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,665 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.35%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.15%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.26	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.86	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.03	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.6	66.5	62.4	70.0	70.5
Medium Trucks:	61.7	61.1	54.8	55.0	62.7	62.9
Heavy Trucks:	65.3	64.5	60.8	58.9	66.5	66.8
Vehicle Noise:	71.0	69.9	67.8	64.5	72.1	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	131	283	609
CNEL:	65	140	301	649

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,963 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,538 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.10	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-16.07	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.87	1.31	-1.20	-5.50	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	69.5	68.3	64.2	71.8	72.3
Medium Trucks:	63.5	62.9	56.6	56.8	64.5	64.7
Heavy Trucks:	66.5	65.6	62.0	60.1	67.7	68.0
Vehicle Noise:	72.6	71.6	69.5	66.2	73.8	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	169	365	786
CNEL:	84	180	389	837

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,137 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,552 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.46%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.12	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-16.05	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.54	1.31	-1.20	-5.50	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:	70.7	69.5	68.4	64.2	71.8	72.3
Medium Trucks:	63.5	62.9	56.6	56.8	64.5	64.7
Heavy Trucks:	66.8	66.0	62.3	60.4	68.0	68.3
Vehicle Noise:	72.7	71.7	69.6	66.3	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	172	370	798
CNEL:	85	183	395	850

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | *Project Name:* Oak Valley North SP
Road Name: Singleton Rd. | *Job Number:* 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,219 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,558 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.42%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.09%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.13	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-16.01	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.39	1.31	-1.20	-5.50	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:	70.7	69.5	68.4	64.2	71.8	72.3
Medium Trucks:	63.6	62.9	56.7	56.9	64.6	64.8
Heavy Trucks:	67.0	66.1	62.5	60.6	68.2	68.5
Vehicle Noise:	72.8	71.7	69.6	66.3	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	173	373	804
CNEL:	86	184	397	856

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | *Project Name:* Oak Valley North SP
Road Name: Singleton Rd. | *Job Number:* 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,085 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,548 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.99%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.12	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-16.07	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-17.82	1.31	-1.20	-5.50	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:	70.7	69.5	68.4	64.2	71.8	72.3
Medium Trucks:	63.5	62.9	56.6	56.8	64.5	64.7
Heavy Trucks:	66.5	65.7	62.0	60.1	67.7	68.0
Vehicle Noise:	72.6	71.6	69.5	66.2	73.8	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	366	788
CNEL:	84	181	390	840

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | *Project Name:* Oak Valley North SP
Road Name: Singleton Rd. | *Job Number:* 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,811 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	601 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.15	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-22.33	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-24.12	1.31	-1.20	-5.50	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:	64.4	63.2	62.1	58.0	65.6	66.1
Medium Trucks:	57.2	56.6	50.4	50.6	58.3	58.5
Heavy Trucks:	60.2	59.4	55.7	53.8	61.4	61.7
Vehicle Noise:	66.4	65.3	63.2	59.9	67.5	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	65	140	301
CNEL:	32	69	149	321

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | *Project Name:* Oak Valley North SP
Road Name: Singleton Rd. | *Job Number:* 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,827 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	680 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.62	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.79	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.59	1.31	-1.20	-5.50	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	63.7	62.6	58.5	66.1	66.6
Medium Trucks:	57.8	57.2	50.9	51.1	58.8	59.0
Heavy Trucks:	60.8	59.9	56.3	54.4	62.0	62.3
Vehicle Noise:	66.9	65.9	63.8	60.4	68.1	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	33	70	151	326
CNEL:	35	75	161	348

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,926 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	687 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.24%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.26%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.59	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.72	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.45	1.31	-1.20	-5.50	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	63.8	62.7	58.5	66.1	66.6
Medium Trucks:	57.8	57.2	51.0	51.2	58.9	59.1
Heavy Trucks:	61.9	61.1	57.4	55.5	63.1	63.4
Vehicle Noise:	67.2	66.2	64.0	60.8	68.4	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	34	74	160	344
CNEL:	37	79	170	366

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,053 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	697 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	96.60%
Medium Trucks:	80.3%	4.7%	14.9%	1.61%
Heavy Trucks:	75.9%	8.2%	15.9%	1.79%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.56	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.34	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.87	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.0	63.8	62.7	58.6	66.2	66.7
Medium Trucks:	58.2	57.6	51.3	51.5	59.2	59.4
Heavy Trucks:	63.5	62.6	59.0	57.1	64.7	65.0
Vehicle Noise:	67.8	66.8	64.4	61.4	69.0	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	81	175	376
CNEL:	40	86	186	400

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,693 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,208 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.12	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-19.30	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-21.09	1.31	-1.20	-5.50	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:	67.4	66.2	65.1	61.0	68.6	69.1
Medium Trucks:	60.3	59.7	53.4	53.6	61.3	61.5
Heavy Trucks:	63.3	62.4	58.8	56.9	64.5	64.8
Vehicle Noise:	69.4	68.4	66.3	62.9	70.6	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	103	222	479
CNEL:	51	110	237	511

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,867 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,222 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.38%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.14%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.08	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-19.25	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.42	1.31	-1.20	-5.50	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:	67.5	66.3	65.2	61.0	68.6	69.1
Medium Trucks:	60.3	59.7	53.4	53.6	61.3	61.5
Heavy Trucks:	63.9	63.1	59.4	57.5	65.1	65.4
Vehicle Noise:	69.6	68.6	66.4	63.2	70.8	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	107	229	494
CNEL:	53	113	244	527

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,949 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,228 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.29%
Medium Trucks:	80.3%	4.7%	14.9%	1.51%
Heavy Trucks:	75.9%	8.2%	15.9%	1.20%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.06	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-19.16	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.14	1.31	-1.20	-5.50	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:	67.5	66.3	65.2	61.0	68.6	69.1
Medium Trucks:	60.4	59.8	53.5	53.7	61.4	61.6
Heavy Trucks:	64.2	63.4	59.7	57.8	65.4	65.7
Vehicle Noise:	69.7	68.7	66.5	63.3	70.9	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	233	502
CNEL:	53	115	248	534

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,477 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,885 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.81	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.36	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.16	1.31	-1.20	-5.50	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:	69.3	68.2	67.0	62.9	70.5	71.0
Medium Trucks:	62.2	61.6	55.3	55.5	63.2	63.4
Heavy Trucks:	65.2	64.3	60.7	58.8	66.4	66.7
Vehicle Noise:	71.3	70.3	68.2	64.9	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	139	299	644
CNEL:	69	148	319	687

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,651 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,898 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.43%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.08%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.83	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.34	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-18.72	1.31	-1.20	-5.50	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:	69.4	68.2	67.1	62.9	70.5	71.0
Medium Trucks:	62.2	61.6	55.3	55.6	63.3	63.4
Heavy Trucks:	65.6	64.8	61.1	59.2	66.8	67.1
Vehicle Noise:	71.5	70.4	68.3	65.0	72.6	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	142	305	658
CNEL:	70	151	325	701

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,733 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,904 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.38%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.12%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.84	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.28	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-18.53	1.31	-1.20	-5.50	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:	69.4	68.2	67.1	63.0	70.6	71.1
Medium Trucks:	62.3	61.7	55.4	55.6	63.3	63.5
Heavy Trucks:	65.8	65.0	61.3	59.4	67.0	67.3
Vehicle Noise:	71.5	70.5	68.3	65.1	72.7	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	143	308	664
CNEL:	71	152	328	707

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: w/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,566 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,892 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.52%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.99%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.82	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.36	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.10	1.31	-1.20	-5.50	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:	69.4	68.2	67.1	62.9	70.5	71.0
Medium Trucks:	62.2	61.6	55.3	55.5	63.2	63.4
Heavy Trucks:	65.3	64.4	60.8	58.9	66.5	66.8
Vehicle Noise:	71.3	70.3	68.2	64.9	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	139	300	647
CNEL:	69	149	320	689

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,779 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	676 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.65	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.82	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.62	1.31	-1.20	-5.50	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	63.7	62.6	58.5	66.1	66.6
Medium Trucks:	57.7	57.1	50.9	51.1	58.8	59.0
Heavy Trucks:	60.7	59.9	56.2	54.3	61.9	62.2
Vehicle Noise:	66.9	65.9	63.7	60.4	68.0	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	33	70	151	325
CNEL:	35	75	161	347

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,854 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	759 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.14	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.32	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-23.12	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	64.2	63.1	59.0	66.6	67.1
Medium Trucks:	58.2	57.6	51.4	51.6	59.3	59.5
Heavy Trucks:	61.2	60.4	56.7	54.9	62.4	62.7
Vehicle Noise:	67.4	66.4	64.2	60.9	68.5	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	76	163	351
CNEL:	37	81	174	374

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,953 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	766 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.27%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.23%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.11	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-21.25	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-22.08	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	64.3	63.1	59.0	66.6	67.1
Medium Trucks:	58.3	57.7	51.4	51.6	59.3	59.5
Heavy Trucks:	62.3	61.4	57.8	55.9	63.5	63.8
Vehicle Noise:	67.7	66.7	64.5	61.2	68.8	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	171	368
CNEL:	39	84	182	392

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,080 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	776 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	96.69%
Medium Trucks:	80.3%	4.7%	14.9%	1.60%
Heavy Trucks:	75.9%	8.2%	15.9%	1.71%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.08	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-20.91	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.61	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	64.3	63.2	59.0	66.6	67.1
Medium Trucks:	58.7	58.0	51.8	52.0	59.7	59.9
Heavy Trucks:	63.8	62.9	59.3	57.4	64.9	65.2
Vehicle Noise:	68.2	67.2	64.9	61.8	69.4	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	86	185	399
CNEL:	42	91	197	424

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,638 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,281 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.87	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-19.04	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.84	1.31	-1.20	-5.50	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:	67.7	66.5	65.4	61.2	68.8	69.3
Medium Trucks:	60.5	59.9	53.6	53.8	61.5	61.7
Heavy Trucks:	63.5	62.7	59.0	57.1	64.7	65.0
Vehicle Noise:	69.6	68.6	66.5	63.2	70.8	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	107	231	498
CNEL:	53	114	246	531

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,812 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,295 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.39%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.13%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.83	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-19.00	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.20	1.31	-1.20	-5.50	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:	67.7	66.5	65.4	61.3	68.9	69.4
Medium Trucks:	60.6	60.0	53.7	53.9	61.6	61.8
Heavy Trucks:	64.2	63.3	59.7	57.8	65.4	65.7
Vehicle Noise:	69.8	68.8	66.7	63.4	71.0	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	111	238	513
CNEL:	55	118	254	547

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Singleton Rd. | Job Number: 13594
Road Segment: e/o Singleton Cyn. Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,894 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,301 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.30%
Medium Trucks:	80.3%	4.7%	14.9%	1.51%
Heavy Trucks:	75.9%	8.2%	15.9%	1.19%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.81	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-18.92	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.94	1.31	-1.20	-5.50	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:	67.7	66.6	65.4	61.3	68.9	69.4
Medium Trucks:	60.6	60.0	53.8	54.0	61.7	61.9
Heavy Trucks:	64.4	63.6	59.9	58.0	65.6	65.9
Vehicle Noise:	69.9	68.9	66.7	63.5	71.1	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	112	242	521
CNEL:	55	119	257	554

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP
Road Name: Singleton Rd.
Road Segment: e/o Singleton Cyn. Rd.
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,731 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,750 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.49	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.69	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.49	1.31	-1.20	-5.50	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	67.9	66.7	62.6	70.2	70.7
Medium Trucks:	61.9	61.3	55.0	55.2	62.9	63.1
Heavy Trucks:	64.9	64.0	60.4	58.5	66.1	66.4
Vehicle Noise:	71.0	70.0	67.9	64.6	72.2	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	132	285	613
CNEL:	65	141	303	654

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1
Road Name: Singleton Rd.
Road Segment: e/o Singleton Cyn. Rd.
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,905 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,764 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.43%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.09%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.51	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.66	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.01	1.31	-1.20	-5.50	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:	69.1	67.9	66.8	62.6	70.2	70.7
Medium Trucks:	61.9	61.3	55.0	55.2	62.9	63.1
Heavy Trucks:	65.4	64.5	60.9	59.0	66.5	66.9
Vehicle Noise:	71.1	70.1	68.0	64.7	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	135	291	627
CNEL:	67	144	310	668

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2
Road Name: Singleton Rd.
Road Segment: e/o Singleton Cyn. Rd.
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,987 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,770 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.36%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.14%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.53	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.59	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-18.81	1.31	-1.20	-5.50	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:	69.1	67.9	66.8	62.6	70.2	70.7
Medium Trucks:	62.0	61.4	55.1	55.3	63.0	63.2
Heavy Trucks:	65.6	64.7	61.1	59.2	66.7	67.1
Vehicle Noise:	71.2	70.2	68.0	64.8	72.4	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	136	294	634
CNEL:	67	145	313	675

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3
Road Name: Singleton Rd.
Road Segment: e/o Singleton Cyn. Rd.
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,799 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,756 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 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:	70.6%	13.6%	15.8%	97.52%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.50	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.68	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.42	1.31	-1.20	-5.50	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	67.9	66.7	62.6	70.2	70.7
Medium Trucks:	61.9	61.3	55.0	55.2	62.9	63.1
Heavy Trucks:	64.9	64.1	60.4	58.6	66.1	66.4
Vehicle Noise:	71.0	70.0	67.9	64.6	72.2	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	286	616
CNEL:	66	141	305	656

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: w/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,701 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,055 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-0.62	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-18.79	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-20.59	4.63	-1.20	-5.90	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:	67.0	65.9	64.7	60.6	68.2	68.7
Medium Trucks:	60.4	59.8	53.5	53.7	61.4	61.6
Heavy Trucks:	64.4	63.5	59.9	58.0	65.6	65.9
Vehicle Noise:	69.5	68.5	66.2	63.0	70.6	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	29	62	133	287
CNEL:	31	66	142	305

Monday, July 3, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: w/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,738 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,443 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.74	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-17.43	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-19.23	4.63	-1.20	-5.90	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	67.2	66.1	62.0	69.6	70.1
Medium Trucks:	61.8	61.1	54.9	55.1	62.8	63.0
Heavy Trucks:	65.8	64.9	61.3	59.4	67.0	67.3
Vehicle Noise:	70.8	69.8	67.6	64.4	72.0	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	76	164	354
CNEL:	38	81	175	376

Monday, July 3, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: w/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,837 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,450 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.39%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.11%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.75	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-17.40	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-18.66	4.63	-1.20	-5.90	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	67.2	66.1	62.0	69.6	70.1
Medium Trucks:	61.8	61.2	54.9	55.1	62.8	63.0
Heavy Trucks:	66.3	65.5	61.8	59.9	67.5	67.8
Vehicle Noise:	71.0	70.1	67.7	64.6	72.2	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	36	79	169	365
CNEL:	39	84	180	388

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: w/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,964 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,460 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.09%
Medium Trucks:	80.3%	4.7%	14.9%	1.54%
Heavy Trucks:	75.9%	8.2%	15.9%	1.37%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.77	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-17.21	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.74	4.63	-1.20	-5.90	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	67.2	66.1	62.0	69.6	70.1
Medium Trucks:	62.0	61.4	55.1	55.3	63.0	63.2
Heavy Trucks:	67.3	66.4	62.8	60.9	68.4	68.8
Vehicle Noise:	71.4	70.4	68.0	65.0	72.6	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	83	179	386
CNEL:	41	88	190	410

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP
Road Name: Cherry Valley Bl.
Road Segment: w/o Roberts Rd.
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,725 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,827 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.76	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-16.41	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-18.21	4.63	-1.20	-5.90	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:	69.4	68.2	67.1	63.0	70.6	71.1
Medium Trucks:	62.8	62.2	55.9	56.1	63.8	64.0
Heavy Trucks:	66.8	65.9	62.3	60.4	68.0	68.3
Vehicle Noise:	71.9	70.9	68.6	65.4	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	89	192	414
CNEL:	44	95	204	441

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1
Road Name: Cherry Valley Bl.
Road Segment: w/o Roberts Rd.
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,869 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,838 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.43%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.09%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.78	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-16.38	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.75	4.63	-1.20	-5.90	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:	69.4	68.3	67.1	63.0	70.6	71.1
Medium Trucks:	62.8	62.2	55.9	56.1	63.8	64.0
Heavy Trucks:	67.2	66.4	62.8	60.9	68.4	68.7
Vehicle Noise:	72.0	71.0	68.7	65.6	73.2	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	91	197	425
CNEL:	45	97	210	452

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2
Road Name: Cherry Valley Bl.
Road Segment: w/o Roberts Rd.
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,951 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,844 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.37%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.13%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.80	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-16.32	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.55	4.63	-1.20	-5.90	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:	69.4	68.3	67.1	63.0	70.6	71.1
Medium Trucks:	62.9	62.3	56.0	56.2	63.9	64.1
Heavy Trucks:	67.4	66.6	62.9	61.0	68.6	68.9
Vehicle Noise:	72.1	71.1	68.8	65.7	73.3	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	43	93	200	430
CNEL:	46	98	212	457

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP
Road Name: Cherry Valley Bl.
Road Segment: w/o Roberts Rd.
Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,605 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,049 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.26	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.91	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.71	4.63	-1.20	-5.90	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:	69.9	68.7	67.6	63.5	71.1	71.6
Medium Trucks:	63.3	62.7	56.4	56.6	64.3	64.5
Heavy Trucks:	67.3	66.4	62.8	60.9	68.5	68.8
Vehicle Noise:	72.4	71.4	69.1	65.9	73.5	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	96	207	447
CNEL:	48	102	221	475

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | *Project Name:* Oak Valley North SP
Road Name: Cherry Valley Bl. | *Job Number:* 13594
Road Segment: w/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,749 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,060 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.44%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.07%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.28	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.89	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.30	4.63	-1.20	-5.90	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:	69.9	68.8	67.6	63.5	71.1	71.6
Medium Trucks:	63.3	62.7	56.4	56.6	64.3	64.5
Heavy Trucks:	67.7	66.8	63.2	61.3	68.9	69.2
Vehicle Noise:	72.5	71.5	69.2	66.1	73.7	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	98	212	457
CNEL:	49	105	226	486

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | *Project Name:* Oak Valley North SP
Road Name: Cherry Valley Bl. | *Job Number:* 13594
Road Segment: w/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,831 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,066 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.38%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.11%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.29	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.83	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.12	4.63	-1.20	-5.90	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:	69.9	68.8	67.6	63.5	71.1	71.6
Medium Trucks:	63.4	62.7	56.5	56.7	64.4	64.6
Heavy Trucks:	67.9	67.0	63.4	61.5	69.1	69.4
Vehicle Noise:	72.6	71.6	69.3	66.1	73.7	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	100	215	462
CNEL:	49	106	228	491

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | *Project Name:* Oak Valley North SP
Road Name: Cherry Valley Bl. | *Job Number:* 13594
Road Segment: w/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,781 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,062 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.99%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.29	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.91	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.65	4.63	-1.20	-5.90	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:	69.9	68.8	67.6	63.5	71.1	71.6
Medium Trucks:	63.3	62.7	56.4	56.6	64.3	64.5
Heavy Trucks:	67.3	66.5	62.8	61.0	68.5	68.8
Vehicle Noise:	72.4	71.4	69.1	66.0	73.6	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	97	209	449
CNEL:	48	103	222	478

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | *Project Name:* Oak Valley North SP
Road Name: Cherry Valley Bl. | *Job Number:* 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,854 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,529 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	0.99	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-17.18	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-18.98	4.63	-1.20	-5.90	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	67.5	66.3	62.2	69.8	70.3
Medium Trucks:	62.0	61.4	55.1	55.3	63.0	63.2
Heavy Trucks:	66.0	65.2	61.5	59.6	67.2	67.5
Vehicle Noise:	71.1	70.1	67.8	64.7	72.3	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	171	368
CNEL:	39	84	182	391

Monday, July 3, 2023

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,739 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,059 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.28	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.89	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.69	4.63	-1.20	-5.90	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:	69.9	68.8	67.6	63.5	71.1	71.6
Medium Trucks:	63.3	62.7	56.4	56.6	64.3	64.5
Heavy Trucks:	67.3	66.5	62.8	60.9	68.5	68.8
Vehicle Noise:	72.4	71.4	69.1	65.9	73.6	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	97	208	449
CNEL:	48	103	221	477

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,838 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,067 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.44%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.08%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.29	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.86	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.28	4.63	-1.20	-5.90	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:	69.9	68.8	67.6	63.5	71.1	71.6
Medium Trucks:	63.3	62.7	56.4	56.7	64.4	64.5
Heavy Trucks:	67.7	66.9	63.2	61.3	68.9	69.2
Vehicle Noise:	72.5	71.5	69.2	66.1	73.7	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	99	213	458
CNEL:	49	105	226	487

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,965 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,076 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.22%
Medium Trucks:	80.3%	4.7%	14.9%	1.53%
Heavy Trucks:	75.9%	8.2%	15.9%	1.25%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.30	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.73	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.59	4.63	-1.20	-5.90	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:	69.9	68.8	67.6	63.5	71.1	71.6
Medium Trucks:	63.5	62.8	56.6	56.8	64.5	64.7
Heavy Trucks:	68.4	67.6	63.9	62.0	69.6	69.9
Vehicle Noise:	72.8	71.8	69.4	66.4	74.0	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	103	221	477
CNEL:	51	109	235	507

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,162 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,476 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.08	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.09	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.89	4.63	-1.20	-5.90	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:	70.7	69.6	68.4	64.3	71.9	72.4
Medium Trucks:	64.1	63.5	57.2	57.4	65.1	65.3
Heavy Trucks:	68.1	67.3	63.6	61.7	69.3	69.6
Vehicle Noise:	73.2	72.2	69.9	66.7	74.4	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	109	235	507
CNEL:	54	116	250	540

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,336 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,490 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.46%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.10	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.07	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.54	4.63	-1.20	-5.90	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:	70.7	69.6	68.4	64.3	71.9	72.4
Medium Trucks:	64.1	63.5	57.2	57.4	65.1	65.3
Heavy Trucks:	68.5	67.6	64.0	62.1	69.6	69.9
Vehicle Noise:	73.3	72.3	70.0	66.9	74.5	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	111	240	517
CNEL:	55	118	255	550

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,418 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,496 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.41%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.09%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.11	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.02	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.40	4.63	-1.20	-5.90	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	69.6	68.5	64.3	71.9	72.4
Medium Trucks:	64.2	63.6	57.3	57.5	65.2	65.4
Heavy Trucks:	68.6	67.7	64.1	62.2	69.8	70.1
Vehicle Noise:	73.4	72.4	70.1	66.9	74.5	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	112	242	522
CNEL:	55	119	257	555

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,566 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,662 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.40	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-14.77	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.57	4.63	-1.20	-5.90	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	69.9	68.7	64.6	72.2	72.7
Medium Trucks:	64.4	63.8	57.5	57.7	65.4	65.6
Heavy Trucks:	68.4	67.6	63.9	62.0	69.6	69.9
Vehicle Noise:	73.5	72.5	70.2	67.1	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	115	247	532
CNEL:	57	122	263	566

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,740 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,675 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.46%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.05%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.42	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-14.76	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.25	4.63	-1.20	-5.90	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	69.9	68.8	64.6	72.2	72.7
Medium Trucks:	64.4	63.8	57.6	57.8	65.5	65.6
Heavy Trucks:	68.7	67.9	64.2	62.3	69.9	70.2
Vehicle Noise:	73.6	72.6	70.3	67.2	74.8	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	117	251	542
CNEL:	58	124	267	576

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,822 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,681 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.42%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.08%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.42	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-14.71	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.11	4.63	-1.20	-5.90	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	69.9	68.8	64.6	72.2	72.7
Medium Trucks:	64.5	63.9	57.6	57.8	65.5	65.7
Heavy Trucks:	68.9	68.0	64.4	62.5	70.1	70.4
Vehicle Noise:	73.7	72.7	70.4	67.2	74.8	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	254	546
CNEL:	58	125	270	581

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Roberts Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,796 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,679 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.54%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.99%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	3.43	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-14.77	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.53	4.63	-1.20	-5.90	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	69.9	68.8	64.6	72.2	72.7
Medium Trucks:	64.4	63.8	57.5	57.7	65.4	65.6
Heavy Trucks:	68.5	67.6	64.0	62.1	69.7	70.0
Vehicle Noise:	73.5	72.5	70.3	67.1	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	115	248	535
CNEL:	57	123	264	569

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,772 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	752 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-4.05	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	82.40	-22.22	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	86.40	-24.02	4.63	-1.20	-5.90	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	69.9	68.8	64.6	72.2	72.7
Medium Trucks:	63.6	63.0	56.7	56.9	64.6	64.8
Heavy Trucks:	65.8	64.9	61.3	59.4	67.0	67.3
Vehicle Noise:	72.8	71.7	69.7	66.3	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	102	220	475
CNEL:	51	109	235	507

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,100 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,625 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.71	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	82.40	-18.88	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	86.40	-20.68	4.63	-1.20	-5.90	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:	74.4	73.2	72.1	68.0	75.6	76.1
Medium Trucks:	67.0	66.4	60.1	60.3	68.0	68.2
Heavy Trucks:	69.1	68.3	64.6	62.7	70.3	70.6
Vehicle Noise:	76.1	75.1	73.1	69.7	77.3	77.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	171	368	793
CNEL:	85	182	393	846

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | *Project Name:* Oak Valley North SP
Road Name: Cherry Valley Bl. | *Job Number:* 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,957 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,691 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	95.83%
Medium Trucks:	80.3%	4.7%	14.9%	1.57%
Heavy Trucks:	75.9%	8.2%	15.9%	2.60%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.61	4.54	-1.20	*-4.43*	0.000	0.000
Medium Trucks:	82.40	-18.46	4.64	-1.20	*-4.85*	0.000	0.000
Heavy Trucks:	86.40	-16.27	4.63	-1.20	*-5.90*	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:	74.5	73.3	72.2	68.1	75.7	76.2
Medium Trucks:	67.4	66.8	60.5	60.7	68.4	68.6
Heavy Trucks:	73.5	72.7	69.1	67.2	74.7	75.0
Vehicle Noise:	77.5	76.5	74.1	71.1	78.7	79.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	98	212	457	985
CNEL:	105	225	485	1,046

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | *Project Name:* Oak Valley North SP
Road Name: Cherry Valley Bl. | *Job Number:* 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,567 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,738 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	95.10%
Medium Trucks:	80.3%	4.7%	14.9%	1.80%
Heavy Trucks:	75.9%	8.2%	15.9%	3.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.53	4.54	-1.20	*-4.43*	0.000	0.000
Medium Trucks:	82.40	-17.75	4.64	-1.20	*-4.85*	0.000	0.000
Heavy Trucks:	86.40	-15.40	4.63	-1.20	*-5.90*	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:	74.6	73.4	72.3	68.2	75.8	76.3
Medium Trucks:	68.1	67.5	61.2	61.4	69.1	69.3
Heavy Trucks:	74.4	73.6	69.9	68.0	75.6	75.9
Vehicle Noise:	78.0	77.0	74.5	71.6	79.2	79.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	106	228	492	1,060
CNEL:	112	242	522	1,124

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | *Project Name:* Oak Valley North SP
Road Name: Cherry Valley Bl. | *Job Number:* 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,943 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,306 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.81	4.54	-1.20	*-4.43*	0.000	0.000
Medium Trucks:	82.40	-17.36	4.64	-1.20	*-4.85*	0.000	0.000
Heavy Trucks:	86.40	-19.16	4.63	-1.20	*-5.90*	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:	75.9	74.8	73.6	69.5	77.1	77.6
Medium Trucks:	68.5	67.9	61.6	61.8	69.5	69.7
Heavy Trucks:	70.7	69.8	66.2	64.3	71.9	72.2
Vehicle Noise:	77.6	76.6	74.6	71.2	78.8	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	100	216	465	1,001
CNEL:	107	230	496	1,069

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | *Project Name:* Oak Valley North SP
Road Name: Cherry Valley Bl. | *Job Number:* 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,326 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,412 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	96.38%
Medium Trucks:	80.3%	4.7%	14.9%	1.52%
Heavy Trucks:	75.9%	8.2%	15.9%	2.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.95	4.54	-1.20	*-4.43*	0.000	0.000
Medium Trucks:	82.40	-17.06	4.64	-1.20	*-4.85*	0.000	0.000
Heavy Trucks:	86.40	-15.66	4.63	-1.20	*-5.90*	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:	76.1	74.9	73.8	69.7	77.2	77.7
Medium Trucks:	68.8	68.2	61.9	62.1	69.8	70.0
Heavy Trucks:	74.2	73.3	69.7	67.8	75.4	75.7
Vehicle Noise:	78.7	77.7	75.4	72.3	79.9	80.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	118	255	549	1,182
CNEL:	126	271	584	1,257

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,981 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,463 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	95.72%
Medium Trucks:	80.3%	4.7%	14.9%	1.71%
Heavy Trucks:	75.9%	8.2%	15.9%	2.57%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.01	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	82.40	-16.47	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	86.40	-14.69	4.63	-1.20	-5.90	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:	76.1	75.0	73.8	69.7	77.3	77.8
Medium Trucks:	69.4	68.8	62.5	62.7	70.4	70.6
Heavy Trucks:	75.1	74.3	70.6	68.7	76.3	76.6
Vehicle Noise:	79.2	78.2	75.7	72.7	80.3	80.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	127	273	589	1,268
CNEL:	135	290	625	1,346

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,613 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,819 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.68	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	82.40	-16.49	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	86.40	-18.29	4.63	-1.20	-5.90	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:	76.8	75.6	74.5	70.4	78.0	78.5
Medium Trucks:	69.4	68.7	62.5	62.7	70.4	70.6
Heavy Trucks:	71.5	70.7	67.0	65.1	72.7	73.0
Vehicle Noise:	78.5	77.5	75.4	72.1	79.7	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	115	247	532	1,145
CNEL:	122	263	567	1,222

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,996 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,926 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	96.58%
Medium Trucks:	80.3%	4.7%	14.9%	1.52%
Heavy Trucks:	75.9%	8.2%	15.9%	1.90%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.80	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	82.40	-16.24	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	86.40	-15.25	4.63	-1.20	-5.90	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:	76.9	75.8	74.6	70.5	78.1	78.6
Medium Trucks:	69.6	69.0	62.7	62.9	70.6	70.8
Heavy Trucks:	74.6	73.7	70.1	68.2	75.8	76.1
Vehicle Noise:	79.4	78.4	76.1	73.0	80.6	81.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	132	283	611	1,315
CNEL:	140	302	650	1,400

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,651 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,976 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	96.03%
Medium Trucks:	80.3%	4.7%	14.9%	1.67%
Heavy Trucks:	75.9%	8.2%	15.9%	2.30%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.85	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	82.40	-15.75	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	86.40	-14.36	4.63	-1.20	-5.90	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:	77.0	75.8	74.7	70.5	78.1	78.6
Medium Trucks:	70.1	69.5	63.2	63.4	71.1	71.3
Heavy Trucks:	75.5	74.6	71.0	69.1	76.7	77.0
Vehicle Noise:	79.8	78.8	76.4	73.4	81.0	81.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	140	301	648	1,397
CNEL:	148	320	689	1,484

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o I-10 WB Ramps

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,165 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,862 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.42%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.74	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	82.40	-16.45	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	86.40	-17.71	4.63	-1.20	-5.90	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:	76.9	75.7	74.6	70.4	78.0	78.5
Medium Trucks:	69.4	68.8	62.5	62.7	70.4	70.6
Heavy Trucks:	72.1	71.3	67.6	65.7	73.3	73.6
Vehicle Noise:	78.7	77.6	75.6	72.2	79.8	80.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	253	545	1,175
CNEL:	125	270	582	1,253

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,863 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	759 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.05	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-20.22	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-22.02	4.63	-1.20	-5.90	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	64.4	63.3	59.2	66.8	67.3
Medium Trucks:	59.0	58.4	52.1	52.3	60.0	60.2
Heavy Trucks:	63.0	62.1	58.5	56.6	64.2	64.5
Vehicle Noise:	68.1	67.1	64.8	61.6	69.2	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	23	50	107	231
CNEL:	25	53	114	245

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,797 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,601 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.19	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-16.98	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-18.78	4.63	-1.20	-5.90	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.7	66.5	62.4	70.0	70.5
Medium Trucks:	62.2	61.6	55.3	55.5	63.2	63.4
Heavy Trucks:	66.2	65.4	61.7	59.8	67.4	67.7
Vehicle Noise:	71.3	70.3	68.0	64.9	72.5	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	38	82	176	379
CNEL:	40	87	187	403

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S1 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,896 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,609 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.41%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	1.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.21	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-16.95	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-18.26	4.63	-1.20	-5.90	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	67.7	66.5	62.4	70.0	70.5
Medium Trucks:	62.2	61.6	55.4	55.6	63.3	63.5
Heavy Trucks:	66.7	65.9	62.2	60.3	67.9	68.2
Vehicle Noise:	71.5	70.5	68.2	65.0	72.6	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	181	390
CNEL:	41	89	192	415

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2025 S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,023 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	1,619 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.13%
Medium Trucks:	80.3%	4.7%	14.9%	1.54%
Heavy Trucks:	75.9%	8.2%	15.9%	1.33%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	1.22	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-16.78	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.41	4.63	-1.20	-5.90	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	67.7	66.6	62.4	70.0	70.5
Medium Trucks:	62.4	61.8	55.5	55.7	63.4	63.6
Heavy Trucks:	67.6	66.7	63.1	61.2	68.8	69.1
Vehicle Noise:	71.8	70.8	68.4	65.4	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	88	190	410
CNEL:	44	94	202	436

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,252 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,021 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.20	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.97	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.77	4.63	-1.20	-5.90	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:	69.8	68.7	67.5	63.4	71.0	71.5
Medium Trucks:	63.2	62.6	56.3	56.5	64.2	64.4
Heavy Trucks:	67.2	66.4	62.7	60.8	68.4	68.7
Vehicle Noise:	72.3	71.3	69.0	65.9	73.5	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	95	206	443
CNEL:	47	102	219	471

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S1 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,426 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,035 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.44%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.07%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.23	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.94	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.35	4.63	-1.20	-5.90	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:	69.9	68.7	67.6	63.4	71.0	71.5
Medium Trucks:	63.2	62.6	56.4	56.6	64.3	64.5
Heavy Trucks:	67.6	66.8	63.1	61.3	68.8	69.1
Vehicle Noise:	72.5	71.5	69.1	66.0	73.6	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	98	210	453
CNEL:	48	104	224	482

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: 2028 S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,508 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,041 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.39%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.12%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.24	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.89	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.17	4.63	-1.20	-5.90	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:	69.9	68.7	67.6	63.5	71.1	71.6
Medium Trucks:	63.3	62.7	56.4	56.6	64.3	64.5
Heavy Trucks:	67.8	67.0	63.3	61.4	69.0	69.3
Vehicle Noise:	72.5	71.5	69.2	66.1	73.7	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	99	213	458
CNEL:	49	105	226	487

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY NP | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,742 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,367 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.89	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.28	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.08	4.63	-1.20	-5.90	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	69.4	68.2	64.1	71.7	72.2
Medium Trucks:	63.9	63.3	57.0	57.2	64.9	65.1
Heavy Trucks:	67.9	67.1	63.4	61.5	69.1	69.4
Vehicle Noise:	73.0	72.0	69.7	66.6	74.2	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	106	228	492
CNEL:	52	113	243	524

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S1 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,916 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,381 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.45%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	1.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.91	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.26	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.72	4.63	-1.20	-5.90	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	69.4	68.3	64.1	71.7	72.2
Medium Trucks:	63.9	63.3	57.1	57.3	65.0	65.1
Heavy Trucks:	68.3	67.4	63.8	61.9	69.5	69.8
Vehicle Noise:	73.1	72.1	69.8	66.7	74.3	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	233	502
CNEL:	53	115	248	534

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S2 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,998 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,387 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.41%
Medium Trucks:	80.3%	4.7%	14.9%	1.50%
Heavy Trucks:	75.9%	8.2%	15.9%	1.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.92	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.22	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-16.57	4.63	-1.20	-5.90	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	69.4	68.3	64.1	71.7	72.2
Medium Trucks:	64.0	63.4	57.1	57.3	65.0	65.2
Heavy Trucks:	68.4	67.6	63.9	62.0	69.6	69.9
Vehicle Noise:	73.2	72.2	69.9	66.7	74.3	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	109	235	507
CNEL:	54	116	250	539

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: HY S3 | Project Name: Oak Valley North SP
Road Name: Cherry Valley Bl. | Job Number: 13594
Road Segment: e/o Calimesa Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,864 vehicles
Peak Hour Percentage:	7.70%
Peak Hour Volume:	2,377 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	20 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	26.0 feet
Centerline Dist. to Observer:	26.0 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:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.48%
Heavy Trucks:	75.9%	8.2%	15.9%	0.99%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	24.515
Medium Trucks:	24.152
Heavy Trucks:	24.187

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	2.90	4.54	-1.20	-4.43	0.000	0.000
Medium Trucks:	75.75	-15.28	4.64	-1.20	-4.85	0.000	0.000
Heavy Trucks:	81.57	-17.03	4.63	-1.20	-5.90	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	69.4	68.2	64.1	71.7	72.2
Medium Trucks:	63.9	63.3	57.0	57.2	64.9	65.1
Heavy Trucks:	68.0	67.1	63.5	61.6	69.2	69.5
Vehicle Noise:	73.0	72.0	69.7	66.6	74.2	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	106	229	494
CNEL:	53	113	244	526

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: I-10 Fwy.
Road Segment: n/o Cherry Valley Bl.

Project Name: Oak Valley North SP
Job Number: 13594

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS	
Highway Data		***Site Conditions (Hard = 10, Soft = 15)***	
Average Daily Traffic (Adt):	103,000 vehicles	*Autos:*	15
Peak Hour Percentage:	7.70%	*Medium Trucks (2 Axles):*	15
Peak Hour Volume:	7,931 vehicles	*Heavy Trucks (3+ Axles):*	15
Vehicle Speed:	70 mph		
Near/Far Lane Distance:	98 feet		

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	70.6%	13.6%	15.8%	97.53%
Medium Trucks:	80.3%	4.7%	14.9%	1.49%
Heavy Trucks:	75.9%	8.2%	15.9%	0.98%

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	125.0 feet
Centerline Dist. to Observer:	125.0 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 Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	115.104
Medium Trucks:	115.027
Heavy Trucks:	115.035

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	75.77	5.13	-5.54	-1.20	*-4.79*	0.000	0.000
Medium Trucks:	85.95	-13.04	-5.53	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.97	-14.84	-5.53	-1.20	*-5.11*	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:	74.2	73.0	71.9	67.7	75.3	75.8
Medium Trucks:	66.2	65.6	59.3	59.5	67.2	67.4
Heavy Trucks:	67.4	66.5	62.9	61.0	68.6	68.9
Vehicle Noise:	75.5	74.5	72.6	69.1	76.7	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	349	752	1,620	3,491
CNEL:	373	804	1,732	3,732

Monday, July 3, 2023

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APPENDIX 10.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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13594 - Oak Valley North

CadnaA Noise Prediction Model: 13594-05.cna
Date: 14.07.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**701.04**
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	44.5	44.4	51.1	55.0	45.0	0.0				5.00	r	6320518.06	2301011.48	2329.46
RECEIVERS		R2	46.6	46.6	53.2	55.0	45.0	0.0				5.00	r	6321083.36	2300935.32	2341.00
RECEIVERS		R3	45.2	45.2	51.8	55.0	45.0	0.0				5.00	r	6322056.74	2300511.88	2332.34
RECEIVERS		R4	43.2	43.1	49.7	55.0	45.0	0.0				5.00	r	6322788.29	2300423.31	2371.45
RECEIVERS		R5	42.0	41.7	48.4	55.0	45.0	0.0				5.00	r	6323205.66	2299441.36	2377.00
RECEIVERS		R6	47.3	47.0	53.7	55.0	45.0	0.0				5.00	r	6322774.41	2299228.35	2348.49
RECEIVERS		R7	46.2	44.2	50.9	55.0	45.0	0.0				5.00	r	6322486.81	2298565.66	2315.00
RECEIVERS		R8	38.1	37.5	44.2	55.0	45.0	0.0				5.00	r	6320975.05	2297609.49	2311.00
RECEIVERSFUT		FUT1	42.0	41.8	48.5	55.0	45.0	0.0				5.00	r	6323131.44	2300172.97	2372.32
RECEIVERSFUT		FUT2	40.6	40.5	47.2	55.0	45.0	0.0				5.00	r	6323444.46	2299795.66	2384.75
RECEIVERSFUT		FUT3	39.4	39.1	45.8	55.0	45.0	0.0				5.00	r	6323883.20	2299682.44	2429.99
RECEIVERON		ON1	44.8	43.6	50.3	55.0	45.0	0.0				5.00	r	6322011.71	2298740.47	2316.19
RECEIVERON		ON2	50.3	50.0	56.6	55.0	45.0	0.0				5.00	r	6322135.70	2299030.50	2318.32
RECEIVERON		ON3	48.0	47.4	54.0	55.0	45.0	0.0				5.00	r	6322432.91	2299175.17	2321.59

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	6320065.09	2300045.54	2353.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6320051.35	2300010.79	2353.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6320667.19	2299738.42	2353.94
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6320682.55	2299768.33	2353.94
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6320938.74	2299606.69	2353.94
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6320953.29	2299642.25	2353.94

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	6321388.91	2299755.40	2357.40
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6321404.26	2299782.87	2357.40
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6322095.27	2299429.69	2357.40
POINTSOURCE		AC10	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6322106.58	2299457.17	2357.40
POINTSOURCE		AC11	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6321113.74	2299221.15	2350.57
POINTSOURCE		AC12	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6321153.67	2299203.79	2350.57
POINTSOURCE		AC13	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6321185.78	2299186.43	2350.57
POINTSOURCE		AC14	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6321782.14	2298915.60	2350.57
POINTSOURCE		AC15	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6321813.39	2298899.97	2350.57
POINTSOURCE		AC16	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6321851.58	2298881.74	2350.57
POINTSOURCE		AC17	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6322591.93	2299027.13	2323.00
POINTSOURCE		AC18	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6322499.73	2298784.05	2320.99
POINTSOURCE		AC19	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6322389.72	2298590.21	2319.27
POINTSOURCE		AC20	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6322245.13	2298439.33	2317.48
POINTSOURCE		OUT01	81.1	81.1	81.1	Lw	81.1		900.00	0.00	0.00	5.00	r	6322243.76	2298468.28	2317.56
POINTSOURCE		OUT02	81.1	81.1	81.1	Lw	81.1		900.00	0.00	0.00	5.00	r	6322389.28	2298621.09	2319.46
POINTSOURCE		OUT03	81.1	81.1	81.1	Lw	81.1		900.00	0.00	0.00	5.00	r	6322499.08	2298811.23	2321.22
POINTSOURCE		OUT04	81.1	81.1	81.1	Lw	81.1		900.00	0.00	0.00	5.00	r	6322591.28	2299049.40	2323.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6321315.12	2299603.97	2307.89
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6322019.12	2299282.79	2311.85
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6321987.87	2299323.58	2313.74
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6322268.22	2299790.96	2314.16
POINTSOURCE		TRASH05	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6321382.44	2299607.50	2310.08
POINTSOURCE		TRASH06	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6321566.71	2300118.27	2310.00
POINTSOURCE		TRASH07	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6321104.42	2299601.84	2302.89
POINTSOURCE		TRASH08	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6321343.65	2300121.51	2305.48
POINTSOURCE		TRASH09	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6320794.08	2300379.32	2305.24
POINTSOURCE		TRASH10	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6320553.24	2299851.57	2302.17
POINTSOURCE		TRASH11	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6320712.45	2300255.67	2304.03
POINTSOURCE		TRASH12	89.0	89.0	89.0	Lw	89		900.00	0.00	270.00	5.00	r	6320466.76	2299725.49	2301.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRUCK01	93.2	93.2	93.2	77.0	77.0	77.0	Lw	93.2									8	r
LINESOURCE		TRUCK02	93.2	93.2	93.2	65.6	65.6	65.6	Lw	93.2									8	r
LINESOURCE		TRUCK03	93.2	93.2	93.2	62.6	62.6	62.6	Lw	93.2									8	r
LINESOURCE		TRUCK04	93.2	93.2	93.2	66.8	66.8	66.8	Lw	93.2									8	r
LINESOURCE		TRUCK05	93.2	93.2	93.2	74.7	74.7	74.7	Lw	93.2									8	r
LINESOURCE		TRUCK06	93.2	93.2	93.2	69.1	69.1	69.1	Lw	93.2									8	r
LINESOURCE		TRUCK07	93.2	93.2	93.2	68.4	68.4	68.4	Lw	93.2									8	r
LINESOURCE		TRUCK08	93.2	93.2	93.2	68.3	68.3	68.3	Lw	93.2									8	r

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	TRUCK01	8.00	r			6320385.82	2299521.79	2295.61	2287.61
						6320442.09	2299644.81	2300.55	2292.55
LINESOURCE	TRUCK02	8.00	r			6319917.08	2299980.54	2300.91	2292.91
						6319976.77	2300013.43	2305.41	2297.41
						6320154.44	2300398.98	2310.47	2302.47
						6320537.56	2300447.32	2310.33	2302.33
						6320722.48	2300367.55	2306.63	2298.62
						6320411.87	2299681.07	2302.17	2294.17
						6320442.09	2299644.81	2300.55	2292.55
LINESOURCE	TRUCK03	8.00	r			6320439.67	2299649.64	2300.69	2292.69
						6320535.15	2299739.08	2303.00	2295.00
						6320845.76	2300425.57	2309.28	2301.28
						6322317.83	2299746.33	2319.28	2311.28
						6322116.00	2299297.94	2319.07	2311.07
						6322128.08	2299250.81	2318.88	2310.88
						6321910.53	2298779.45	2306.97	2298.97
						6321882.74	2298692.43	2303.14	2295.14
						6321829.72	2298626.42	2299.17	2291.17
LINESOURCE	TRUCK04	8.00	r			6320804.49	2299253.24	2291.13	2283.13
						6320850.59	2299334.20	2290.83	2282.83
						6320912.23	2299393.42	2294.25	2286.25
						6321053.64	2299470.77	2301.43	2293.43
						6321124.94	2299525.16	2305.01	2297.01
						6321166.04	2299600.09	2307.45	2299.45
						6321458.52	2300243.07	2314.44	2306.44
						6321546.75	2300431.61	2322.44	2314.44
LINESOURCE	TRUCK05	8.00	r			6321439.40	2300479.73	2323.25	2315.25
						6321650.26	2300387.09	2322.94	2314.94
LINESOURCE	TRUCK06	8.00	r			6321340.36	2300197.35	2310.37	2302.37

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6320991.61	2299436.84	2298.28	2290.28
LINESOURCE	TRUCK07	8.00	r			6322116.95	2299300.05	2319.11	2311.11
						6321218.97	2299716.45	2308.00	2300.00
LINESOURCE	TRUCK08	8.00	r			6322087.62	2299163.13	2316.99	2308.99
						6321161.55	2299591.91	2307.29	2299.29

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		CAR01	84.3	84.3	84.3	47.7	47.7	47.7	Lw	84.3					5	r
AREASOURCE		CAR02	84.3	84.3	84.3	52.7	52.7	52.7	Lw	84.3					5	r
AREASOURCE		CAR03	84.3	84.3	84.3	46.8	46.8	46.8	Lw	84.3					5	r
AREASOURCE		CAR04	84.3	84.3	84.3	49.4	49.4	49.4	Lw	84.3					5	r
AREASOURCE		CAR05	84.3	84.3	84.3	52.3	52.3	52.3	Lw	84.3					5	r
AREASOURCE		CAR06	84.3	84.3	84.3	48.3	48.3	48.3	Lw	84.3					5	r
AREASOURCE		CAR07	84.3	84.3	84.3	56.3	56.3	56.3	Lw	84.3					5	r
AREASOURCE		CAR08	84.3	84.3	84.3	57.2	57.2	57.2	Lw	84.3					5	r
AREASOURCE		CAR09	84.3	84.3	84.3	49.5	49.5	49.5	Lw	84.3					5	r
AREASOURCE		CAR10	84.3	84.3	84.3	61.0	61.0	61.0	Lw	84.3					5	r
AREASOURCE		CAR11	84.3	84.3	84.3	61.0	61.0	61.0	Lw	84.3					5	r
AREASOURCE		DOCK01	103.4	103.4	103.4	67.7	67.7	67.7	Lw	103.4					8	r
AREASOURCE		DOCK02	103.4	103.4	103.4	68.0	68.0	68.0	Lw	103.4					8	r
AREASOURCE		DOCK03	103.4	103.4	103.4	68.1	68.1	68.1	Lw	103.4					8	r
AREASOURCE		DOCK04	103.4	103.4	103.4	67.5	67.5	67.5	Lw	103.4					8	r
AREASOURCE		DOCK05	103.4	103.4	103.4	66.9	66.9	66.9	Lw	103.4					8	r
AREASOURCE		DOCK06	103.4	103.4	103.4	66.9	66.9	66.9	Lw	103.4					8	r
AREASOURCE		TRAILER01	103.4	103.4	103.4	58.7	58.7	58.7	Lw	103.4					8	r
AREASOURCE		TRAILER02	103.4	103.4	103.4	55.0	55.0	55.0	Lw	103.4					8	r
AREASOURCE		TRAILER03	103.4	103.4	103.4	66.3	66.3	66.3	Lw	103.4					8	r
AREASOURCE		TRAILER04	103.4	103.4	103.4	67.3	67.3	67.3	Lw	103.4					8	r

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	CAR01	5.00	r			6320103.39	2300474.05	2308.73	2303.73
						6320189.33	2300434.12	2308.64	2303.64
						6320141.58	2300337.77	2307.64	2302.64
						6320156.34	2300328.22	2307.76	2302.76
						6320028.74	2300050.44	2303.92	2298.92
						6319917.63	2300106.87	2304.06	2299.06
						6320078.22	2300461.03	2308.61	2303.61
						6320095.58	2300451.48	2308.13	2303.13
AREASOURCE	CAR02	5.00	r			6320155.47	2299788.29	2303.86	2298.86
						6320162.42	2299805.65	2304.68	2299.68
						6320386.38	2299701.48	2299.88	2294.88
						6320357.73	2299645.06	2298.04	2293.04
						6320138.98	2299747.49	2302.93	2297.93
AREASOURCE	CAR03	5.00	r			6320573.88	2299748.36	2301.26	2296.26
						6320990.54	2299556.52	2297.87	2292.87
						6320981.86	2299536.55	2296.78	2291.78
						6321000.96	2299526.14	2297.17	2292.17
						6320975.78	2299476.66	2296.05	2291.05
						6320961.90	2299459.30	2295.18	2290.18
						6320934.12	2299442.80	2295.00	2290.00
						6320924.57	2299459.30	2294.75	2289.75
						6320883.77	2299487.08	2295.46	2290.46
						6320875.96	2299470.58	2295.08	2290.08
						6320511.38	2299638.98	2299.00	2294.00
						6320546.10	2299711.90	2299.88	2294.88
AREASOURCE	CAR04	5.00	r			6321439.33	2300094.71	2311.10	2306.10
						6321496.62	2300069.54	2312.00	2307.00
						6321334.29	2299717.11	2307.00	2302.00
						6321316.93	2299723.19	2306.54	2301.54
						6321324.74	2299711.03	2306.99	2301.99
						6321385.51	2299683.26	2310.51	2305.51
						6321352.52	2299612.08	2309.93	2304.93
						6321258.77	2299655.48	2305.45	2300.45
						6321286.55	2299720.58	2305.86	2300.86
						6321269.19	2299727.53	2305.47	2300.47
AREASOURCE	CAR05	5.00	r			6321178.91	2299530.48	2304.15	2299.15
						6321199.74	2299520.06	2304.81	2299.81
						6321196.27	2299513.98	2304.60	2299.60
						6321213.63	2299505.30	2304.97	2299.97
						6321090.37	2299241.42	2307.29	2302.29
						6321076.48	2299247.49	2306.80	2301.80

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6321068.67	2299231.87	2307.41	2302.41
						6321028.74	2299249.23	2306.16	2301.16
						6321104.26	2299415.03	2302.22	2297.22
						6321122.49	2299408.95	2302.90	2297.90
						6321141.58	2299451.48	2302.38	2297.38
						6321123.35	2299460.17	2302.44	2297.44
						6321142.45	2299498.36	2303.00	2298.00
						6321160.68	2299491.42	2303.13	2298.13
AREASOURCE	CAR06	5.00	r			6321148.53	2299169.37	2311.63	2306.63
						6321816.06	2298859.47	2306.95	2301.95
						6321806.51	2298842.11	2306.00	2301.00
						6321863.81	2298816.94	2305.00	2300.00
						6321868.15	2298785.69	2304.16	2299.16
						6321860.33	2298770.93	2303.81	2298.81
						6321358.60	2299004.44	2308.77	2303.77
						6321366.41	2299021.80	2309.71	2304.71
						6321133.77	2299130.30	2311.07	2306.07
AREASOURCE	CAR07	5.00	r			6322005.30	2299159.82	2313.68	2308.68
						6322023.53	2299152.87	2313.38	2308.38
						6321881.17	2298841.24	2305.95	2300.95
						6321863.81	2298850.79	2307.07	2302.07
AREASOURCE	CAR08	5.00	r			6322044.36	2299377.70	2314.92	2309.92
						6322108.60	2299350.79	2316.11	2311.11
						6322073.01	2299278.74	2315.48	2310.48
						6322008.77	2299308.26	2314.00	2309.00
AREASOURCE	CAR09	5.00	r			6322102.52	2299372.49	2316.00	2311.00
						6322263.98	2299719.71	2316.00	2311.00
						6322335.16	2299684.99	2317.94	2312.94
						6322163.28	2299311.73	2317.41	2312.41
						6322111.20	2299339.51	2316.19	2311.19
						6322119.01	2299362.08	2316.29	2311.29
AREASOURCE	CAR10	5.00	r			6321426.66	2300408.05	2318.85	2313.85
						6321474.41	2300386.35	2317.91	2312.91
						6321457.48	2300347.29	2316.92	2311.92
						6321408.43	2300368.56	2318.00	2313.00
AREASOURCE	CAR11	5.00	r			6321558.61	2300346.42	2317.06	2312.06
						6321606.35	2300324.29	2318.10	2313.10
						6321588.56	2300284.79	2317.59	2312.59
						6321539.95	2300307.36	2316.21	2311.21
AREASOURCE	DOCK01	8.00	r			6320598.66	2300316.76	2312.00	2304.00
						6320656.34	2300288.16	2307.74	2299.74
						6320407.21	2299743.89	2304.88	2296.88
						6320349.76	2299770.25	2307.33	2299.33
AREASOURCE	DOCK02	8.00	r			6320910.03	2300340.62	2312.02	2304.02
						6320659.00	2299792.01	2310.33	2302.33
						6320605.13	2299818.54	2306.48	2298.48
						6320855.13	2300366.28	2309.43	2301.43
AREASOURCE	DOCK03	8.00	r			6321221.35	2300165.72	2313.00	2305.00
						6321278.74	2300139.72	2309.14	2301.14
						6321040.02	2299614.55	2306.00	2298.00
						6320986.22	2299641.06	2306.93	2298.93
AREASOURCE	DOCK04	8.00	r			6321414.82	2299719.57	2314.14	2306.14
						6322056.98	2299433.51	2322.00	2314.00
						6322030.68	2299376.37	2317.67	2309.67
						6321391.82	2299669.44	2313.93	2305.93
AREASOURCE	DOCK05	8.00	r			6321504.64	2300016.17	2314.93	2306.93
						6321527.00	2300070.28	2314.00	2306.00
						6322250.96	2299736.94	2317.93	2309.93
						6322225.02	2299680.73	2321.20	2313.20
AREASOURCE	DOCK06	8.00	r			6321233.25	2299454.76	2314.53	2306.53
						6321258.77	2299510.38	2310.28	2302.28
						6321980.64	2299177.46	2314.93	2306.93
						6321956.46	2299123.59	2315.95	2307.95
AREASOURCE	TRAILER01	8.00	r			6320180.39	2300536.88	2320.84	2312.84
						6321048.27	2300773.10	2325.09	2317.08
						6321481.86	2300573.88	2323.74	2315.74
						6321332.12	2300241.85	2315.87	2307.87
						6320755.30	2300506.17	2326.03	2318.03
						6320226.65	2300428.05	2312.99	2304.99
						6320171.97	2300456.69	2328.15	2320.15
						6320153.74	2300512.68	2328.88	2320.88
AREASOURCE	TRAILER02	8.00	r			6321540.46	2300148.10	2311.71	2303.71
						6321695.40	2300485.34	2324.10	2316.10
						6322306.08	2300202.79	2328.06	2320.06
						6322639.41	2300021.80	2329.00	2321.00
						6322688.89	2299963.20	2329.07	2321.07
						6323110.77	2299767.89	2331.25	2323.25

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
						6323050.87	2299644.19	2334.00	2326.00
						6322681.08	2299355.13	2329.09	2321.09
						6322600.35	2299185.86	2330.00	2322.00
						6322213.63	2299362.94	2328.00	2320.00
						6322392.02	2299754.87	2328.00	2320.00
AREASOURCE	TRAILER03	8.00	r			6320395.25	2300418.46	2312.00	2304.00
						6320390.16	2300452.21	2323.17	2315.17
						6320658.69	2300491.89	2325.59	2317.59
						6320799.40	2300427.18	2306.53	2298.53
						6320725.09	2300262.60	2307.00	2299.00
AREASOURCE	TRAILER04	8.00	r			6321311.96	2299619.96	2311.23	2303.23
						6322033.08	2299289.16	2315.52	2307.52
						6322009.64	2299238.81	2314.40	2306.40
						6321289.17	2299568.53	2310.00	2302.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIERPLANNED			0						12.00	r		6320348.49	2299766.23	2310.30	2298.30
												6320413.77	2299737.41	2308.72	2296.72
BARRIERPLANNED			0						12.00	r		6320448.84	2299720.75	2308.06	2296.06
												6320473.49	2299710.68	2307.71	2295.71
												6320536.34	2299847.83	2309.00	2297.00
												6320559.25	2299837.07	2309.35	2297.35
BARRIERPLANNED			0						12.00	r		6320595.02	2299820.75	2310.00	2298.00
												6320659.95	2299790.54	2314.32	2302.32
BARRIERPLANNED			0						12.00	r		6320985.29	2299640.19	2310.96	2298.95
												6321048.49	2299609.98	2310.00	2298.00
BARRIERPLANNED			0						12.00	r		6321084.25	2299593.66	2309.59	2297.59
												6321107.86	2299583.25	2309.69	2297.69
BARRIERPLANNED			0						12.00	r		6321232.08	2299455.65	2318.06	2306.06
												6321262.12	2299520.93	2314.27	2302.27
BARRIERPLANNED			0						12.00	r		6321281.14	2299556.81	2314.00	2302.00
												6321311.96	2299624.30	2315.20	2303.20
												6321358.62	2299601.73	2315.80	2303.80
												6321369.03	2299625.39	2317.09	2305.09
BARRIERPLANNED			0						12.00	r		6321385.96	2299661.85	2317.76	2305.76
												6321413.30	2299720.87	2318.32	2306.32
BARRIERPLANNED			0						12.00	r		6321958.47	2299122.67	2319.97	2307.97
												6321987.37	2299185.05	2318.95	2306.95
BARRIERPLANNED			0						12.00	r		6322004.12	2299221.60	2318.58	2306.58
												6322034.85	2299289.83	2319.65	2307.65
												6322000.30	2299306.32	2318.96	2306.96
												6322010.50	2299329.28	2321.00	2309.00
BARRIERPLANNED			0						12.00	r		6322027.43	2299365.09	2321.57	2309.57
												6322058.44	2299432.86	2326.00	2314.00
BARRIERPLANNED			0						12.00	r		6322202.83	2299346.95	2327.00	2315.00
												6322715.66	2299111.87	2337.93	2325.93
BARRIERPLANNED			0						8.00	r		6322715.66	2299111.87	2333.93	2325.93
												6322757.04	2299335.94	2348.08	2340.08
												6322899.15	2299393.00	2370.72	2362.72
												6322993.18	2299416.56	2373.40	2365.40
												6323140.46	2299457.37	2376.61	2368.61
												6323338.53	2299506.10	2386.17	2378.17
												6323630.05	2299568.28	2392.84	2384.84
												6323838.38	2299597.80	2412.42	2404.42
												6323555.35	2299728.66	2391.36	2383.36
												6323553.73	2299712.92	2390.24	2382.24
												6323545.26	2299696.76	2389.65	2381.65
												6323527.03	2299681.35	2389.24	2381.24
												6323498.39	2299678.85	2388.60	2380.60
												6323476.58	2299689.81	2388.30	2380.30
												6323442.62	2299732.24	2387.02	2379.02
												6322936.30	2299961.04	2366.44	2358.44
												6322104.71	2300341.25	2336.55	2328.55
												6321052.62	2300829.10	2340.94	2332.94
												6320068.94	2300498.89	2317.82	2309.82
												6320226.65	2300428.05	2312.99	2304.99

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		45.00	r	6320187.99	2300382.00	2348.00	2303.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6320395.25	2300418.46	2348.00	2304.00
									6320598.66	2300316.76	2348.00	2304.00
									6320333.84	2299735.29	2348.00	2300.62
									6320134.26	2299831.24	2348.00	2301.03
									6320019.11	2300013.55	2348.00	2300.38
BUILDING			BUILDING00002	x	0		45.00	r	6320921.06	2300364.73	2348.94	2303.94
									6321243.46	2300215.05	2348.94	2304.00
									6320961.36	2299585.60	2348.94	2301.45
									6320631.29	2299731.45	2348.94	2302.00
BUILDING			BUILDING00003	x	0		45.00	r	6321481.42	2300026.98	2352.40	2307.40
									6322235.60	2299675.80	2352.40	2312.51
									6322120.46	2299405.21	2352.40	2311.00
									6321358.60	2299744.88	2352.40	2305.70
BUILDING			BUILDING00004	x	0		45.00	r	6321203.16	2299468.54	2345.57	2300.57
									6321978.45	2299113.52	2345.57	2310.57
									6321855.63	2298841.02	2345.57	2307.48
									6321086.10	2299207.55	2345.57	2307.00

APPENDIX 11.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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13594 - Oak Valley North

CadnaA Noise Prediction Model: 13594-04_Construciton.cna
Date: 05.07.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**701.04**
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	67.8	-39.2	64.8	55.0	45.0	0.0				5.00	r	6320518.06	2301011.48	2329.46
RECEIVERS		R2	68.0	-39.0	64.9	55.0	45.0	0.0				5.00	r	6321083.36	2300935.32	2341.00
RECEIVERS		R3	65.6	-41.4	62.6	55.0	45.0	0.0				5.00	r	6322056.74	2300511.88	2332.34
RECEIVERS		R4	60.4	-46.6	57.4	55.0	45.0	0.0				5.00	r	6322788.29	2300423.31	2371.45
RECEIVERS		R5	62.6	-44.4	59.6	55.0	45.0	0.0				5.00	r	6323205.66	2299441.36	2377.00
RECEIVERS		R6	63.7	-43.3	60.7	55.0	45.0	0.0				5.00	r	6322774.41	2299228.35	2348.49
RECEIVERS		R7	61.5	-45.5	58.5	55.0	45.0	0.0				5.00	r	6322486.81	2298565.66	2315.00
RECEIVERS		R8	54.9	-52.1	51.9	55.0	45.0	0.0				5.00	r	6320975.05	2297609.49	2311.00
RECEIVERSFUT		FUT1	61.5	-45.5	58.4	55.0	45.0	0.0				5.00	r	6323131.44	2300172.97	2372.32
RECEIVERSFUT		FUT2	76.7	-30.3	73.7	55.0	45.0	0.0				5.00	r	6323444.46	2299795.66	2384.75
RECEIVERSFUT		FUT3	53.7	-53.2	50.7	55.0	45.0	0.0				5.00	r	6323883.20	2299682.44	2429.99
RECEIVERON		ON1	70.3	-36.7	67.3	55.0	45.0	0.0				5.00	r	6322011.71	2298740.47	2316.19
RECEIVERON		ON2	70.4	-36.6	67.4	55.0	45.0	0.0				5.00	r	6322135.70	2299030.50	2318.32
RECEIVERON		ON3	70.2	-36.8	67.2	55.0	45.0	0.0				5.00	r	6322432.91	2299175.17	2321.59

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)		
CONS_U		1	122.0	15.0	15.0	65.5	-41.4	-41.4	PWL-Pt	115					8	r
CONS_U		0	122.0	15.0	15.0	73.6	-33.4	-33.4	PWL-Pt	115					8	r

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
CONS_U	1	8.00	r		6323574.10	2299719.99	2389.97	2381.97
					6323838.38	2299597.80	2412.42	2404.42
					6323630.05	2299568.28	2392.84	2384.84
					6323338.53	2299506.10	2386.17	2378.17
					6323140.46	2299457.37	2376.61	2368.61
					6322954.19	2299405.77	2372.00	2364.00
					6322899.16	2299393.00	2370.72	2362.72
					6322797.83	2299353.78	2357.04	2349.04
					6322757.04	2299335.94	2348.08	2340.08
					6322704.40	2299051.41	2337.81	2329.81
					6322568.07	2298921.99	2336.89	2328.89
					6322602.98	2298781.44	2327.99	2319.99
					6322528.96	2298694.78	2324.53	2316.53
					6322488.92	2298622.02	2321.93	2313.93
					6322334.51	2298426.88	2313.12	2305.12
					6322213.29	2298321.71	2306.43	2298.43
					6322191.25	2298309.63	2306.00	2298.00
					6321908.04	2298560.53	2298.16	2290.16
					6321850.32	2298609.49	2299.98	2291.98
					6321737.00	2298700.30	2297.89	2289.89
					6321599.87	2298800.53	2296.00	2288.00
					6321457.09	2298894.59	2297.80	2289.80
					6321314.62	2298979.23	2290.89	2282.89
					6320826.57	2299240.49	2291.33	2283.33
					6320674.19	2299328.42	2292.39	2284.39
					6320524.33	2299424.21	2294.26	2286.26
					6320378.21	2299527.19	2295.15	2287.15
					6320239.38	2299634.67	2296.83	2288.83
					6320101.82	2299751.51	2298.00	2290.00
					6320029.44	2299823.30	2298.00	2290.00
					6319972.86	2299890.45	2298.92	2290.92
					6319943.12	2299933.06	2300.00	2292.00
					6319910.87	2299991.86	2301.11	2293.11
					6319885.97	2300054.58	2302.10	2294.10
					6319868.98	2300118.00	2302.88	2294.88
					6319857.53	2300193.45	2303.90	2295.90
					6319859.27	2300207.09	2303.98	2295.98
					6319858.39	2300250.51	2304.61	2296.61
					6319865.13	2300316.87	2305.80	2297.80
					6319879.66	2300381.69	2307.06	2299.06
					6319901.58	2300443.69	2310.91	2302.91
					6321112.94	2300848.14	2343.26	2335.26
					6321172.09	2300805.12	2342.65	2334.65
					6321216.05	2300780.55	2342.40	2334.40
					6323387.18	2299780.54	2384.27	2376.27
					6323407.89	2299767.94	2385.21	2377.21
					6323424.37	2299752.95	2386.00	2378.00
					6323476.58	2299689.81	2388.30	2380.30
					6323498.39	2299678.85	2388.60	2380.60
					6323527.03	2299681.35	2389.24	2381.24
					6323545.26	2299696.76	2389.65	2381.65
					6323553.73	2299712.92	2390.24	2382.24
					6323555.35	2299728.66	2391.36	2383.36
CONS_U	0	8.00	r		6323574.10	2299719.99	2389.97	2381.97
					6323555.35	2299728.66	2391.36	2383.36
					6323553.73	2299712.92	2390.24	2382.24
					6323545.26	2299696.76	2389.65	2381.65
					6323527.03	2299681.35	2389.24	2381.24
					6323498.39	2299678.85	2388.60	2380.60
					6323476.58	2299689.81	2388.30	2380.30
					6323424.37	2299752.95	2386.00	2378.00
					6323407.89	2299767.94	2385.21	2377.21
					6323387.18	2299780.54	2384.27	2376.27
					6321216.05	2300780.55	2342.40	2334.40
					6321172.09	2300805.12	2342.65	2334.65
					6321112.94	2300848.14	2343.26	2335.26
					6321058.16	2300829.92	2341.14	2333.14
					6320712.83	2300987.63	2340.00	2332.00
					6320687.03	2301002.56	2338.48	2330.48
					6320662.46	2301019.44	2336.12	2328.12
					6320639.26	2301038.16	2336.29	2328.29
					6320617.58	2301058.62	2336.00	2328.00
					6320587.83	2301093.19	2335.99	2327.99
					6320555.19	2301098.05	2335.07	2327.07
					6320502.52	2301067.87	2333.69	2325.69
					6320448.79	2301039.62	2331.20	2323.20
					6320394.08	2301013.33	2329.29	2321.29

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6320337.24	2300988.01	2327.45	2319.45
				6320279.58	2300964.62	2325.14	2317.14
				6320221.16	2300943.19	2324.10	2316.10
				6320145.72	2300919.17	2324.00	2316.00
				6320069.54	2300897.63	2322.00	2314.00
				6319992.69	2300878.60	2319.20	2311.20
				6319976.02	2300853.60	2317.75	2309.75
				6319980.16	2300786.63	2316.19	2308.19
				6319977.41	2300719.58	2315.27	2307.27
				6319970.14	2300675.53	2314.22	2306.22
				6319960.41	2300631.97	2313.20	2305.20
				6319948.24	2300589.02	2312.49	2304.49
				6319927.57	2300538.80	2311.07	2303.07
				6319881.58	2300440.41	2309.49	2301.49
				6320298.98	2300576.53	2322.99	2314.99
				6319901.58	2300443.69	2310.91	2302.91
				6319879.66	2300381.69	2307.06	2299.06
				6319865.13	2300316.87	2305.80	2297.80
				6319858.39	2300250.51	2304.61	2296.61
				6319859.27	2300207.09	2303.98	2295.98
				6319857.53	2300193.45	2303.90	2295.90
				6319868.98	2300118.00	2302.88	2294.88
				6319885.97	2300054.58	2302.10	2294.10
				6319910.87	2299991.86	2301.11	2293.11
				6319943.12	2299933.06	2300.00	2292.00
				6319972.86	2299890.45	2298.92	2290.92
				6320029.44	2299823.30	2298.00	2290.00
				6320101.82	2299751.51	2298.00	2290.00
				6320239.38	2299634.67	2296.83	2288.83
				6320378.21	2299527.19	2295.15	2287.15
				6320524.33	2299424.21	2294.26	2286.26
				6320674.19	2299328.42	2292.39	2284.39
				6320826.57	2299240.49	2291.33	2283.33
				6321314.62	2298979.23	2290.89	2282.89
				6321457.09	2298894.59	2297.80	2289.80
				6321599.87	2298800.53	2296.00	2288.00
				6321737.00	2298700.30	2297.89	2289.89
				6321816.31	2298637.43	2298.65	2290.65
				6321908.04	2298560.53	2298.16	2290.16
				6322189.28	2298311.37	2306.00	2298.00
				6322135.57	2298265.84	2306.99	2298.99
				6322048.33	2298343.97	2304.70	2296.70
				6321833.15	2298526.43	2300.98	2292.98
				6321773.47	2298575.09	2299.08	2291.08
				6321712.64	2298622.31	2298.21	2290.20
				6321587.66	2298712.28	2296.00	2288.00
				6321523.59	2298754.99	2295.26	2287.26
				6321440.76	2298807.45	2294.00	2286.00
				6321356.86	2298858.18	2292.00	2284.00
				6321271.93	2298907.16	2290.54	2282.54
				6321186.00	2298954.37	2289.27	2281.27
				6320803.97	2299152.56	2286.28	2278.28
				6320710.07	2299204.14	2287.59	2279.59
				6320617.42	2299257.92	2289.38	2281.38
				6320526.07	2299313.87	2291.40	2283.40
				6320436.06	2299371.97	2294.00	2286.00
				6320347.45	2299432.19	2295.08	2287.08
				6320260.29	2299494.48	2296.00	2288.00
				6320130.78	2299591.43	2297.97	2289.97
				6320088.29	2299625.80	2298.12	2290.12
				6320047.23	2299661.86	2298.29	2290.29
				6320007.67	2299699.56	2298.39	2290.39
				6319969.67	2299738.83	2298.23	2290.23
				6319933.29	2299779.61	2298.29	2290.29
				6319898.59	2299821.83	2298.48	2290.48
				6319639.36	2300163.62	2296.33	2288.33
				6319597.97	2300228.97	2296.51	2288.51
				6319579.80	2300263.13	2296.40	2288.40
				6319548.76	2300333.99	2298.89	2290.89
				6319744.08	2300396.49	2304.61	2296.61
				6319755.36	2300433.02	2305.72	2297.72
				6319768.70	2300468.86	2306.86	2298.86
				6319784.06	2300503.88	2308.00	2300.00
				6319815.90	2300566.89	2308.88	2300.88
				6319828.60	2300596.66	2309.61	2301.61
				6319839.40	2300627.16	2310.00	2302.00
				6319848.28	2300658.28	2310.81	2302.81

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
				6319860.88	2300723.01	2312.21	2304.21
				6319864.66	2300756.41	2313.11	2305.11
				6319866.47	2300823.57	2314.50	2306.50
				6319848.94	2300839.02	2314.67	2306.67
				6319701.72	2300818.19	2314.00	2306.00
				6319678.11	2300811.94	2316.69	2308.69
				6319524.63	2300824.44	2323.54	2315.54
				6319504.49	2300823.74	2324.00	2316.00
				6319470.47	2300818.19	2324.51	2316.51
				6319451.72	2300920.27	2323.61	2315.61
				6319533.17	2300932.46	2321.55	2313.55
				6319614.91	2300942.49	2320.07	2312.07
				6319841.30	2300975.83	2310.87	2302.87
				6319844.69	2300978.70	2311.36	2303.36
				6319844.29	2300983.12	2312.15	2304.15
				6319894.88	2300989.91	2314.54	2306.54
				6319945.13	2300998.84	2316.07	2308.07
				6319994.97	2301009.89	2317.70	2309.70
				6320102.54	2301040.71	2320.85	2312.85
				6320217.90	2301079.65	2326.00	2318.00
				6320280.82	2301105.10	2326.61	2318.61
				6320342.71	2301132.94	2329.47	2321.47
				6320403.50	2301163.14	2331.47	2323.47
				6320463.08	2301195.65	2331.82	2323.82
				6320521.36	2301230.42	2333.21	2325.21
				6320578.28	2301267.39	2335.62	2327.62
				6320656.53	2301160.41	2348.00	2340.00
				6320647.42	2301130.46	2347.55	2339.55
				6320665.58	2301109.96	2345.88	2337.88
				6320685.34	2301091.00	2346.00	2338.00
				6320706.58	2301073.70	2346.00	2338.00
				6320729.14	2301058.17	2344.00	2336.00
				6320752.89	2301044.53	2344.00	2336.00
				6321259.40	2300819.26	2343.38	2335.38
				6321248.98	2300807.55	2342.82	2334.82
				6323140.91	2299957.29	2370.98	2362.98
				6323540.65	2299776.30	2395.27	2387.27
				6323550.37	2299769.32	2396.12	2388.12
				6323558.74	2299760.76	2396.57	2388.57
				6323565.50	2299750.88	2396.46	2388.46
				6323570.45	2299739.98	2395.73	2387.73
				6323573.44	2299728.39	2394.66	2386.65

APPENDIX 11.2:

NIGHTTIME CONCRETE POUR NOISE MODEL INPUTS

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13594 - Oak Valley North

CadnaA Noise Prediction Model: 13594-04_Concrete.cna
Date: 05.07.23
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**701.04**
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	37.9	37.9	44.6	55.0	45.0	0.0				5.00	r	6320518.06	2301011.48	2329.46
RECEIVERS		R2	39.8	39.8	46.5	55.0	45.0	0.0				5.00	r	6321083.36	2300935.32	2341.00
RECEIVERS		R3	38.6	38.6	45.3	55.0	45.0	0.0				5.00	r	6322056.74	2300511.88	2332.34
RECEIVERS		R4	39.6	39.6	46.3	55.0	45.0	0.0				5.00	r	6322788.29	2300423.31	2371.45
RECEIVERS		R5	37.4	37.4	44.1	55.0	45.0	0.0				5.00	r	6323205.66	2299441.36	2377.00
RECEIVERS		R6	41.6	41.6	48.3	55.0	45.0	0.0				5.00	r	6322774.41	2299228.35	2348.49
RECEIVERS		R7	36.4	36.4	43.1	55.0	45.0	0.0				5.00	r	6322486.81	2298565.66	2315.00
RECEIVERS		R8	37.3	37.3	44.0	55.0	45.0	0.0				5.00	r	6320975.05	2297609.49	2311.00
RECEIVERSFUT		FUT1	38.2	38.2	44.9	55.0	45.0	0.0				5.00	r	6323131.44	2300172.97	2372.32
RECEIVERSFUT		FUT2	37.3	37.3	43.9	55.0	45.0	0.0				5.00	r	6323444.46	2299795.66	2384.75
RECEIVERSFUT		FUT3	31.8	31.8	38.4	55.0	45.0	0.0				5.00	r	6323883.20	2299682.44	2429.99
RECEIVERON		ON1	45.0	45.0	51.7	55.0	45.0	0.0				5.00	r	6322011.71	2298740.47	2316.19
RECEIVERON		ON2	46.7	46.7	53.4	55.0	45.0	0.0				5.00	r	6322135.70	2299030.50	2318.32
RECEIVERON		ON3	42.6	42.6	49.2	55.0	45.0	0.0				5.00	r	6322432.91	2299175.17	2321.59

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)		
CONCRETEPOUR		cons01	100.3	100.3	100.3	56.2	56.2	56.2	Lw	100.3					8	r
CONCRETEPOUR		cons02	100.3	100.3	100.3	55.5	55.5	55.5	Lw	100.3					8	r
CONCRETEPOUR		cons03	100.3	100.3	100.3	55.2	55.2	55.2	Lw	100.3					8	r
CONCRETEPOUR		cons04	100.3	100.3	100.3	56.0	56.0	56.0	Lw	100.3					8	r

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
CONCRETEPOUR	cons01	8.00	r			6320190.14	2300380.64	2311.04	2303.04
						6320397.48	2300411.90	2312.00	2304.00
						6320657.47	2300291.78	2307.71	2299.71
						6320404.06	2299742.17	2304.92	2296.92
						6320349.76	2299766.86	2305.99	2297.99
						6320336.59	2299737.24	2308.00	2300.00
						6320129.26	2299831.03	2309.01	2301.01
						6320019.01	2300008.75	2308.90	2300.90
CONCRETEPOUR	cons02	8.00	r			6320851.65	2300369.12	2309.36	2301.36
						6320910.89	2300337.85	2313.00	2305.00
						6320919.11	2300360.89	2312.71	2304.71
						6321248.22	2300211.15	2311.93	2303.93
						6321235.06	2300188.11	2313.00	2305.00
						6321294.29	2300161.78	2309.36	2301.36
						6321040.88	2299615.47	2306.00	2298.00
						6320986.58	2299643.44	2306.97	2298.96
						6320961.90	2299585.85	2309.39	2301.39
						6320641.02	2299735.59	2310.00	2302.00
						6320668.99	2299809.64	2310.69	2302.69
						6320611.40	2299837.61	2306.13	2298.13
CONCRETEPOUR	cons03	8.00	r			6321483.53	2300023.56	2314.99	2306.99
						6321523.02	2300003.81	2317.66	2309.66
						6321549.35	2300061.41	2314.00	2306.00
						6322253.64	2299733.94	2318.00	2310.00
						6322225.67	2299681.29	2319.75	2311.75
						6322237.18	2299674.71	2319.00	2311.00
						6322112.12	2299399.90	2319.00	2311.00
						6322059.47	2299421.29	2318.13	2310.13
						6322033.14	2299373.57	2317.72	2309.71
						6321388.09	2299671.41	2313.87	2305.87
						6321417.71	2299732.30	2318.40	2310.40
						6321360.12	2299760.27	2313.46	2305.46
CONCRETEPOUR	cons04	8.00	r			6321207.08	2299470.66	2308.94	2300.94
						6321259.74	2299444.33	2311.29	2303.29
						6321282.78	2299498.63	2310.91	2302.91
						6321960.73	2299189.27	2314.58	2306.58
						6321927.82	2299136.62	2315.60	2307.60
						6321978.84	2299115.22	2318.79	2310.79
						6321855.42	2298851.94	2319.00	2311.00
						6321085.31	2299205.73	2315.00	2307.00