Desert Grove Retail Project

NOISE IMPACT ANALYSIS

CITY OF VICTORVILLE

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
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
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
PPV	Peak Particle Velocity
Project	Desert Grove Retail Project
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, if any, for the proposed Desert Grove Retail Project ("Project"). The Project site is located at the southwest corner of the U.S. Highway (US-395) and Palmdale Road (SR-18), in the City of Victorville. The Project proposes development of approximately 96,300 square feet of commercial/retail uses on an approximately 14.8-acre site. This study has been prepared consistent with applicable City of Victorville noise standards, and identifies significance criteria based on guidance provided in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) Additionally, since receiver locations north of SR-18 are located within the City of Adelanto boundaries, applicable City of Adelanto standards are identified in this noise study.

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 10 roadway segments adjacent to the Project site entrance were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts provided in the *SWC US-395/Palmdale Road (SR-18) Traffic Impact Analysis*, prepared by TJW Engineering, Inc.. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing, Opening Year 2019, Interim Year, and General Plan 2040 conditions. The analysis shows that the unmitigated Project traffic noise level increases under all traffic scenarios will be *less than significant*.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the potential noise sources within Desert Grove Retail Project site, this analysis estimates the Project daytime operational (stationary-source) noise levels at the nearby receiver locations. The Project operational noise sources are expected to include roof-top air conditioning units, drive-through speakerphones, gas station activity, parking lot vehicle movements, car wash tunnel, entry, and vacuum activities, loading dock activity, shopping cart corrals, and temporary RV idling/parking activity.

OPERATIONAL NOISE LEVEL COMPLIANCE

The analysis shows that the unmitigated Project operational noise levels will satisfy the City of Victorville and Adelanto daytime and nighttime exterior noise level standards at the off-site receiver locations in the Project study area. Therefore, operational noise impacts will be *less than significant* at nearby sensitive receiver locations.

OPERATIONAL NOISE LEVEL CONTRIBUTIONS

This analysis demonstrates that the unmitigated Project noise level increases to the existing noise environment at all noise-sensitive receiver locations would be less than the Federal Interagency Committee on Noise (FICON) guidance for noise level increases, and thus would be *less than significant* during daytime and nighttime hours. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the roof-top air conditioning units, drive-through speakerphones, gas station activity, parking lot vehicle movements, car wash tunnel, entry, and vacuum activities, loading dock activity, shopping cart corrals, and temporary RV idling/parking activity will be *less than significant*.

CONSTRUCTION NOISE ANALYSIS

Construction activities are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site. Using sample reference noise levels to represent the planned construction activities of Desert Grove Retail Project site, this analysis estimates the Project construction noise levels at nearby sensitive receiver locations.

CONSTRUCTION NOISE LEVEL COMPLIANCE

Since the City of Victorville and Adelanto General Plans and Municipal Codes do not identify specific construction noise level thresholds, a threshold is identified based on the National Institute for Occupational Safety and Health (NIOSH) limits for construction noise. The Project short-term construction noise levels are expected to range from 35.9 to 78.6 dBA L_{eq} and will satisfy the 85 dBA L_{eq} threshold identified by NIOSH at all receiver locations, and as such, all nearby receiver locations will experience *less than significant* impacts due to temporary Project construction noise levels. The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from primary construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location.

TEMPORARY CONSTRUCTION NOISE LEVEL CONTRIBUTIONS

To describe the temporary Project construction noise level contributions to the existing ambient noise environment, the Project construction noise levels were combined with the existing daytime noise levels measurements at the off-site noise-sensitive receiver locations. A temporary noise level increase of 12 dBA L_{eq} is considered a potentially significant impact based on the Caltrans substantial noise level increase criteria which is used in this report to assess the Project-construction noise level increases. (3) The analysis shows that the Project will contribute unmitigated construction noise level increases ranging from 0.7 to 4.7 dBA L_{eq} when located at the closest point from primary Project construction activities to the nearby sensitive receiver locations. Since the worst-case temporary noise level increase during Project construction will satisfy the 12 dBA L_{eq} significance threshold, the unmitigated construction noise level increases are considered *less than significant* temporary noise impacts.

CONSTRUCTION VIBRATION ANALYSIS

At distances ranging from 54 to 1,289 feet from Project construction activity, construction vibration velocity levels are expected to range from 6.6 to 77.0 VdB. The Federal Transit Administration (FTA) threshold of 80 VdB is used in this analysis since the City of Victorville does not identify specific vibration level standards, and since it represents a more conservative threshold than the City of Adelanto vibration level standards. Project construction vibration levels of up to 77.0 VdB will remain below the 80 VdB FTA standard, and therefore, Project construction vibration levels are considered a *less than significant* vibration impact.

Further, vibration levels at the site of the closest receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter.

CONSTRUCTION NOISE AND VIBRATION BEST PRACTICES

The following best practices are not required but would help reduce noise levels produced by the construction equipment to the nearby sensitive residential land uses.

- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the center).
- The contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck noise.

SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this Desert Grove Retail Project Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	9	*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Desert Grove Retail Project ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project long-term operational and short-term construction noise impacts.

1.1 SITE LOCATION

The proposed Desert Grove Retail Project is located at the southwest corner of the U.S. Highway (US-395) and Palmdale Road (SR-18) in the City of Victorville, as shown on Exhibit 1-A. The Project site is bounded by commercial uses and vacant land to the north (within the City of Adelanto), south, and east (within the City of Victorville); with existing residential homes located west of the Project site in the City of Victorville.

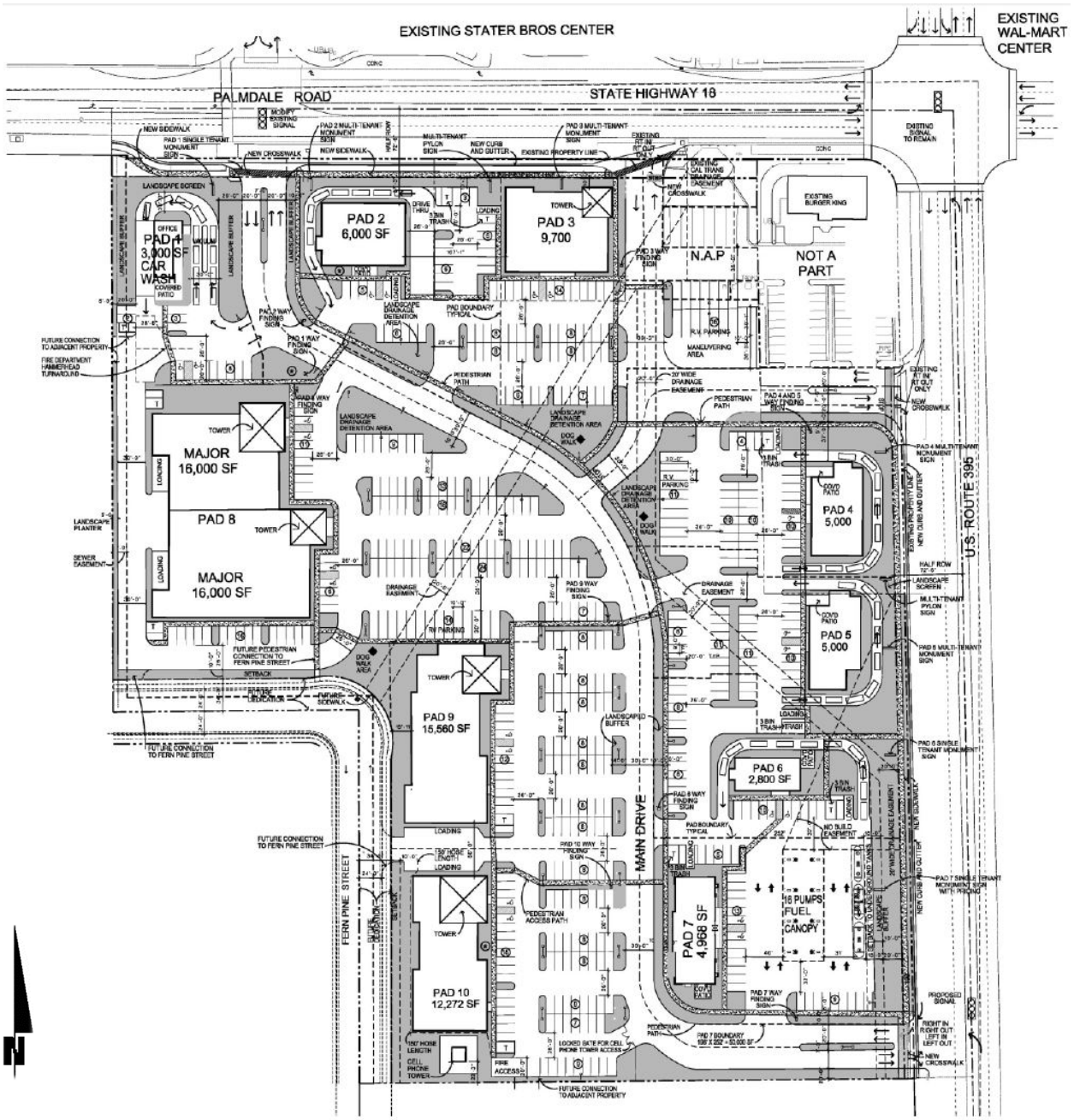
1.2 PROJECT DESCRIPTION

The Project proposes development of approximately 96,300 square feet of commercial/retail uses on an approximately 14.8-acre site, as shown on Exhibit 1-B.

The on-site Project noise sources are expected to include: roof-top air conditioning units, drive-through speakerphones, gas station activity, parking lot vehicle movements, car wash tunnel, entry, and vacuum activities, loading dock activity, shopping cart corrals, and temporary RV idling/parking activity. This noise analysis describes and evaluates noise level impacts associated with 24-hour operational activities at the Project site.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise has been 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. (4) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (5) 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 commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (4)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor 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 receptor, 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 receptor 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. (6)

2.3.3 ATMOSPHERIC EFFECTS

Receptors 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. (4)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. 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 resident. 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 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 receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor 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 receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (6)

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)

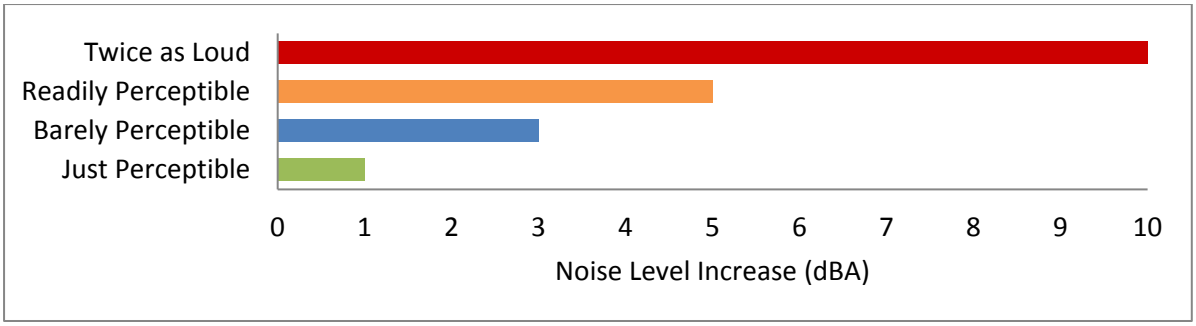
2.7 COMMUNITY RESPONSE TO NOISE

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

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (8) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (8) 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. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (6)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (9)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project operational and construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (10)

2.9 VIBRATION

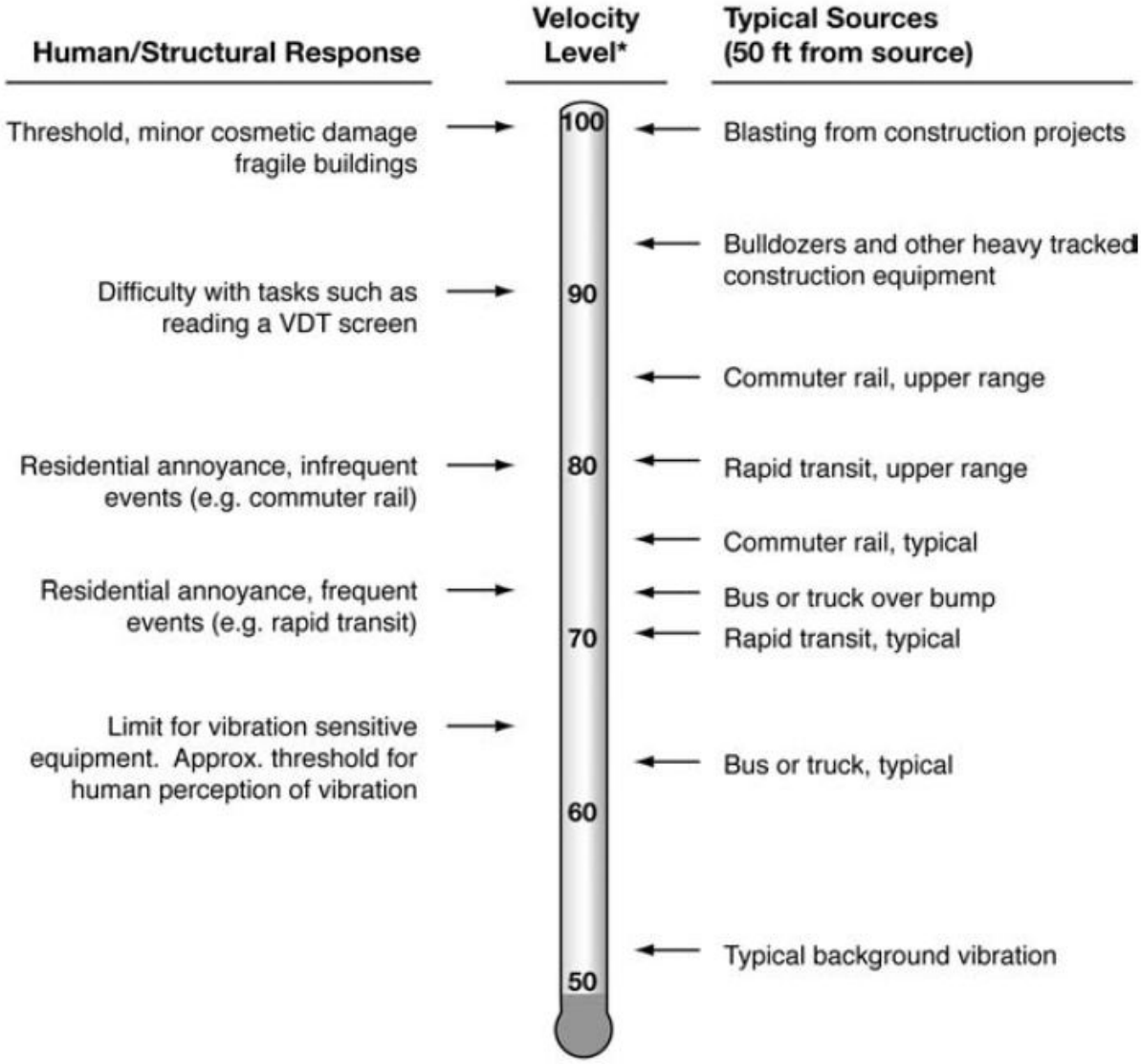
Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (11), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural 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.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

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



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

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

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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. (12) 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 STATE OF CALIFORNIA BUILDING STANDARDS

The 2016 State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (13) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available, and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 CITY OF VICTORVILLE GENERAL PLAN NOISE ELEMENT

The City of Victorville *General Plan Noise Element* is *intended to limit exposure of the community to excessive noise levels*. (14) The City of Victorville *General Plan Noise Element* land use compatibility standards specify the noise levels allowable for new developments impacted by transportation noise sources. The City's compatibility criteria, found in Table N-3 of the *General Plan,* identify the criteria for commercial land uses such as the Project, as shown on Exhibit 3-A. When the unmitigated exterior noise levels approach 65 dBA CNEL commercial land use is considered *normally acceptable*. With exterior noise levels ranging from 70 to 75 dBA CNEL, commercial land uses are considered *conditionally acceptable*. With exterior noise levels greater than 75 dBA CNEL, commercial land uses are considered *normally unacceptable*. Residential uses are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* when exterior noise levels exceed 65 dBA CNEL.

EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY CRITERIA

Table N-3
Victorville Land Use Compatibility Standards

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

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

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

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Desert Grove Retail Project, stationary-source (operational) noise such as the expected roof-top air conditioning units, drive-through speakerphones, gas station activity, parking lot vehicle movements, car wash tunnel, entry, and vacuum activities, loading dock activity, shopping cart corrals, and temporary RV idling/parking activity are typically evaluated against standards established under a jurisdiction's Municipal Code.

Section 13.01.030 of the City of Victorville Municipal Code, establishes the noise level standards for stationary noise sources. Since the Project land use will potentially impact non-noise-sensitive commercial uses in addition to noise-sensitive uses in the Project study area, this noise study relies on the exterior noise level standards for all land uses identified by the City of Victorville Municipal Code. For industrial uses, exterior noise levels shall not exceed 75 dBA L_{eq} at any time; exterior noise levels at commercial uses shall not exceed 70 dBA L_{eq} at any time. For residential properties, the exterior noise level shall not exceed 65 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 55 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (15) The operational noise level standards are shown on Table 3-1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land Use	Time Period	Exterior Noise Level Standard (dBA L_{eq})[2]
City of Victorville[1]	Residential	Daytime (7:00 a.m. - 10:00 p.m.)	65
		Nighttime (10:00 p.m. - 7:00 a.m.)	55
	Commercial	Anytime	70
	Industrial	Anytime	75

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

3.5 CONSTRUCTION NOISE STANDARDS

Neither the City of Victorville General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*.

To evaluate whether the Project will generate potentially significant construction noise levels at off-site sensitive receiver locations, a construction noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (16) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This

results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (16) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby receiver locations. Since this construction noise level threshold represents the energy average of the noise source over a given time, they are expressed as L_{eq} noise levels. Therefore, the noise level threshold of 85 dBA L_{eq} over a period of eight hours or more is used to evaluate the potential Project construction noise level impacts at the nearby receiver locations.

3.6 CONSTRUCTION VIBRATION STANDARDS

The City of Victorville has not identified or adopted specific vibration level standards. However, the United States Department of Transportation Federal Transit Administration (FTA) provides guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines allow 80 VdB for residential uses and buildings where people normally sleep. (11) Operational and construction activities can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. The FTA guidelines of 80 VdB for sensitive land uses provide a substantiated basis for determining the relative significance of potential Expansion Project vibration impacts due to on-site operational and construction activities.

3.7 CITY OF ADELANTO STANDARDS

The City of Adelanto jurisdictional boundaries are located north of the Project site on the north side of SR-18. Therefore, this section includes a review of applicable City of Adelanto noise standards as they relate to the analysis presented herein at receiver location R1 and land uses adjacent to roadway segments conveying Project traffic in the City of Adelanto.

3.7.1 CITY OF ADELANTO TRANSPORTATION NOISE LEVEL STANDARDS

The City of Adelanto General Plan Noise Element identifies land use compatibility criteria in Table VIII-2. Table VIII-2 indicates residential uses require noise reduction analysis when exterior noise levels range from 65 to 70 dBA CNEL. (17) Commercial uses are considered *compatible* with exterior noise levels approaching 70 dBA CNEL. This criteria is generally consistent with the City of Victorville's General Plan compatibility criteria previously shown on Exhibit 3-A. As such, 65 dBA CNEL is considered the threshold of compatibility for residential uses, and 70 dBA CNEL for commercial uses, based on the City of Victorville and Adelanto General Plan Noise Elements for this noise study.

3.7.2 CITY OF ADELANTO OPERATIONAL NOISE LEVEL STANDARDS

The City of Adelanto Municipal Code, Section 17.90.020(b)(1) indicates that the General Plan Noise Element, Table VIII-2 Land Use Compatibility Guidelines Related to Noise Exposure shall apply to land uses city-wide and shall be used to define acceptable and unacceptable noise levels. The lowest exterior noise level criteria identified for the noise-sensitive residential use in the Project study area in Table VIII-2 of the General Plan Noise Element is 65 dBA L_{eq}, with 70 dBA L_{eq} identified for commercial uses. (17) These standards are, therefore, consistent with standards identified in Section 13.01.030 of the City of Victorville Municipal Code. As such, the 65 dBA L_{eq} and 70 dBA L_{eq} exterior noise level limits are used to evaluate Project operational noise levels at noise-sensitive residential uses in the Project study area in both the City of Victorville and Adelanto jurisdictions. However, the City of Victorville specifies more restrictive nighttime exterior noise level limits for noise-sensitive uses of 55 dBA L_{eq}, and as such, the analysis herein relies on the more restrictive City of Victorville standards for operational noise.

3.7.3 CITY OF ADELANTO CONSTRUCTION NOISE LEVEL STANDARDS

Similar to the City of Victorville, neither the City of Adelanto General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. Therefore, the NIOSH 85 dBA L_{eq} threshold previously identified in Section 3.5 is used in this analysis for all receiver locations.

3.7.2 CITY OF ADELANTO VIBRATION LEVEL STANDARDS

The City of Adelanto Code, Section 17.90.030 *Vibration*, identifies a vibration level standard of 0.2 in/sec PPV. (18) However, the FTA 80 VdB standard previously identified in Section 3.6 represents a more conservative threshold for this analysis since it equates to approximately 0.01 in/sec PPV, and therefore, the FTA threshold is used in this report.

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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?

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

The Project site is not located within two miles of a public airport or within an airport land use plan; nor is the Project within the vicinity of a private airstrip. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Guideline C.

4.1 NOISE INCREASES

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (19)

4.1.1 SUBSTANTIAL PERMANENT NOISE LEVEL INCREASES

There is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise

(FICON) (20) 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 the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (19) For example, if the ambient noise environment is quiet (less than 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, FICON identifies a *readily perceptible* 5 dBA or greater project noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. 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. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF LONG-TERM NOISE INCREASES AT NOISE-SENSITIVE RECEIVERS

Without Project Noise Level	Potential Significant Impact
< 60 dBA	5 dBA or more
60 - 65 dBA	3 dBA or more
> 65 dBA	1.5 dBA or more

Federal Interagency Committee on Noise (FICON), 1992.

4.1.2 SUBSTANTIAL TEMPORARY OF PERIODIC NOISE LEVEL INCREASES

Project construction activities could result in potentially significant, temporary and periodic noise increases. For the purposes of this analysis, the Caltrans *Traffic Noise Analysis Protocol* 12 dBA L_{eq} *substantial* noise level increase threshold is used to assess temporary noise level increases. (3) If the Project construction noise levels generate a temporary noise level increase above the existing ambient noise levels of up to 12 dBA L_{eq}, then the Project construction noise level increases will be considered a potentially significant impact. Although the Caltrans recommendations were specifically developed to assess traffic noise impacts, the 12 dBA L_{eq} substantial noise level increase threshold is used in California generally to address the potential significance of ambient noise level increases. (3)

4.2 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-2 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE AND VIBRATION[1]

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
    - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater noise level increase; or
    - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater noise level increase; or
    - already exceed 65 dBA CNEL, and the Project creates a noise level increase greater than 1.5 dBA CNEL (FICON, 1992).

OPERATIONAL NOISE AND VIBRATION[2]

- If Project operational (stationary/area-source) noise levels would result in exceedances of the exterior noise level standards at receiving land use categories identified in Table 3-1.
- If the existing ambient noise levels at receiving noise-sensitive land uses:
    - are less than 60 dBA L_{eq} and the Project creates a *readily perceptible* 5 dBA L_{eq} or greater noise level increase; or
    - range from 60 to 65 dBA L_{eq} and the Project creates a *barely perceptible* 3 dBA L_{eq} or greater noise level increase; or
    - already exceed 65 dBA L_{eq}, and the Project creates a noise increase greater than 1.5 dBA L_{eq} (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project construction activities:
    - create noise levels which exceed the 85 dBA L_{eq} at receiving land uses (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998);
    - generate temporary Project construction noise level increases which exceed the 12 dBA L_{eq} substantial noise level increase threshold at noise-sensitive receiver locations (Caltrans, Traffic Noise Analysis Protocol).
- If Project construction-source vibration levels could exceed the FTA maximum acceptable vibration standard of 80 vibration decibels (VdB) at receiving land uses.

[1] Maximum potential vibration levels received at off-site land uses would occur during Project construction activities. The Project does not propose or require uses or actvities that would generate traffic resulting in potentially significant off-site vibration impacts.

[2] Maximum potential vibration levels received at off-site land uses would occur during Project construction activities. The Project does not propose or require uses or actvities that would result in potentially significant operational-source off-site vibration impacts.

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic[1]	Noise-Sensitive	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	
Operational	Multiple	Exterior Noise Level Standards	See Table 3-1.	
	Noise-Sensitive[1]	if ambient is < 60 dBA L_{eq}	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}	≥ 1.5 dBA L_{eq} Project increase	
Construction	All	Noise Level Threshold[2]	85 dBA L_{eq}	
	Noise-Sensitive	Noise Level Increase[3]	12 dBA L_{eq}	
	All	Vibration Level Threshold[4]	80 VdB	

[1] Source: FICON, 1992.
[2] Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.
[3] Source: Caltrans Traffic Noise Analysis Protocol, May 2011.
[4] Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "PPV" = peak particle velocity.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, six 24-hour noise level measurements were taken at receiver 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, October 30th, 2018. 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 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. (21)

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 any 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*. (4) 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*. (11)

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. (11) 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 average or equivalent 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. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels on Pearmain Street northwest of the Project site near an existing commercial area and vacant lot. The noise level measurements collected show an overall 24-hour exterior noise level of 70.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 66.5 dBA L_{eq} with an average nighttime noise level of 62.7 dBA L_{eq}.
- Location L2 represents the noise levels east of the Project site on US 395 south of an existing ARCO gas station in a vacant lot. The noise level measurements collected show an overall 24-hour exterior noise level of 75.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 68.8 dBA L_{eq} with an average nighttime noise level of 68.7 dBA L_{eq}.
- Location L3 represents the noise levels east of the Project site on Camino Alto Way near an existing single-family residential neighborhood. The 24-hour CNEL indicates that the overall exterior noise level is 58.6 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 54.2 dBA L_{eq} with an average nighttime noise level of 51.2 dBA L_{eq}.
- Location L4 represents the noise levels south of the Project site on Fern Pine Road near an existing single-family residential neighborhood. The noise level measurements collected show an overall 24-hour exterior noise level of 57.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 51.8 dBA L_{eq} with an average nighttime noise level of 50.0 dBA L_{eq}.
- Location L5 represents the noise levels southwest of the Project site on Fair Hills Lane near an existing single-family residential neighborhood. The 24-hour CNEL indicates that the overall exterior noise level is 58.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 52.8 dBA L_{eq} with an average nighttime noise level of 51.1 dBA L_{eq}.
- Location L6 represents the noise levels west of the Project site on Mesa View Drive south of Palmdale Road. The noise level measurements collected show an overall 24-hour exterior noise level of 71.7 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 67.2 dBA L_{eq} with an average nighttime noise level of 64.3 dBA L_{eq}.

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

The background ambient noise levels in the Project study area are dominated by the transportation noise associated with the arterial roadway network. The 24-hour existing noise level measurements shown on Table 5-1 present the existing ambient noise conditions.

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

Location[1]	Distance to Project Boundary (Feet)	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
			Daytime	Nighttime	
L1	475'	Located on Pearmain Street northwest of the Project site near an existing commercial area and vacant lot.	66.5	62.7	70.5
L2	95'	Located east of the Project site on US 395 south of an existing ARCO gas station in a vacant lot.	68.8	68.7	75.4
L3	2,355'	Located east of the Project site on Camino Alto Way near an existing single-family residential neighborhood.	54.2	51.2	58.6
L4	1,245'	Located south of the Project site on Fern Pine Road near an existing single-family residential neighborhood.	51.8	50.0	57.1
L5	975'	Located southwest of the Project site on Fair Hills Lane near an existing single-family residential neighborhood.	52.8	51.1	58.3
L6	1,685'	Located west of the Project site on Mesa View Drive south of Palmdale Road.	67.2	64.3	71.7

[1] See Exhibit 5-A for the noise level measurement locations.
[2] The long-term 24-hour measurement printouts 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.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (22) 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. (23) 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.

6.2 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 10 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Victorville General Plan Circulation Element, and the posted vehicle speeds. Exhibit 6-A shows the off-site roadway segments used in this analysis, which were selected based on the roadway segments conveying Project traffic as identified in the *Traffic Impact Analysis*.

The ADT volumes used in this study are presented on Tables 6-2 and 6-3 for the following traffic scenarios: Existing, Opening Year 2019, Interim Year, and General Plan 2040 conditions. (2) For this analysis, soft site conditions are used to analyze the traffic noise impacts within the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Caltrans' research has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model as used in this off-site traffic noise analysis. (24)

Table 6-4 presents the time of day vehicle splits and Table 6-5 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	General Plan Land Use Designation (North/South or West/East)[1]	Existing Adjacent Land Use (North/South or West/East)[1]	Distance From Centerline To Receiving Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	Commercial/Vacant	84'	55
2	US-395	n/o Dos Palmas Rd.	Commercial	Commercial/Vacant	84'	55
3	US-395	n/o Luna Rd.	Residential/Commercial	Residential/Vacant	84'	55
4	US-395	n/o La Mesa Rd.	Commercial/Residential	Vacant/Vacant	40'	55
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	Vacant/Commercial	40'	55
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	Vacant/Residential	72'	55
7	Luna Rd.	e/o US-395	Residential	Vacant/Residential	40'	40
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	Commercial/Vacant/Inst.	72'	55
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	Commercial/Residential	72'	55
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	Commercial/Residential	72'	55

[1] Land use designations based on the City of Victorville General Plan Land Use & Zoning Districts Map, and existing land uses based on Nearmap aerial imagery dated August 15th, 2018.
[2] Distance to receiving land use is based upon the right-of-way distances for each functional roadway classification provided in the General Plan Circulation Element.
[3] Posted vehicle speeds.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES (1 OF 2)

ID	Roadway	Segment	Average Daily Traffic (1,000's)[1]			
			Existing		Opening Year 2019	
			Without Project	With Project	Without Project	With Project
1	SR-395	n/o Palmdale Rd. (SR-18)	30.2	31.0	32.1	32.8
2	SR-395	n/o Dos Palmas Rd.	33.8	38.5	36.0	40.5
3	SR-395	n/o Luna Rd.	29.0	32.6	30.7	34.4
4	SR-395	n/o La Mesa Rd.	27.3	28.3	29.0	30.0
5	SR-395	n/o Bear Valley Rd.	24.8	25.4	26.3	26.9
6	Palmdale Rd. (SR-18)	w/o SR-395	24.4	25.7	25.9	27.2
7	Luna Rd.	e/o SR-395	4.9	7.5	5.3	7.8
8	Palmdale Rd. (SR-18)	e/o Cantina St.	22.0	24.1	23.4	25.5
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	23.0	24.7	24.4	26.1
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	22.7	24.1	24.0	25.5

[1] Source: SWC US-395/Palmdale Road (SR-18) Traffic Impact Analysis, TJW Engineering, Inc.

TABLE 6-3: AVERAGE DAILY TRAFFIC VOLUMES (2 OF 2)

ID	Roadway	Segment	Average Daily Traffic (1,000's)[1]			
			Interim Year		General Plan 2040	
			Without Project	With Project	Without Project	With Project
1	SR-395	n/o Palmdale Rd. (SR-18)	42.9	43.7	55.5	56.3
2	SR-395	n/o Dos Palmas Rd.	45.2	49.9	56.5	61.2
3	SR-395	n/o Luna Rd.	42.9	46.5	56.9	60.5
4	SR-395	n/o La Mesa Rd.	42.1	43.1	56.9	57.9
5	SR-395	n/o Bear Valley Rd.	38.2	38.8	51.7	52.3
6	Palmdale Rd. (SR-18)	w/o SR-395	25.8	27.1	27.1	28.4
7	Luna Rd.	e/o SR-395	5.2	7.7	5.5	7.9
8	Palmdale Rd. (SR-18)	e/o Cantina St.	25.6	27.7	29.2	31.3
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	26.8	28.6	30.7	32.5
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	26.2	27.6	29.7	31.1

[1] Source: SWC US-395/Palmdale Road (SR-18) Traffic Impact Analysis, TJW Engineering, Inc.

TABLE 6-4: TIME OF DAY VEHICLE SPLITS

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

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

TABLE 6-5: WITHOUT PROJECT CONDITIONS VEHICLE MIX

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

[1] Source: Typical Southern California vehicle mix.

6.3 CONSTRUCTION VIBRATION ASSESSMENT METHODOLOGY

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

Whereas, vehicular-source traffic vibration is rarely perceptible, construction activities have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-6. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $L_{VdB}(D) = L_{VdB}(25\text{ ft}) - 30\log(D/25)$

TABLE 6-6: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	Vibration Decibels (VdB) at 25 feet[1]
Small bulldozer	58
Jackhammer	79
Loaded Trucks	86
Large bulldozer	87

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.

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7 OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site traffic CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on the *Traffic Impact Analysis*. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Conditions Without / With Project: This scenario refers to the existing present-day noise conditions without and with the proposed Project.
- Opening Year 2019 Without / With the Project: This scenario refers to Opening Year noise conditions with ambient growth, without and with the proposed Project. This scenario includes all cumulative traffic volumes identified in the *Traffic Impact Analysis*.
- Interim Year Without / With the Project: This scenario refers to Interim Year noise conditions with ambient growth, without and with the proposed Project. This scenario includes all cumulative traffic volumes identified in the *Traffic Impact Analysis*.
- General Plan 2040 Without / With the Project: This scenario refers to Year 2040 noise conditions with ambient growth, without and with the proposed Project. This scenario includes all cumulative traffic volumes identified in the *Traffic Impact Analysis*.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic noise impacts at receiving land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 to 7-12 present a summary of the exterior traffic noise levels, without barrier attenuation, for the study area roadway segments analyzed from the without Project to the with Project conditions under Existing, Opening Year 2019, Interim Year, and General Plan 2040 traffic conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Receiving Land Use General Plan Designation[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	70.8	95	205	441
2	US-395	n/o Dos Palmas Rd.	Commercial	71.3	102	221	475
3	US-395	n/o Luna Rd.	Residential/Commercial	70.6	92	199	429
4	US-395	n/o La Mesa Rd.	Commercial/Residential	74.5	80	172	371
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	74.1	75	161	348
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	70.6	79	170	366
7	Luna Rd.	e/o US-395	Residential	63.6	RW	RW	69
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	70.1	74	159	342
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	70.3	76	163	352
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	70.3	75	162	349

[1] Source: City of Victorville General Plan Land Use & Zoning Districts Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Receiving Land Use General Plan Designation[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	70.9	97	208	449
2	US-395	n/o Dos Palmas Rd.	Commercial	71.9	112	241	519
3	US-395	n/o Luna Rd.	Residential/Commercial	71.1	100	215	464
4	US-395	n/o La Mesa Rd.	Commercial/Residential	74.7	82	176	380
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	74.2	76	164	353
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	70.8	82	176	379
7	Luna Rd.	e/o US-395	Residential	65.4	RW	RW	92
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	70.5	78	168	363
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	70.6	79	171	369
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	70.5	78	168	363

[1] Source: City of Victorville General Plan Land Use & Zoning Districts Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: OPENING YEAR WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Receiving Land Use General Plan Designation[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	71.1	99	213	459
2	US-395	n/o Dos Palmas Rd.	Commercial	71.6	107	230	496
3	US-395	n/o Luna Rd.	Residential/Commercial	70.9	96	207	446
4	US-395	n/o La Mesa Rd.	Commercial/Residential	74.8	83	179	386
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	74.3	78	168	362
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	70.9	82	177	381
7	Luna Rd.	e/o US-395	Residential	63.9	RW	RW	73
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	70.4	77	165	356
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	70.6	79	170	366
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	70.5	78	168	362

[1] Source: City of Victorville General Plan Land Use & Zoning Districts Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: OPENING YEAR WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Receiving Land Use General Plan Designation[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	71.2	100	216	466
2	US-395	n/o Dos Palmas Rd.	Commercial	72.1	116	249	536
3	US-395	n/o Luna Rd.	Residential/Commercial	71.4	104	223	481
4	US-395	n/o La Mesa Rd.	Commercial/Residential	74.9	85	183	395
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	74.4	79	170	367
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	71.1	85	183	393
7	Luna Rd.	e/o US-395	Residential	65.6	RW	RW	94
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	70.8	81	175	377
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	70.9	82	178	383
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	70.8	81	175	377

[1] Source: City of Victorville General Plan Land Use & Zoning Districts Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: INTERIM YEAR WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Receiving Land Use General Plan Designation[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	72.3	120	259	557
2	US-395	n/o Dos Palmas Rd.	Commercial	72.6	124	268	577
3	US-395	n/o Luna Rd.	Residential/Commercial	72.3	120	259	557
4	US-395	n/o La Mesa Rd.	Commercial/Residential	76.4	107	230	495
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	76.0	100	215	464
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	70.8	82	176	380
7	Luna Rd.	e/o US-395	Residential	63.8	RW	RW	72
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	70.8	81	175	378
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	71.0	84	181	390
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	70.9	83	178	384

[1] Source: City of Victorville General Plan Land Use & Zoning Districts Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: INTERIM YEAR WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Receiving Land Use General Plan Designation[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	72.4	122	262	564
2	US-395	n/o Dos Palmas Rd.	Commercial	73.0	133	286	617
3	US-395	n/o Luna Rd.	Residential/Commercial	72.7	127	273	588
4	US-395	n/o La Mesa Rd.	Commercial/Residential	76.5	108	233	503
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	76.0	101	218	469
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	71.0	85	182	392
7	Luna Rd.	e/o US-395	Residential	65.5	RW	RW	94
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	71.1	86	185	398
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	71.3	88	189	407
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	71.1	86	184	397

[1] Source: City of Victorville General Plan Land Use & Zoning Districts Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-7: GENERAL PLAN 2040 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Receiving Land Use General Plan Designation[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	73.4	143	307	662
2	US-395	n/o Dos Palmas Rd.	Commercial	73.5	144	311	670
3	US-395	n/o Luna Rd.	Residential/Commercial	73.6	145	312	673
4	US-395	n/o La Mesa Rd.	Commercial/Residential	77.7	130	281	605
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	77.3	122	263	568
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	71.0	85	182	392
7	Luna Rd.	e/o US-395	Residential	64.1	RW	RW	75
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	71.4	89	191	413
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	71.6	92	198	427
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	71.4	90	194	417

[1] Source: City of Victorville General Plan Land Use & Zoning Districts Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-8: GENERAL PLAN 2040 WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Receiving Land Use General Plan Designation[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US-395	n/o Palmdale Rd. (SR-18)	Commercial	73.5	144	310	668
2	US-395	n/o Dos Palmas Rd.	Commercial	73.9	152	328	706
3	US-395	n/o Luna Rd.	Residential/Commercial	73.8	151	325	701
4	US-395	n/o La Mesa Rd.	Commercial/Residential	77.8	132	284	612
5	US-395	n/o Bear Valley Rd.	Commercial/Residential	77.3	123	266	572
6	Palmdale Rd. (SR-18)	w/o US-395	Commercial/Residential	71.3	87	188	405
7	Luna Rd.	e/o US-395	Residential	65.7	RW	RW	95
8	Palmdale Rd. (SR-18)	e/o Cantina St.	Commercial/Institutional	71.7	93	201	432
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	Commercial/Residential	71.8	95	206	443
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	Commercial/Residential	71.6	93	200	430

[1] Source: City of Victorville General Plan Land Use & Zoning Districts Map.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

For informational purposes, an analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report. However, the analysis of existing traffic noise levels plus traffic noise generated by the proposed Project scenario would not actually occur since the Project would not be fully constructed and operational until Opening Year conditions.

Table 7-1 presents the Existing without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 63.6 to 74.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-2 shows the Existing with Project conditions will range from 63.9 to 74.8 dBA CNEL. As shown on Table 7-9 the Project traffic generate a noise level increase of up to 0.3 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project traffic noise level increases would be *less than significant* under Existing with Project conditions.

TABLE 7-9: EXISTING CONDITION OFF-SITE PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Receiving Land Use (dBA)[1]			Noise-Sensitive Receiver Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	US-395	n/o Palmdale Rd. (SR-18)	70.8	71.1	0.3	No	No
2	US-395	n/o Dos Palmas Rd.	71.3	71.6	0.3	No	No
3	US-395	n/o Luna Rd.	70.6	70.9	0.2	Yes	No
4	US-395	n/o La Mesa Rd.	74.5	74.8	0.3	Yes	No
5	US-395	n/o Bear Valley Rd.	74.1	74.3	0.3	Yes	No
6	Palmdale Rd. (SR-18)	w/o US-395	70.6	70.9	0.3	Yes	No
7	Luna Rd.	e/o US-395	63.6	63.9	0.3	Yes	No
8	Palmdale Rd. (SR-18)	e/o Cantina St.	70.1	70.4	0.3	Yes	No
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	70.3	70.6	0.3	Yes	No
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	70.3	70.5	0.2	Yes	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Significance Criteria (Section 4).

7.3 OPENING YEAR 2019 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-3 presents the Opening Year without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 63.9 to 74.8 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-4 shows the Opening Year with Project conditions will range from 65.6 to 74.9 dBA CNEL. As shown on Table 7-10 the Project traffic will generate a noise level increase of up to 1.7 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project traffic noise level increases would be considered *less than significant* under Opening Year with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-10: OPENING YEAR OFF-SITE PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Receiving Land Use (dBA)[1]			Noise-Sensitive Receiver Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	US-395	n/o Palmdale Rd. (SR-18)	71.1	71.2	0.1	No	No
2	US-395	n/o Dos Palmas Rd.	71.6	72.1	0.5	No	No
3	US-395	n/o Luna Rd.	70.9	71.4	0.5	Yes	No
4	US-395	n/o La Mesa Rd.	74.8	74.9	0.1	Yes	No
5	US-395	n/o Bear Valley Rd.	74.3	74.4	0.1	Yes	No
6	Palmdale Rd. (SR-18)	w/o US-395	70.9	71.1	0.2	Yes	No
7	Luna Rd.	e/o US-395	63.9	65.6	1.7	Yes	No
8	Palmdale Rd. (SR-18)	e/o Cantina St.	70.4	70.8	0.4	Yes	No
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	70.6	70.9	0.3	Yes	No
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	70.5	70.8	0.3	Yes	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Significance Criteria (Section 4).

7.4 INTERIM YEAR PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-5 presents the Interim Year without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 63.8 to 76.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-6 shows the Interim Year with Project conditions will range from 65.5 to 76.5 dBA CNEL. As shown on Table 7-11 the Project traffic will generate a noise level increase of up to 1.7 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project traffic noise level increases would be *less than significant* under Interim Year with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-11: INTERIM YEAR OFF-SITE PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Receiving Land Use (dBA)[1]			Noise-Sensitive Receiver Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	US-395	n/o Palmdale Rd. (SR-18)	72.3	72.4	0.1	No	No
2	US-395	n/o Dos Palmas Rd.	72.6	73.0	0.4	No	No
3	US-395	n/o Luna Rd.	72.3	72.7	0.3	Yes	No
4	US-395	n/o La Mesa Rd.	76.4	76.5	0.1	Yes	No
5	US-395	n/o Bear Valley Rd.	76.0	76.0	0.1	Yes	No
6	Palmdale Rd. (SR-18)	w/o US-395	70.8	71.0	0.2	Yes	No
7	Luna Rd.	e/o US-395	63.8	65.5	1.7	Yes	No
8	Palmdale Rd. (SR-18)	e/o Cantina St.	70.8	71.1	0.3	Yes	No
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	71.0	71.3	0.3	Yes	No
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	70.9	71.1	0.2	Yes	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Significance Criteria (Section 4).

7.5 GENERAL PLAN 2040 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-7 presents the General Plan 2040 without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 64.1 to 77.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-8 shows the General Plan 2040 with Project conditions will range from 65.7 to 77.8 dBA CNEL. As shown on Table 7-12 the Project traffic will generate a noise level increase of up to 1.6 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project traffic noise level increases would be *less than significant* under General Plan 2040 with Project conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-12: GENERAL PLAN 2040 OFF-SITE PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Receiving Land Use (dBA)[1]			Noise-Sensitive Receiver Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	US-395	n/o Palmdale Rd. (SR-18)	73.4	73.5	0.1	No	No
2	US-395	n/o Dos Palmas Rd.	73.5	73.9	0.3	No	No
3	US-395	n/o Luna Rd.	73.6	73.8	0.3	Yes	No
4	US-395	n/o La Mesa Rd.	77.7	77.8	0.1	Yes	No
5	US-395	n/o Bear Valley Rd.	77.3	77.3	0.1	Yes	No
6	Palmdale Rd. (SR-18)	w/o US-395	71.0	71.3	0.2	Yes	No
7	Luna Rd.	e/o US-395	64.1	65.7	1.6	Yes	No
8	Palmdale Rd. (SR-18)	e/o Cantina St.	71.4	71.7	0.3	Yes	No
9	Palmdale Rd. (SR-18)	e/o Cobalt Rd.	71.6	71.8	0.2	Yes	No
10	Palmdale Rd. (SR-18)	e/o Amethyst Rd.	71.4	71.6	0.2	Yes	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Significance Criteria (Section 4).

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8 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following receiver locations as shown on Exhibit 8-A were identified as representative locations for focused analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include: schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include: multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Noise-sensitive receivers near the Project site include existing residential homes, and non-noise-sensitive receiver locations include the existing commercial uses in the Project study area, as described below. 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.

R1: Location R1 represents the existing, non-noise-sensitive commercial use located approximately 125 feet north of the Project site on the north side of Palmdale Road.

R2: Location R2 represents the existing, non-noise-sensitive commercial-designated vacant land located approximately 128 feet east of the Project site on the east side of US-395.

R3: Location R3 represents the existing, non-noise-sensitive commercial use located approximately 34 feet south of the Project site on the west side of US-395.

R4: Location R4 represents existing, noise-sensitive residential homes south of the Project site at roughly 1,269 feet on Fern Pine Road. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents existing, noise-sensitive residential homes west of the Project site at roughly 727 feet on Brynwood Street. A 24-hour noise measurement was taken near this location, L5, to describe the existing ambient noise environment.

R6: Location R6 represents the existing, non-noise-sensitive commercial-designated vacant land located approximately 90 feet south of the Project site.

R7: Location R7 represents existing, noise-sensitive residential-designated vacant land west of the Project site at roughly 451 feet on the south side of Palmdale Road. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

R8: Location R8 represents the existing, non-noise-sensitive commercial use located approximately 94 feet northeast of the Project site on the south side of Palmdale Road.

EXHIBIT 8-A: RECEIVER LOCATIONS

9 OPERATIONAL-SOURCE NOISE IMPACTS

This section analyzes the potential operational noise impacts due to the Project's stationary noise sources on the off-site noise-sensitive receiver locations identified in Section 8. Exhibit 9-A identifies the receiver locations and noise source locations used to assess the Project operational noise levels.

9.1 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 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the roof-top air conditioning units, drive-through speakerphones, gas station activity, parking lot vehicle movements, car wash tunnel, entry, and vacuum activities, loading dock activity, shopping cart corrals, and temporary RV idling/parking activity all operating simultaneously. .

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Reference Meas. Duration (hh:mm:ss)	Dist. From Source (Feet)	Noise Source Height (Feet)	Hourly Activity (Min.)[9]	Reference Noise Levels (dBA L_{eq}) at Reference Meas. Distance	Reference Noise Levels (dBA L_{eq}) at Uniform 50 Feet
Roof-Top Air Conditioning Unit[1]	96:00:00	5'	5'	60	77.2	57.2
Drive-Through Speakerphone[2]	02:00:00	15'	3'	60	62.0	51.5
Gas Station Activity[3]	00:03:00	5'	5'	60	68.2	48.2
Parking Lot Vehicle Movements[4]	00:15:00	5'	5'	60	60.1	45.1
Car Wash Tunnel Entrance/Exit (Air Blowers)[5]	01:00:00	30'	10'	60	74.9	70.5
Car Wash Entry/Vacuum Activity[6]	00:01:02	5'	5'	60	74.6	54.6
Loading Dock Activity[7]	00:01:00	20'	8'	60	77.3	69.3
Shopping Car Corral[4]	00:00:16	5'	3'	60	72.9	52.9
RV Idling/Parking Activity[8]	00:01:00	10'	6'	60	76.4	65.9

[1] As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.
[2] As measured by Urban Crossroads, Inc. on 12/19/2014 at a Panera Bread drive-thru in the City of Brea.
[3] As measured by Urban Crossroads, Inc. on 4/26/2016 at an ARCO gas station at 6501 Quail Hill Parkway in the City of Irvine.
[4] As measured by Urban Crossroads, Inc. on 5/30/2012 at the Laguna Niguel Walmart located at 27470 Alicia Parkway.
[5] As measured by Urban Crossroads, Inc. on 9/27/2018 at the Zaroo Express Car Wash in the City of Santa Ana.
[6] As measured by Urban Crossroads, Inc. on 5/27/2011 at an express car wash located at 1195 Baker Street in Costa Mesa.
[7] As measured at a Huntington Beach store with Walmart truck loading by Urban Crossroads, Inc. on 4/14/2011.
[8] As measured by Urban Crossroads, Inc. on 9/16/2015 at the Giant RV located at 41150 Juniper Street in the City of Murrieta.
[9] Anticipated duration (minutes within the hour) of noise activity during peak hourly conditions expected at the Project site.

9.1.1 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units at the Project site, reference noise levels measurements were taken at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a mechanical roof-top air conditioning unit on the roof of an existing Walmart store, with additional units operating in the background. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. Using a uniform reference distance of 50 feet, the reference noise level is 57.2 dBA L_{eq}. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement.

9.1.2 DRIVE-THROUGH SPEAKERPHONE

To describe the potential noise level impacts associated with potential drive-thru speakerphones and vehicle activities, a reference noise level measurement was collected on Friday, December 19th, 2014 at a Panera Bread restaurant located at 423 South Associated Road in the City of Brea. The reference noise levels collected at the Panera Bread restaurant are expected to reflect potential drive-thru speakerphone noise level activities at the Project site, since the reference measurement includes both drive-thru speakerphone and vehicle activity noise. The noise sources included in the reference noise level measurement consist of voices of the Panera Bread employees over the speakerphone, customers' voices ordering food, car engines idling, car radios playing music, and cars queuing in the drive-thru lane. At 50 feet from the speakerphone, a reference noise level of 51.5 dBA L_{eq} was measured. This reference noise level measurement overstates the actual average noise levels since it represents the average of 28 speakerphone menu board ordering events observed over a two-hour period. In other words, the Panera Bread speakerphone menu board reference noise level describes continuous drive-thru operations and does not include any periods of inactivity.

9.1.3 GAS STATION ACTIVITY

To describe the potential noise level impacts created by the gas station of the proposed Project uses, a reference noise level measurement was collected on Tuesday, April 26th, 2016 at an ARCO gas station located at 6501 Quail Hill Parkway in the City of Irvine. The reference noise level measurement includes six cars fueling at once, car doors closing, engines starting, fuel pump TV sounds, and background car pass-by events within a three-minute period. At a uniform reference noise level distance of 50 feet, the reference noise level is 48.2 dBA L_{eq}.

9.1.4 PARKING LOT VEHICLE MOVEMENTS

To determine the noise levels associated with commercial parking lot vehicle movements, Urban Crossroads collected reference noise level measurements at the Laguna Niguel Walmart located at 27470 Alicia Parkway on May 30, 2012. The 15-minute noise level measurement indicates that the parking lot vehicle movements generates noise levels of 45.1 dBA L_{eq} at a normalized distance of 50 feet, accounting for soft-site conditions from a line source. The parking lot noise levels are mainly due to cars travelling in the parking lot, pulling in and out of spaces, car alarms sounding, and customers moving shopping carts.

9.1.5 CAR WASH TUNNEL ENTRANCE/EXIT (AIR BLOWERS)

To determine potential noise levels created by the car wash tunnel at the Project site, reference noise levels measurements were taken at the Zaroo Express Car Wash in the City of Santa Ana on September 27th, 2018. The reference noise level was measured at 70.5 dBA L_{eq} at the uniform distance of 50 feet during peak operating times at the express car wash, and represents a car in the car wash tunnel exit, water sprayers, and air blowers operating simultaneously. In addition, background parking lot vehicle movements and vacuum activities are included in this reference noise level measurement. To present a conservative approach, this analysis assumes the same reference noise source for both the car wash tunnel entrance and exit.

9.1.6 CAR WASH ENTRY/VACUUM ACTIVITY

To represent the vehicle entry and vacuum activity within the express car wash at the Project site, a reference noise level measurement was collected on May 27th, 2011 at an express car wash located at 1195 Baker Street in the City of Costa Mesa. The reference noise level measurement represents up to four vacuums operating simultaneously near the vehicle entry at the Costa Mesa express car wash. At a uniform reference distance of 50 feet, the vacuum reference noise level is 54.6 dBA L_{eq}.

9.1.7 LOADING DOCK ACTIVITIES

To evaluate the noise impacts associated with the delivery truck tractor trailer unloading/loading activities, a reference noise level measurement was taken at a large anchor store located at the southwest corner of Goldenwest Street and Edinger Avenue by Urban Crossroads Inc. on April 14th, 2011 in the City of Huntington Beach. The reference noise level measurement includes a Walmart truck approaching, backing-into, and docking in the loading area of the anchor store. The primary noise generated by tractor trailer unloading is the noise of the truck arriving, backing into the dock area, detaching the cab, attaching the cab to the empty trailer, and exiting the loading dock. The unmitigated noise levels were measured at 69.3 dBA L_{eq} at a uniform reference distance of 50 feet.

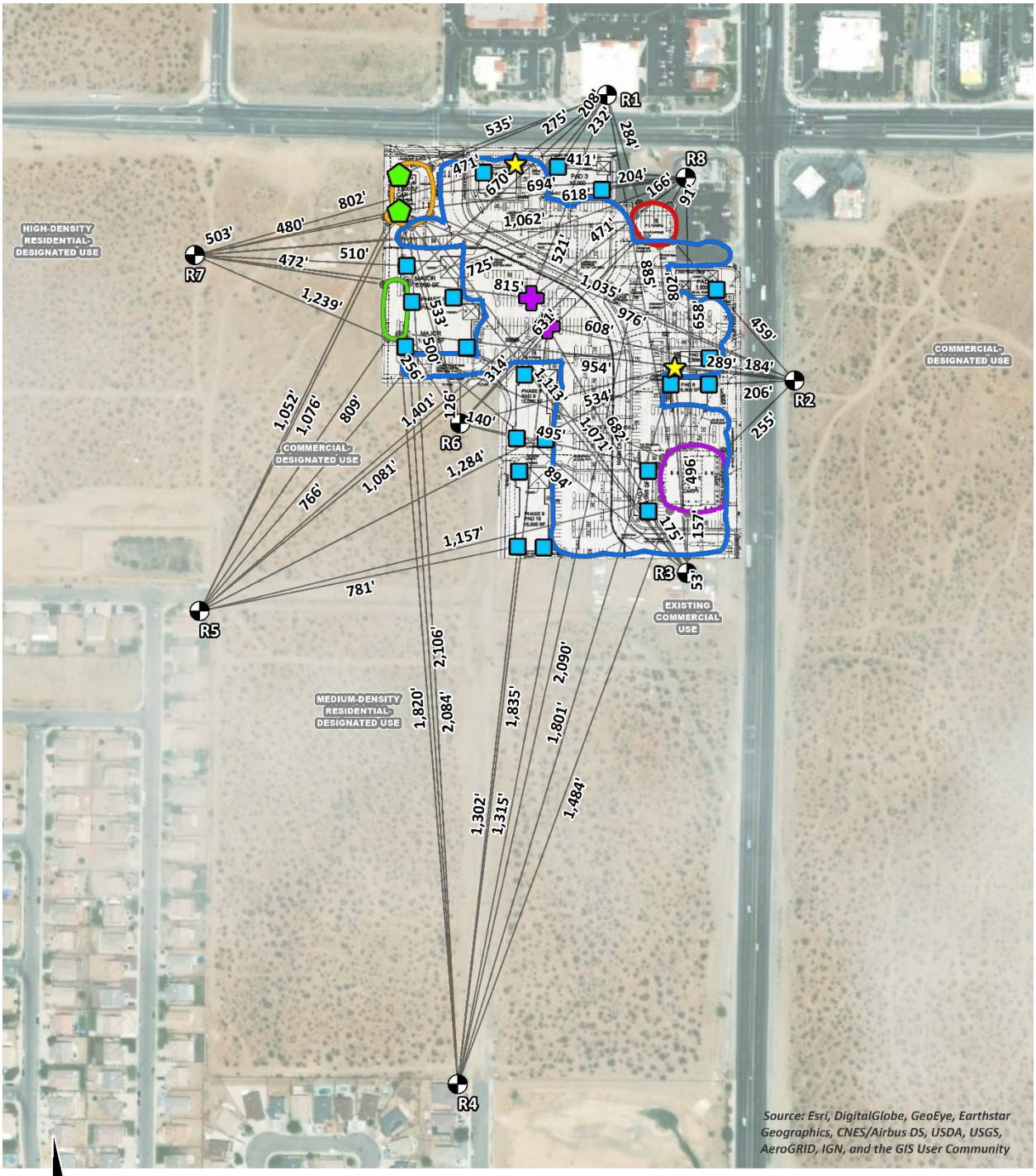
9.1.8 SHOPPING CART CORRAL (METAL CARTS)

To evaluate the noise level impacts from shopping carts placed by customers into assigned shopping cart areas, Urban Crossroads collected noise level measurements at the Laguna Niguel Walmart located at 27470 Alicia Parkway on May 30th, 2012. The reference noise level at a uniform distance of 50 feet is 52.9 dBA Leq. The noise impacts are mainly due to the metal shopping carts crashing into other carts already placed in the corral as well as striking the side rails.

9.1.9 RV IDLING/PARKING ACTIVITY

On Wednesday, September 16th, 2015, Urban Crossroads, Inc. collected short-term operational noise level measurements at the Giant RV Parts and Service Center located at 41150 Juniper Street in the City of Murrieta. An RV engine idle and air brake noise reference measurement was taken over a one-minute period outside of the Giant RV Murrieta service garage, with background service garage and RV towing noise sources. The reference measurement results in a noise level of 65.9 dBA L_{eq} at a uniform distance of 50 feet.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS



9.2 OPERATIONAL-SOURCE NOISE LEVELS

Based upon the reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each receiver location. The operational noise level calculations shown on Table 9-2 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. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL_1):

$$SPL_2 = SPL_1 - 20\log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location. Table 9-2 indicates that the unmitigated operational noise levels associated with the roof-top air conditioning units, drive-through speakerphones, gas station activity, parking lot vehicle movements, car wash tunnel, entry, and vacuum activities, loading dock activity, shopping cart corrals, and temporary RV idling/parking activity are expected to range from 44.6 to 62.2 dBA L_{eq} at nearby receiver locations. The unmitigated operational noise level calculation worksheets are included in Appendix 9.1.

9.3 OPERATIONAL-SOURCE NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, received Project operational-source noise levels are evaluated against City of Victorville and Adelanto exterior noise level standards. Table 9-3 shows the received operational-source noise levels associated with Desert Grove Retail Project would not exceed City of Victorville and Adelanto exterior noise level standards. On this basis, received Project operational-source noise levels impacts would not conflict with applicable noise regulations.

TABLE 9-2: UNMITIGATED PROJECT OPERATIONAL-SOURCE NOISE LEVELS

Receiver Location[1]	Land Use	Received Noise Levels by Source[2]									Unmitigated Total Project Operational Noise Levels (dBA L_{eq})[3]
		Roof-Top Air Conditioning Unit	Drive-Through Speakerphone	Gas Station Activity	Parking Lot Vehicle Movements	Car Wash Tunnel Entrance/Exit (Air Blowers)	Car Wash Entry/Vacuum Activity	Loading Dock Activity	Shopping Cart Corral	RV Idling/Parking Activity	
R1	Commercial	44.8	36.7	23.2	35.1	49.9	35.1	31.1	32.5	54.6	56.3
R2	Commercial	44.9	36.3	34.0	36.6	44.1	28.8	28.0	31.2	51.5	53.3
R3	Commercial	46.3	31.6	38.3	44.7	43.5	28.0	28.6	30.2	47.8	52.2
R4	Residential	28.9	20.4	18.8	23.8	38.0	22.2	38.1	21.6	41.6	44.6
R5	Residential	33.3	23.4	20.9	27.3	43.8	28.1	45.2	26.2	44.2	49.4
R6	Commercial	48.3	31.0	28.3	39.1	49.9	34.6	39.3	36.9	49.4	54.5
R7	Residential	37.0	25.9	20.3	30.1	50.4	35.0	49.8	28.7	46.0	54.1
R8	Commercial	45.0	25.7	25.8	37.3	42.4	26.6	30.4	33.4	62.0	62.2

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 9-1.
[3] Calculations for each noise source are provided in Appendix 9.1.

TABLE 9-3: UNMITIGATED PROJECT OPERATIONAL-SOURCE NOISE LEVEL COMPLIANCE

Receiver Location[1]	Land Use	Unmitigated Total Project Operational Noise Levels (dBA L_{eq})[2]	Threshold (dBA L_{eq})[3]		Threshold Exceeded?	
			Daytime	Nighttime	Daytime	Nighttime
R1	Commercial	56.3	70	70	No	No
R2	Commercial	53.3	70	70	No	No
R3	Commercial	52.2	70	70	No	No
R4	Residential	44.6	65	55	No	No
R5	Residential	49.4	65	55	No	No
R6	Commercial	54.5	70	70	No	No
R7	Residential	54.1	65	55	No	No
R8	Commercial	62.2	70	70	No	No

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Calculations for each noise source presented in Table 9-2 and are provided in Appendix 9.1.
[3] Exterior noise level standards (Table 3-1).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.4 PROJECT OPERATIONAL-SOURCE NOISE CONTRIBUTION

To describe the Project operational noise level contributions at nearby noise-sensitive receiver locations, the Project operational noise levels were combined with the existing ambient noise levels measurements for the off-site noise-sensitive 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. (4) 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 describe the Project noise level contributions. Noise levels that would be experienced at noise-sensitive receiver locations when unmitigated Project-source noise is added to the ambient daytime and nighttime conditions are presented on Tables 9-3 and 9-4, respectively.

As indicated on Table 9-4, the Project will contribute an unmitigated operational noise level increase during the daytime hours ranging from 0.2 to 1.6 dBA L_{eq} and during the nighttime hours ranging from 0.4 to 2.3 dBA L_{eq}. Based on the without Project (ambient) noise levels, the Project operational noise level increases will, therefore, satisfy the significance criteria discussed in Section 4, and as such, the increases at the sensitive receiver locations will be *less than significant*. On this basis, Project operational stationary-source noise would not result in a

substantial temporary/periodic, or permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project.

TABLE 9-4: UNMITIGATED DAYTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS

Noise-Sensitive 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]	Threshold[7]	Threshold Exceeded?[7]
R4	44.6	L4	51.8	52.6	0.8	5.0	No
R5	49.4	L5	52.8	54.4	1.6	5.0	No
R7	54.1	L6	67.2	67.4	0.2	1.5	No

[1] See Exhibit 9-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-2.
[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 Criteria as defined in Section 4.

TABLE 9-5: UNMITIGATED NIGHTTIME OPERATIONAL NOISE LEVEL CONTRIBUTIONS

Noise-Sensitive 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]	Threshold[7]	Threshold Exceeded?[7]
R4	44.6	L4	50.0	51.1	1.1	5.0	No
R5	49.4	L5	51.1	53.4	2.3	5.0	No
R7	54.1	L6	64.3	64.7	0.4	3.0	No

[1] See Exhibit 9-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-2.
[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 Criteria as defined in Section 4.

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10 CONSTRUCTION-SOURCE NOISE IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction activity boundaries in relation to the nearby sensitive receiver locations.

10.1 CONSTRUCTION-SOURCE NOISE LEVELS

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

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to in excess of 80 dBA when measured at 50 feet. Hard site conditions are used in the construction noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source (i.e. construction equipment). For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages and equipment used in this analysis are consistent with the *Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (25)

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances, all construction noise level measurements presented on Table 10-1 have been adjusted to describe a common reference distance of 50 feet.

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Duration (h:mm:ss)	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L_{eq})	Reference Noise Levels @ 50 Feet (dBA L_{eq})[6]
1	Truck Pass-Bys & Dozer Activity[1]	0:01:15	30'	63.6	59.2
2	Dozer Activity[1]	0:01:00	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities[2]	0:01:00	30'	71.9	67.5
4	Foundation Trenching[2]	0:01:01	30'	72.6	68.2
5	Rough Grading Activities[2]	0:05:00	30'	77.9	73.5
6	Framing[3]	0:02:00	30'	66.7	62.3
7	Two Scrapers Pass-By[4]	0:00:30	30'	83.7	79.3
8	Concrete Mixer Truck Movements[4]	0:01:00	50'	71.2	71.2
9	Concrete Paver Activities[4]	0:01:00	30'	70.0	65.6
10	Concrete Mixer Pour & Paving Activities[4]	0:01:00	30'	70.3	65.9
11	Concrete Mixer Backup Alarms & Air Brakes[4]	0:00:20	50'	71.6	71.6
12	Concrete Mixer Pour Activities[4]	1:00:00	50'	67.7	67.7

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[5] As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations within an industrial construction site located in the City of Ontario.
[4] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[6] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

EXHIBIT 10-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS

10.3 CONSTRUCTION NOISE ANALYSIS

Tables 10-2 to 10-6 show the Project construction stages and the reference construction noise levels used for each stage. Table 10-7 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations. Based on the reference construction noise levels, the Project construction noise levels when the highest reference noise level is operating at the edge of primary construction activity nearest each sensitive receiver location will range from 35.9 to 78.6 dBA L_{eq} at the sensitive receiver locations, as shown on Table 10-7.

TABLE 10-2: SITE PREPARATION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	64.2

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	145'	-9.2	0.0	54.9
R2	148'	-9.4	0.0	54.7
R3	54'	-0.7	0.0	63.5
R4	1,289'	-28.2	0.0	35.9
R5	747'	-23.5	0.0	40.7
R6	110'	-6.8	0.0	57.3
R7	471'	-19.5	0.0	44.7
R8	93'	-5.4	0.0	58.8

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 10-3: GRADING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Two Scrapers Pass-By	79.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	79.3

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	145'	-9.2	0.0	70.0
R2	148'	-9.4	0.0	69.8
R3	54'	-0.7	0.0	78.6
R4	1,289'	-28.2	0.0	51.0
R5	747'	-23.5	0.0	55.8
R6	110'	-6.8	0.0	72.4
R7	471'	-19.5	0.0	59.8
R8	93'	-5.4	0.0	73.9

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 10-4: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	68.2

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	145'	-9.2	0.0	58.9
R2	148'	-9.4	0.0	58.7
R3	54'	-0.7	0.0	67.5
R4	1,289'	-28.2	0.0	39.9
R5	747'	-23.5	0.0	44.7
R6	110'	-6.8	0.0	61.3
R7	471'	-19.5	0.0	48.7
R8	93'	-5.4	0.0	62.8

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 10-5: PAVING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Concrete Mixer Truck Movements	71.2
Concrete Paver Activities	65.6
Concrete Mixer Pour & Paving Activities	65.9
Concrete Mixer Backup Alarms & Air Brakes	71.6
Concrete Mixer Pour Activities	67.7
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	71.6

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	145'	-9.2	0.0	62.4
R2	148'	-9.4	0.0	62.2
R3	54'	-0.7	0.0	70.9
R4	1,289'	-28.2	0.0	43.4
R5	747'	-23.5	0.0	48.1
R6	110'	-6.8	0.0	64.8
R7	471'	-19.5	0.0	52.1
R8	93'	-5.4	0.0	66.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

TABLE 10-6: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Construction Vehicle Maintenance Activities	67.5
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	67.5

Receiver Location	Distance To Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	145'	-9.2	0.0	58.2
R2	148'	-9.4	0.0	58.0
R3	54'	-0.7	0.0	66.8
R4	1,289'	-28.2	0.0	39.2
R5	747'	-23.5	0.0	44.0
R6	110'	-6.8	0.0	60.6
R7	471'	-19.5	0.0	48.0
R8	93'	-5.4	0.0	62.1

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier/berm attenuation from existing barriers/berms in the Project study area.

10.4 CONSTRUCTION NOISE THRESHOLDS OF SIGNIFICANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the edge of primary construction activity to each of the nearby receiver locations. As shown on Table 10-7, the unmitigated construction noise levels are expected to range from 35.9 to 78.6 dBA L_{eq} at the nearby receiver locations.

TABLE 10-7: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Hourly Noise Level (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Construction Noise Levels[2]
R1	54.9	70.0	58.9	62.4	58.2	70.0
R2	54.7	69.8	58.7	62.2	58.0	69.8
R3	63.5	78.6	67.5	70.9	66.8	78.6
R4	35.9	51.0	39.9	43.4	39.2	51.0
R5	40.7	55.8	44.7	48.1	44.0	55.8
R6	57.3	72.4	61.3	64.8	60.6	72.4
R7	44.7	59.8	48.7	52.1	48.0	59.8
R8	58.8	73.9	62.8	66.2	62.1	73.9

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Estimated construction noise levels during peak operating conditions.

Table 10-8 shows the highest construction noise levels at the potentially impacted receiver locations are expected to approach 78.6 dBA L_{eq} and, therefore, will satisfy the construction noise level threshold of 85 dBA L_{eq} at all receiver locations. The noise impact due to unmitigated Project construction noise levels is, therefore, considered a *less than significant* impact at all receiver locations.

TABLE 10-8: CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Activity Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	70.0	85	No
R2	69.8	85	No
R3	78.6	85	No
R4	51.0	85	No
R5	55.8	85	No
R6	72.4	85	No
R7	59.8	85	No
R8	73.9	85	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise levels during peak operating conditions, as shown on Table 10-7.
[3] Construction noise level threshold as shown on Table 4-2.
[4] Do the estimated Project construction noise levels meet the construction noise level threshold?

10.5 TEMPORARY CONSTRUCTION NOISE LEVEL CONTRIBUTIONS

To describe the temporary Project construction noise level contributions to the existing ambient noise environment at noise-sensitive receiver locations, the Project construction noise levels were combined with the existing ambient noise levels measurements at the off-site sensitive receiver locations. The difference between the combined Project-construction and ambient noise levels are used to describe the construction noise level contributions. Temporary noise level increases that would be experienced at sensitive receiver locations when Project construction-source noise is added to the ambient daytime conditions are presented on Table 10-9. A temporary noise level increase of 12 dBA L_{eq} is considered a potentially significant impact based on the Caltrans substantial noise level increase criteria which is used in this report to assess the Project-construction noise level increases. (3)

As indicated in Table 10-9, the Project will contribute unmitigated, worst-case construction noise level increases approaching 4.7 dBA L_{eq} at the closest sensitive receiver location, R5. Since the worst-case temporary noise level increases during Project construction are below the 12 dBA L_{eq} significance threshold, the unmitigated construction noise level increases are considered *less than significant* temporary noise impacts at the noise-sensitive receiver locations.

TABLE 10-9: TEMPORARY CONSTRUCTION NOISE LEVEL INCREASES

Receiver Location[1]	Highest Project Construction Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Temporary Worst-Case Project Contribution[6]	Threshold (12 dBA L_{eq}) Exceeded?[7]
R4	51.0	L4	51.8	54.4	2.6	No
R5	55.8	L5	52.8	57.5	4.7	No
R7	59.8	L6	67.2	67.9	0.7	No

[1] Noise sensitive receiver locations are shown on Exhibit 10-A.
[2] Unmitigated Project construction noise levels as shown on Table 10-8.
[3] Ambient 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 construction activities.
[6] The temporary noise level increase expected with the addition of the proposed Project activities.
[7] Based on the 12 dBA L_{eq} temporary increase significance criteria as defined in Section 4.

10.6 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to buildings, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-6 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-10 presents the expected Project related vibration levels at each of the sensitive receiver locations.

At distances ranging from 54 to 1,289 feet from Project construction activity, construction vibration velocity levels are expected to range from 6.6 to 77.0 VdB. Based on the Federal Transit Administration (FTA) threshold of 80 VdB for residential uses, Project construction vibration levels of up to 77.0 VdB are considered a *less than significant* vibration impact. Further, vibration levels at the site of the closest receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter.

TABLE 10-10: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance to Construction Activity (Feet)	Receiver Vibration Levels (VdB)[2]					Threshold Exceeded?[3]
		Small Bulldozer	Jackhammer	Loaded Trucks	Large Bulldozer	Highest Vibration Levels	
R1	145'	35.1	56.1	63.1	64.1	64.1	No
R2	148'	34.8	55.8	62.8	63.8	63.8	No
R3	54'	48.0	69.0	76.0	77.0	77.0	No
R4	1,289'	6.6	27.6	34.6	35.6	35.6	No
R5	747'	13.7	34.7	41.7	42.7	42.7	No
R6	110'	38.7	59.7	66.7	67.7	67.7	No
R7	471'	19.7	40.7	47.7	48.7	48.7	No
R8	93'	40.9	61.9	68.9	69.9	69.9	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-6.
[3] Does the peak vibration exceed the FTA maximum acceptable vibration standard of 80 VdB?

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G & Amendments and Additions to the State CEQA Guidelines.* 2019.
2. **TJW Engineering, Inc.** *SWC US-395/Palmdale Road (SR-18) Traffic Impact Analysis.* January 2019.
3. **California Department of Transportation.** *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.* May 2011.
4. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
5. **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.
6. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* June, 1995.
7. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
8. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
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10. **Center for Disease Control and Prevention.** About Hearing Loss. [Online] [Cited: 04 15, 2016.] http://www.cdc.gov/healthyschools/noise/signs.htm.
11. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
12. **Office of Planning and Research.** *State of California General Plan Guidlines.* 2018.
13. **State of California.** *California Green Building Standards Code.* 2016.
14. **City of Victorville.** *General Plan Noise Element.* 2008.
15. —. *Municipal Code, Section 13.01.030.*
16. **National Institute for Occupational Safety and Health.** *Criteria for Recommended Standard: Occupational Noise Exposure.* June 1998.
17. **City of Adelanto.** *General Plan Noise Element.* 1993.
18. —. *Municipal Code, Chapter 17.90 Performance Standards, Sections 17.90.020 Noise & 17.90.030 Vibration.*
19. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
20. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
21. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*

22. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.

23. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.

24. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

25. **Urban Crossroads, Inc.** *Desert Grove Air Quality Impact Analysis.* January 2019.

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Desert Grove Retail 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) 336-5979.

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blawson@urbanxroads.com

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 Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF VICTORVILLE MUNICIPAL CODE

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Chapter 13.01 - NOISE CONTROL

Sections:

13.01.010 - Purpose and intent.

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

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

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

(Ord. 1962 § 2 (part), 2002)

13.01.020 - Definitions.

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

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

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

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

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

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

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

(7) "Sound level meter" means an instrument meeting American National Standard Institute's Standard S1.4-1971 for type 1 or type 2 sound level meters or an instrument

and the associated recording and analyzing equipment which will provide equivalent data.

(Ord. 1962 § 2 (part), 2002)

13.01.030 - Noise measurement criteria.

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

(Ord. 1962 § 2 (part), 2002)

13.01.040 - Base ambient noise levels.

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

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

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

(Ord. 1962 § 2 (part), 2002)

13.01.050 - Noise levels prohibited.

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

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

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

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

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

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

(Ord. 1962 § 2 (part), 2002)

13.01.060 - Noise source exemptions.

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

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

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

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

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

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

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

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

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

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

(Ord. 1962 § 2 (part), 2002)

13.01.070 - Notice and penalties.

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

(Ord. 1962 § 2 (part), 2002)

13.01.080 - Severability.

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

(Ord. 1962 § 2 (part), 2002)

APPENDIX 5.1:

STUDY AREA PHOTOS

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L1 East
34, 30' 25.490000", 117, 24' 14.320000"

L1 North
34, 30' 25.520000", 117, 24' 14.290000"

L1 South
34, 30' 25.500000", 117, 24' 14.290000"

L1 West
34, 30' 25.490000", 117, 24' 14.320000"

L2 East
34, 30' 18.200000", 117, 23' 57.670000"

L2 North
34, 30' 18.200000", 117, 23' 57.670000"

L2 South
34, 30' 18.130000", 117, 23' 57.640000"

L2 West
34, 30' 18.100000", 117, 23' 57.640000"

L3 East
34, 30' 16.580000", 117, 23' 30.590000"

L3 North
34, 30' 16.560000", 117, 23' 30.620000"

L3 South
34, 30' 16.580000", 117, 23' 30.590000"

L3 West
34, 30' 16.560000", 117, 23' 30.620000"

L4 East
34, 30' 1.500000", 117, 24' 6.080000"

L4 North
34, 30' 1.480000", 117, 24' 6.100000"

L4 South
34, 30' 1.480000", 117, 24' 6.050000"

L4 West
34, 30' 1.480000", 117, 24' 6.100000"

L5 East
34, 30' 13.020000", 117, 24' 19.230000"

L5 North
34, 30' 13.070000", 117, 24' 19.200000"

L5 South
34, 30' 13.010000", 117, 24' 19.260000"

L5 West
34, 30' 13.020000", 117, 24' 19.230000"

L6 East
34, 30' 23.090000", 117, 24' 29.260000"

L6 North
34, 30' 23.060000", 117, 24' 29.280000"

L6 South
34, 30' 23.090000", 117, 24' 29.260000"

L6 West
34, 30' 23.070000", 117, 24' 29.260000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

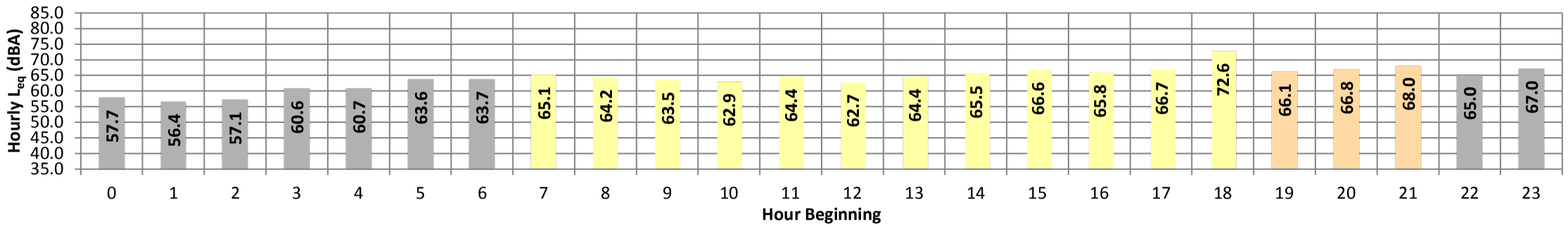
Date: Tuesday, October 30, 2018
Project: Victorville Retail

Location: L1 - Located on Pearmain Street northwest of the Project site near an existing commercial area and vacant lot.

Meter: Piccolo I

JN: 11724
Analyst: R. Saber

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	75.0	44.5	67.0	65.0	63.0	62.0	57.0	52.0	47.0	46.0	45.0	57.7	10.0	67.7
	1	56.4	72.9	44.2	67.0	65.0	62.0	61.0	55.0	49.0	45.0	45.0	44.0	56.4	10.0	66.4
	2	57.1	76.9	44.6	67.0	65.0	62.0	61.0	56.0	49.0	45.0	45.0	45.0	57.1	10.0	67.1
	3	60.6	83.0	45.2	69.0	68.0	65.0	64.0	60.0	56.0	47.0	46.0	45.0	60.6	10.0	70.6
	4	60.7	75.4	46.0	69.0	68.0	65.0	64.0	61.0	58.0	50.0	49.0	47.0	60.7	10.0	70.7
	5	63.6	79.8	48.2	72.0	70.0	68.0	67.0	64.0	61.0	54.0	53.0	50.0	63.6	10.0	73.6
	6	63.7	80.4	47.9	71.0	70.0	68.0	66.0	64.0	62.0	56.0	53.0	51.0	63.7	10.0	73.7
Day	7	65.1	81.2	51.9	72.0	70.0	68.0	67.0	65.0	63.0	59.0	58.0	54.0	65.1	0.0	65.1
	8	64.2	76.7	47.4	72.0	71.0	68.0	67.0	64.0	62.0	56.0	54.0	51.0	64.2	0.0	64.2
	9	63.5	81.2	47.5	71.0	70.0	68.0	67.0	64.0	61.0	54.0	52.0	49.0	63.5	0.0	63.5
	10	62.9	82.1	46.7	71.0	69.0	67.0	66.0	63.0	60.0	53.0	51.0	49.0	62.9	0.0	62.9
	11	64.4	88.0	44.7	74.0	71.0	68.0	67.0	62.0	59.0	52.0	50.0	48.0	64.4	0.0	64.4
	12	62.7	83.0	45.2	72.0	70.0	67.0	65.0	62.0	59.0	53.0	51.0	48.0	62.7	0.0	62.7
	13	64.4	86.3	47.0	75.0	72.0	69.0	67.0	63.0	59.0	53.0	51.0	49.0	64.4	0.0	64.4
	14	65.5	83.6	46.4	75.0	73.0	70.0	68.0	64.0	61.0	56.0	53.0	50.0	65.5	0.0	65.5
	15	66.6	91.7	48.3	76.0	73.0	69.0	68.0	64.0	61.0	55.0	53.0	50.0	66.6	0.0	66.6
	16	65.8	87.7	49.8	75.0	73.0	69.0	68.0	65.0	62.0	57.0	55.0	53.0	65.8	0.0	65.8
	17	66.7	90.8	50.8	74.0	72.0	69.0	68.0	65.0	63.0	58.0	57.0	54.0	66.7	0.0	66.7
	18	72.6	102.4	54.1	79.0	75.0	71.0	70.0	67.0	64.0	60.0	59.0	57.0	72.6	0.0	72.6
Evening	19	66.1	82.8	51.2	75.0	73.0	70.0	69.0	66.0	63.0	57.0	55.0	53.0	66.1	5.0	71.1
	20	66.8	88.2	50.6	76.0	73.0	70.0	68.0	65.0	63.0	56.0	54.0	51.0	66.8	5.0	71.8
	21	68.0	92.7	49.2	77.0	74.0	70.0	68.0	65.0	62.0	55.0	53.0	50.0	68.0	5.0	73.0
Night	22	65.0	86.6	48.9	74.0	71.0	69.0	67.0	64.0	61.0	53.0	52.0	51.0	65.0	10.0	75.0
	23	67.0	92.0	44.2	76.0	73.0	69.0	68.0	63.0	59.0	51.0	49.0	45.0	67.0	10.0	77.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	62.7	76.7	44.7	71.0	69.0	67.0	65.0	62.0	59.0	52.0	50.0	48.0
	Max	72.6	102.4	54.1	79.0	75.0	71.0	70.0	67.0	64.0	60.0	59.0	57.0
Energy Average		66.4	Average:		73.8	71.6	68.6	67.3	64.0	61.2	55.5	53.7	51.0
Evening	Min	66.1	82.8	49.2	75.0	73.0	70.0	68.0	65.0	62.0	55.0	53.0	50.0
	Max	68.0	92.7	51.2	77.0	74.0	70.0	69.0	66.0	63.0	57.0	55.0	53.0
Energy Average		67.0	Average:		76.0	73.3	70.0	68.3	65.3	62.7	56.0	54.0	51.3
Night	Min	56.4	72.9	44.2	67.0	65.0	62.0	61.0	55.0	49.0	45.0	45.0	44.0
	Max	67.0	92.0	48.9	76.0	73.0	69.0	68.0	64.0	62.0	56.0	53.0	51.0
Energy Average		62.7	Average:		70.2	68.3	65.7	64.4	60.4	56.3	49.8	48.7	47.0

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
65.4	66.5	62.7

24-Hour CNEL (dBA)
70.5

24-Hour Noise Level Measurement Summary

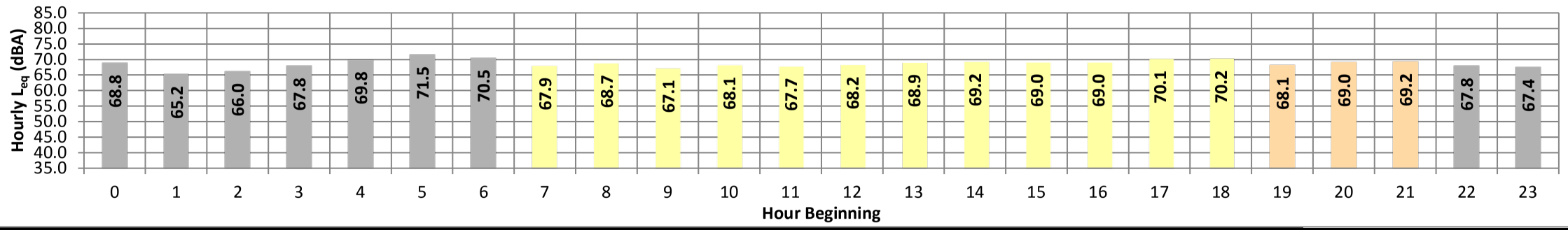
Date: Tuesday, October 30, 2018
Project: Victorville Retail

Location: L2 - Located east of the Project site on US 395 south of an existing ARCO gas station in a vacant lot.

Meter: Piccolo I

JN: 11724
Analyst: R. Saber

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	68.8	92.0	43.4	79.0	77.0	74.0	72.0	66.0	60.0	52.0	50.0	45.0	68.8	10.0	78.8
	1	65.2	85.5	42.4	76.0	74.0	72.0	70.0	63.0	56.0	48.0	46.0	44.0	65.2	10.0	75.2
	2	66.0	81.8	44.1	76.0	75.0	72.0	70.0	65.0	58.0	49.0	47.0	45.0	66.0	10.0	76.0
	3	67.8	85.5	43.6	77.0	76.0	74.0	72.0	67.0	62.0	54.0	52.0	48.0	67.8	10.0	77.8
	4	69.8	90.9	48.5	78.0	77.0	75.0	73.0	69.0	66.0	58.0	55.0	52.0	69.8	10.0	79.8
	5	71.5	94.5	52.0	80.0	78.0	76.0	74.0	70.0	67.0	61.0	59.0	55.0	71.5	10.0	81.5
	6	70.5	92.5	52.4	78.0	76.0	74.0	73.0	70.0	67.0	60.0	59.0	55.0	70.5	10.0	80.5
Day	7	67.9	85.5	50.8	76.0	75.0	73.0	72.0	68.0	64.0	57.0	56.0	53.0	67.9	0.0	67.9
	8	68.7	85.8	47.4	77.0	76.0	74.0	73.0	69.0	65.0	55.0	53.0	50.0	68.7	0.0	68.7
	9	67.1	81.4	45.9	75.0	74.0	73.0	71.0	67.0	63.0	55.0	52.0	49.0	67.1	0.0	67.1
	10	68.1	89.6	46.4	76.0	75.0	73.0	72.0	68.0	64.0	55.0	52.0	49.0	68.1	0.0	68.1
	11	67.7	82.5	48.3	76.0	75.0	73.0	72.0	68.0	64.0	55.0	53.0	50.0	67.7	0.0	67.7
	12	68.2	87.2	48.1	77.0	75.0	73.0	72.0	68.0	64.0	56.0	54.0	51.0	68.2	0.0	68.2
	13	68.9	91.0	48.0	79.0	77.0	73.0	72.0	67.0	64.0	56.0	53.0	50.0	68.9	0.0	68.9
	14	69.2	94.0	50.0	77.0	76.0	73.0	72.0	68.0	64.0	57.0	56.0	53.0	69.2	0.0	69.2
	15	69.0	87.4	49.9	78.0	76.0	74.0	73.0	69.0	65.0	58.0	56.0	53.0	69.0	0.0	69.0
	16	69.0	87.9	50.1	77.0	76.0	74.0	73.0	69.0	65.0	58.0	56.0	53.0	69.0	0.0	69.0
	17	70.1	90.7	51.9	80.0	77.0	75.0	73.0	69.0	66.0	59.0	57.0	54.0	70.1	0.0	70.1
	18	70.2	94.7	51.3	79.0	77.0	74.0	73.0	69.0	65.0	59.0	57.0	53.0	70.2	0.0	70.2
Evening	19	68.1	87.7	48.6	76.0	75.0	73.0	71.0	68.0	65.0	57.0	55.0	52.0	68.1	5.0	73.1
	20	69.0	89.8	49.1	78.0	76.0	74.0	72.0	68.0	65.0	56.0	54.0	51.0	69.0	5.0	74.0
	21	69.2	91.2	47.8	78.0	77.0	74.0	73.0	68.0	64.0	55.0	53.0	51.0	69.2	5.0	74.2
Night	22	67.8	89.9	49.5	77.0	75.0	73.0	72.0	67.0	62.0	54.0	53.0	51.0	67.8	10.0	77.8
	23	67.4	83.9	44.9	78.0	76.0	73.0	71.0	66.0	61.0	52.0	50.0	46.0	67.4	10.0	77.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	67.1	81.4	45.9	75.0	74.0	73.0	71.0	67.0	63.0	55.0	52.0	49.0
	Max	70.2	94.7	51.9	80.0	77.0	75.0	73.0	69.0	66.0	59.0	57.0	54.0
Energy Average		68.8	Average:		77.3	75.8	73.5	72.3	68.3	64.4	56.7	54.6	51.5
Evening	Min	68.1	87.7	47.8	76.0	75.0	73.0	71.0	68.0	64.0	55.0	53.0	51.0
	Max	69.2	91.2	49.1	78.0	77.0	74.0	73.0	68.0	65.0	57.0	55.0	52.0
Energy Average		68.8	Average:		77.3	76.0	73.7	72.0	68.0	64.7	56.0	54.0	51.3
Night	Min	65.2	81.8	42.4	76.0	74.0	72.0	70.0	63.0	56.0	48.0	46.0	44.0
	Max	71.5	94.5	52.4	80.0	78.0	76.0	74.0	70.0	67.0	61.0	59.0	55.0
Energy Average		68.7	Average:		77.7	76.0	73.7	71.9	67.0	62.1	54.2	52.3	49.0

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
68.8	68.8	68.7

24-Hour CNEL (dBA)
75.4

24-Hour Noise Level Measurement Summary

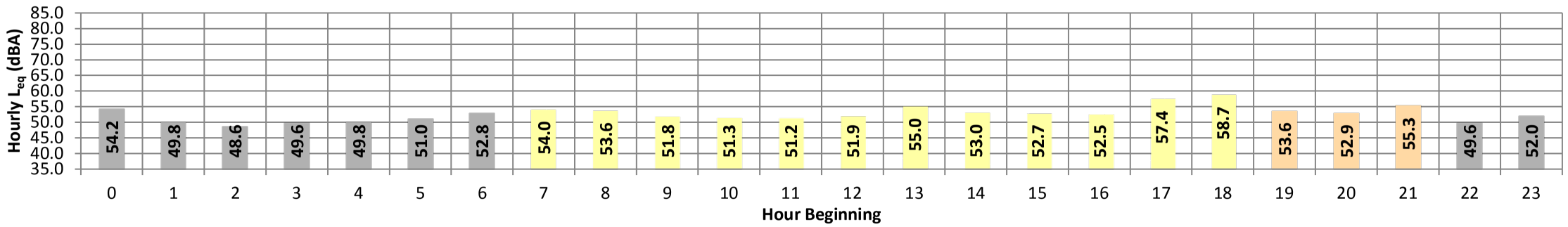
Date: Tuesday, October 30, 2018
Project: Victorville Retail

Location: L2 - Located east of the Project site on Camino Alto Way near an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11724
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	54.2	75.1	44.1	65.0	61.0	58.0	56.0	52.0	49.0	46.0	45.0	44.0	54.2	10.0	64.2
	1	49.8	65.6	43.2	59.0	56.0	53.0	52.0	49.0	47.0	44.0	44.0	43.0	49.8	10.0	59.8
	2	48.6	63.2	42.4	56.0	55.0	52.0	51.0	48.0	46.0	44.0	44.0	43.0	48.6	10.0	58.6
	3	49.6	65.6	43.4	55.0	54.0	53.0	52.0	50.0	48.0	45.0	45.0	44.0	49.6	10.0	59.6
	4	49.8	59.7	44.1	55.0	54.0	53.0	52.0	50.0	49.0	46.0	46.0	45.0	49.8	10.0	59.8
	5	51.0	65.5	45.3	56.0	55.0	54.0	53.0	51.0	50.0	47.0	47.0	46.0	51.0	10.0	61.0
	6	52.8	75.0	46.2	59.0	57.0	55.0	54.0	52.0	50.0	48.0	48.0	47.0	52.8	10.0	62.8
Day	7	54.0	67.6	47.6	62.0	60.0	58.0	57.0	54.0	52.0	50.0	49.0	48.0	54.0	0.0	54.0
	8	53.6	71.9	46.5	63.0	60.0	56.0	55.0	53.0	51.0	48.0	48.0	47.0	53.6	0.0	53.6
	9	51.8	66.7	42.5	61.0	59.0	56.0	55.0	51.0	49.0	45.0	44.0	43.0	51.8	0.0	51.8
	10	51.3	71.6	42.6	61.0	58.0	55.0	53.0	50.0	48.0	45.0	44.0	43.0	51.3	0.0	51.3
	11	51.2	72.9	42.0	62.0	57.0	54.0	52.0	49.0	47.0	44.0	43.0	42.0	51.2	0.0	51.2
	12	51.9	75.4	41.1	60.0	57.0	55.0	53.0	50.0	47.0	44.0	43.0	42.0	51.9	0.0	51.9
	13	55.0	85.0	40.9	63.0	59.0	55.0	54.0	50.0	48.0	44.0	44.0	42.0	55.0	0.0	55.0
	14	53.0	82.2	41.1	59.0	58.0	55.0	54.0	50.0	47.0	43.0	43.0	42.0	53.0	0.0	53.0
	15	52.7	74.4	41.0	62.0	59.0	56.0	55.0	51.0	48.0	44.0	43.0	42.0	52.7	0.0	52.7
	16	52.5	67.1	43.3	59.0	58.0	57.0	56.0	52.0	50.0	46.0	45.0	44.0	52.5	0.0	52.5
	17	57.4	80.9	43.3	69.0	65.0	60.0	58.0	53.0	50.0	47.0	46.0	44.0	57.4	0.0	57.4
	18	58.7	87.2	46.7	65.0	62.0	59.0	57.0	54.0	52.0	49.0	49.0	47.0	58.7	0.0	58.7
Evening	19	53.6	73.3	45.1	63.0	60.0	57.0	56.0	52.0	50.0	47.0	47.0	46.0	53.6	5.0	58.6
	20	52.9	70.2	44.5	61.0	59.0	57.0	56.0	52.0	50.0	47.0	46.0	45.0	52.9	5.0	57.9
	21	55.3	86.4	42.4	58.0	56.0	54.0	52.0	49.0	48.0	45.0	44.0	44.0	55.3	5.0	60.3
Night	22	49.6	67.9	42.2	56.0	55.0	53.0	52.0	49.0	47.0	44.0	44.0	43.0	49.6	10.0	59.6
	23	52.0	71.3	41.1	63.0	59.0	56.0	54.0	50.0	47.0	44.0	43.0	43.0	52.0	10.0	62.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.2	66.7	40.9	59.0	57.0	54.0	52.0	49.0	47.0	43.0	43.0	42.0
	Max	58.7	87.2	47.6	69.0	65.0	60.0	58.0	54.0	52.0	50.0	49.0	48.0
Energy Average		54.3	Average:		62.2	59.3	56.3	54.9	51.4	49.1	45.8	45.1	43.8
Evening	Min	52.9	70.2	42.4	58.0	56.0	54.0	52.0	49.0	48.0	45.0	44.0	44.0
	Max	55.3	86.4	45.1	63.0	60.0	57.0	56.0	52.0	50.0	47.0	47.0	46.0
Energy Average		54.1	Average:		60.7	58.3	56.0	54.7	51.0	49.3	46.3	45.7	45.0
Night	Min	48.6	59.7	41.1	55.0	54.0	52.0	51.0	48.0	46.0	44.0	43.0	43.0
	Max	54.2	75.1	46.2	65.0	61.0	58.0	56.0	52.0	50.0	48.0	48.0	47.0
Energy Average		51.2	Average:		58.2	56.2	54.1	52.9	50.1	48.1	45.3	45.1	44.2

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
53.3	54.2	51.2

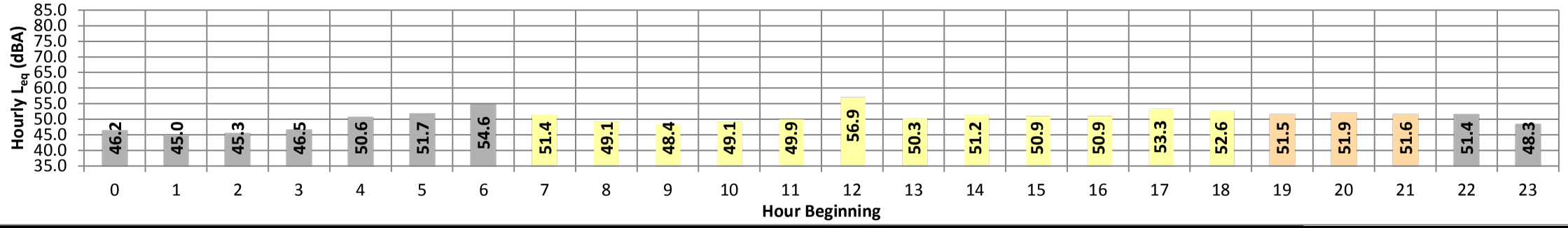
24-Hour CNEL (dBA)
58.6

24-Hour Noise Level Measurement Summary

Date: Tuesday, October 30, 2018 *Location:* L4 - Located south of the Project site on Fern Pine Road near an existing single-family residential neighborhood. *Meter:* Piccolo I *JN:* 11724

Project: Victorville Retail *Analyst:* R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	46.2	61.4	39.1	54.0	52.0	50.0	49.0	46.0	44.0	41.0	40.0	39.0	46.2	10.0	56.2
	1	45.0	61.5	39.1	52.0	50.0	48.0	47.0	45.0	43.0	40.0	40.0	39.0	45.0	10.0	55.0
	2	45.3	61.9	39.1	54.0	52.0	49.0	47.0	45.0	43.0	41.0	40.0	39.0	45.3	10.0	55.3
	3	46.5	60.7	40.6	54.0	53.0	50.0	49.0	46.0	44.0	42.0	42.0	41.0	46.5	10.0	56.5
	4	50.6	64.2	42.1	57.0	56.0	54.0	54.0	51.0	49.0	45.0	44.0	43.0	50.6	10.0	60.6
	5	51.7	68.1	44.0	58.0	57.0	55.0	54.0	52.0	49.0	47.0	46.0	45.0	51.7	10.0	61.7
	6	54.6	75.9	45.5	65.0	61.0	57.0	56.0	53.0	51.0	48.0	48.0	46.0	54.6	10.0	64.6
Day	7	51.4	66.7	44.4	59.0	57.0	55.0	54.0	51.0	49.0	46.0	46.0	45.0	51.4	0.0	51.4
	8	49.1	73.3	42.0	54.0	53.0	52.0	51.0	48.0	46.0	44.0	43.0	43.0	49.1	0.0	49.1
	9	48.4	70.2	40.9	56.0	55.0	52.0	51.0	48.0	46.0	43.0	42.0	42.0	48.4	0.0	48.4
	10	49.1	67.2	40.9	58.0	55.0	52.0	51.0	48.0	47.0	44.0	43.0	42.0	49.1	0.0	49.1
	11	49.9	63.3	41.8	55.0	54.0	53.0	52.0	50.0	48.0	46.0	45.0	43.0	49.9	0.0	49.9
	12	56.9	83.2	41.4	61.0	58.0	54.0	53.0	50.0	49.0	45.0	44.0	43.0	56.9	0.0	56.9
	13	50.3	70.0	40.8	58.0	56.0	54.0	53.0	50.0	48.0	45.0	44.0	42.0	50.3	0.0	50.3
	14	51.2	67.8	42.8	59.0	57.0	55.0	53.0	51.0	49.0	45.0	45.0	43.0	51.2	0.0	51.2
	15	50.9	67.1	43.0	57.0	56.0	54.0	53.0	51.0	49.0	46.0	45.0	44.0	50.9	0.0	50.9
	16	50.9	65.1	43.1	58.0	56.0	55.0	54.0	51.0	49.0	46.0	45.0	44.0	50.9	0.0	50.9
	17	53.3	72.1	45.5	60.0	58.0	56.0	55.0	53.0	51.0	48.0	47.0	46.0	53.3	0.0	53.3
	18	52.6	65.3	44.1	60.0	58.0	56.0	55.0	53.0	51.0	48.0	47.0	46.0	52.6	0.0	52.6
Evening	19	51.5	67.8	43.4	58.0	57.0	55.0	54.0	52.0	49.0	46.0	46.0	45.0	51.5	5.0	56.5
	20	51.9	71.5	42.7	60.0	58.0	55.0	54.0	51.0	49.0	46.0	45.0	43.0	51.9	5.0	56.9
	21	51.6	67.1	41.2	60.0	58.0	56.0	54.0	51.0	49.0	45.0	45.0	43.0	51.6	5.0	56.6
Night	22	51.4	67.6	42.0	58.0	57.0	56.0	55.0	51.0	49.0	45.0	44.0	43.0	51.4	10.0	61.4
	23	48.3	62.5	39.1	57.0	55.0	53.0	52.0	48.0	45.0	41.0	40.0	39.0	48.3	10.0	58.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.4	63.3	40.8	54.0	53.0	52.0	51.0	48.0	46.0	43.0	42.0	42.0
	Max	56.9	83.2	45.5	61.0	58.0	56.0	55.0	53.0	51.0	48.0	47.0	46.0
Energy Average		51.9	Average:		57.9	56.1	54.0	52.9	50.3	48.5	45.5	44.7	43.6
Evening	Min	51.5	67.1	41.2	58.0	57.0	55.0	54.0	51.0	49.0	45.0	45.0	43.0
	Max	51.9	71.5	43.4	60.0	58.0	56.0	54.0	52.0	49.0	46.0	46.0	45.0
Energy Average		51.7	Average:		59.3	57.7	55.3	54.0	51.3	49.0	45.7	45.3	43.7
Night	Min	45.0	60.7	39.1	52.0	50.0	48.0	47.0	45.0	43.0	40.0	40.0	39.0
	Max	54.6	75.9	45.5	65.0	61.0	57.0	56.0	53.0	51.0	48.0	48.0	46.0
Energy Average		50.0	Average:		56.6	54.8	52.4	51.4	48.6	46.3	43.3	42.7	41.6

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
51.2	**51.8**	**50.0**

24-Hour CNEL (dBA)

57.1

24-Hour Noise Level Measurement Summary

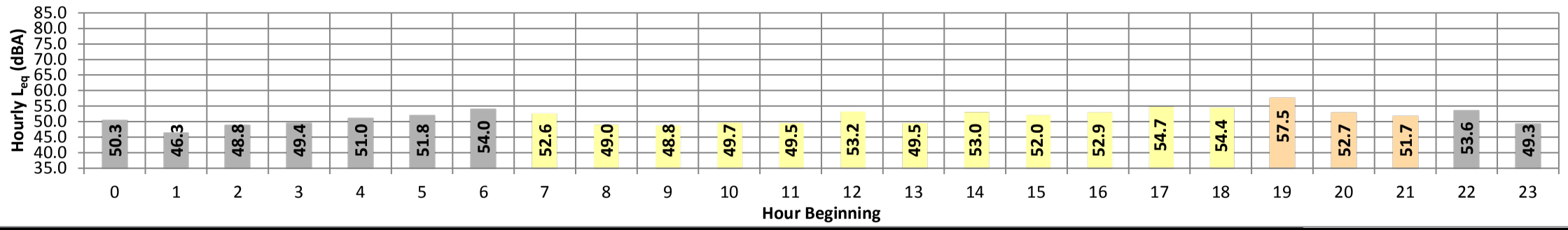
Date: Tuesday, October 30, 2018
Project: Victorville Retail

Location: L5 - Located southwest of the Project site on Fair Hills Lane near an existing single-family residential neighborhood.

Meter: Piccolo I

JN: 11724
Analyst: R. Saber

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.3	65.3	39.9	58.0	57.0	55.0	54.0	51.0	47.0	42.0	41.0	40.0	50.3	10.0	60.3
	1	46.3	56.8	39.3	52.0	51.0	50.0	49.0	46.0	45.0	42.0	41.0	40.0	46.3	10.0	56.3
	2	48.8	68.2	40.6	56.0	54.0	52.0	51.0	49.0	47.0	43.0	42.0	41.0	48.8	10.0	58.8
	3	49.4	63.1	40.8	55.0	54.0	53.0	52.0	50.0	48.0	45.0	44.0	43.0	49.4	10.0	59.4
	4	51.0	63.7	43.2	57.0	56.0	54.0	53.0	51.0	50.0	47.0	46.0	45.0	51.0	10.0	61.0
	5	51.8	67.5	45.5	56.0	56.0	54.0	54.0	52.0	51.0	48.0	48.0	47.0	51.8	10.0	61.8
	6	54.0	73.2	46.8	59.0	58.0	56.0	55.0	54.0	53.0	50.0	50.0	49.0	54.0	10.0	64.0
Day	7	52.6	74.0	45.8	58.0	56.0	54.0	54.0	52.0	51.0	49.0	48.0	47.0	52.6	0.0	52.6
	8	49.0	61.6	42.9	55.0	53.0	51.0	51.0	49.0	48.0	45.0	45.0	44.0	49.0	0.0	49.0
	9	48.8	63.3	41.7	57.0	54.0	52.0	51.0	49.0	47.0	44.0	43.0	42.0	48.8	0.0	48.8
	10	49.7	67.0	41.1	59.0	57.0	53.0	52.0	49.0	47.0	44.0	43.0	43.0	49.7	0.0	49.7
	11	49.5	68.8	41.8	56.0	55.0	53.0	52.0	49.0	48.0	45.0	44.0	43.0	49.5	0.0	49.5
	12	53.2	76.3	41.7	62.0	59.0	55.0	53.0	50.0	48.0	45.0	45.0	44.0	53.2	0.0	53.2
	13	49.5	66.5	42.2	56.0	55.0	53.0	52.0	49.0	48.0	45.0	44.0	43.0	49.5	0.0	49.5
	14	53.0	76.1	43.0	60.0	56.0	54.0	53.0	51.0	49.0	46.0	45.0	44.0	53.0	0.0	53.0
	15	52.0	66.0	44.8	61.0	58.0	55.0	54.0	51.0	50.0	47.0	47.0	46.0	52.0	0.0	52.0
	16	52.9	74.9	45.5	59.0	57.0	55.0	54.0	52.0	51.0	49.0	48.0	47.0	52.9	0.0	52.9
	17	54.7	71.2	48.5	62.0	60.0	58.0	56.0	54.0	53.0	51.0	50.0	49.0	54.7	0.0	54.7
	18	54.4	67.2	48.1	60.0	59.0	58.0	57.0	55.0	53.0	50.0	50.0	49.0	54.4	0.0	54.4
Evening	19	57.5	86.0	46.9	64.0	60.0	56.0	55.0	52.0	51.0	49.0	48.0	47.0	57.5	5.0	62.5
	20	52.7	66.0	46.5	60.0	59.0	56.0	55.0	52.0	51.0	48.0	48.0	47.0	52.7	5.0	57.7
	21	51.7	63.7	44.9	58.0	57.0	55.0	54.0	52.0	50.0	47.0	47.0	46.0	51.7	5.0	56.7
Night	22	53.6	75.0	43.9	64.0	58.0	56.0	54.0	52.0	50.0	47.0	46.0	45.0	53.6	10.0	63.6
	23	49.3	65.2	41.7	58.0	55.0	53.0	52.0	49.0	47.0	44.0	44.0	42.0	49.3	10.0	59.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.8	61.6	41.1	55.0	53.0	51.0	51.0	49.0	47.0	44.0	43.0	42.0
	Max	54.7	76.3	48.5	62.0	60.0	58.0	57.0	55.0	53.0	51.0	50.0	49.0
Energy Average		52.1	Average:		58.8	56.6	54.3	53.3	50.8	49.4	46.7	46.0	45.1
Evening	Min	51.7	63.7	44.9	58.0	57.0	55.0	54.0	52.0	50.0	47.0	47.0	46.0
	Max	57.5	86.0	46.9	64.0	60.0	56.0	55.0	52.0	51.0	49.0	48.0	47.0
Energy Average		54.8	Average:		60.7	58.7	55.7	54.7	52.0	50.7	48.0	47.7	46.7
Night	Min	46.3	56.8	39.3	52.0	51.0	50.0	49.0	46.0	45.0	42.0	41.0	40.0
	Max	54.0	75.0	46.8	64.0	58.0	56.0	55.0	54.0	53.0	50.0	50.0	49.0
Energy Average		51.1	Average:		57.2	55.4	53.7	52.7	50.4	48.7	45.3	44.7	43.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
52.2	52.8	51.1

24-Hour CNEL (dBA)
58.3

24-Hour Noise Level Measurement Summary

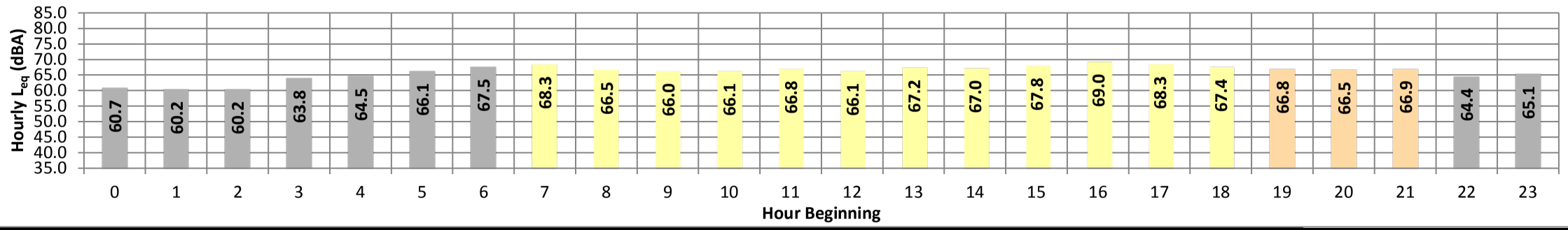
Date: Tuesday, October 30, 2018
Project: Victorville Retail

Location: L6 - Located west of the Project site on Mesa View Drive south of Palmdale Road.

Meter: Piccolo I

JN: 11724
Analyst: R. Saber

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	60.7	80.8	41.8	72.0	69.0	65.0	64.0	59.0	53.0	47.0	45.0	43.0	60.7	10.0	70.7
	1	60.2	80.6	39.7	73.0	70.0	65.0	63.0	55.0	48.0	42.0	41.0	40.0	60.2	10.0	70.2
	2	60.2	79.0	40.7	72.0	69.0	66.0	64.0	57.0	50.0	43.0	42.0	41.0	60.2	10.0	70.2
	3	63.8	82.0	40.8	74.0	72.0	69.0	67.0	63.0	58.0	48.0	45.0	43.0	63.8	10.0	73.8
	4	64.5	77.7	42.1	74.0	72.0	70.0	68.0	65.0	60.0	51.0	48.0	45.0	64.5	10.0	74.5
	5	66.1	84.9	49.6	75.0	73.0	71.0	69.0	66.0	63.0	56.0	54.0	52.0	66.1	10.0	76.1
	6	67.5	78.3	48.6	75.0	74.0	72.0	71.0	68.0	65.0	57.0	55.0	52.0	67.5	10.0	77.5
Day	7	68.3	79.4	49.5	75.0	74.0	72.0	71.0	69.0	67.0	60.0	57.0	54.0	68.3	0.0	68.3
	8	66.5	79.4	47.2	74.0	73.0	71.0	70.0	67.0	64.0	55.0	52.0	49.0	66.5	0.0	66.5
	9	66.0	79.0	44.3	75.0	73.0	71.0	70.0	66.0	63.0	53.0	51.0	47.0	66.0	0.0	66.0
	10	66.1	84.4	43.0	74.0	73.0	71.0	70.0	66.0	63.0	54.0	51.0	47.0	66.1	0.0	66.1
	11	66.8	90.3	43.9	74.0	73.0	71.0	69.1	66.0	63.0	55.0	52.0	48.0	66.8	0.0	66.8
	12	66.1	82.0	40.7	74.0	73.0	71.0	69.0	66.0	64.0	55.0	51.0	45.0	66.1	0.0	66.1
	13	67.2	84.9	45.3	76.0	74.0	71.0	70.0	67.0	64.0	57.0	54.0	48.0	67.2	0.0	67.2
	14	67.0	80.2	43.0	74.0	73.0	71.0	70.0	67.0	65.0	58.0	54.0	48.0	67.0	0.0	67.0
	15	67.8	80.1	47.6	75.0	74.0	72.0	71.0	68.0	66.0	60.0	57.0	50.0	67.8	0.0	67.8
	16	69.0	89.7	49.1	76.0	75.0	73.0	71.0	69.0	67.0	62.0	59.0	54.0	69.0	0.0	69.0
	17	68.3	84.8	52.3	75.0	73.0	72.0	71.0	68.0	67.0	62.0	59.0	56.0	68.3	0.0	68.3
	18	67.4	82.7	47.8	74.0	73.0	71.0	70.0	68.0	66.0	59.0	57.0	53.0	67.4	0.0	67.4
Evening	19	66.8	90.5	49.1	73.0	72.0	70.0	69.0	67.0	65.0	56.0	54.0	52.0	66.8	5.0	71.8
	20	66.5	83.7	49.0	75.0	73.0	71.0	69.0	67.0	64.0	55.0	53.0	51.0	66.5	5.0	71.5
	21	66.9	86.4	46.5	76.0	74.0	71.0	70.0	67.0	64.0	54.0	52.0	49.0	66.9	5.0	71.9
Night	22	64.4	81.3	45.7	73.0	71.0	69.0	68.0	65.0	61.0	52.0	49.0	46.0	64.4	10.0	74.4
	23	65.1	90.0	40.8	75.0	73.0	69.0	67.0	63.0	59.0	47.0	45.0	42.0	65.1	10.0	75.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	66.0	79.0	40.7	74.0	73.0	71.0	69.0	66.0	63.0	53.0	51.0	45.0
	Max	69.0	90.3	52.3	76.0	75.0	73.0	71.0	69.0	67.0	62.0	59.0	56.0
Energy Average		67.3	Average:		74.7	73.4	71.4	70.2	67.3	64.9	57.5	54.5	49.9
Evening	Min	66.5	83.7	46.5	73.0	72.0	70.0	69.0	67.0	64.0	54.0	52.0	49.0
	Max	66.9	90.5	49.1	76.0	74.0	71.0	70.0	67.0	65.0	56.0	54.0	52.0
Energy Average		66.7	Average:		74.7	73.0	70.7	69.3	67.0	64.3	55.0	53.0	50.7
Night	Min	60.2	77.7	39.7	72.0	69.0	65.0	63.0	55.0	48.0	42.0	41.0	40.0
	Max	67.5	90.0	49.6	75.0	74.0	72.0	71.0	68.0	65.0	57.0	55.0	52.0
Energy Average		64.3	Average:		73.7	71.4	68.4	66.8	62.3	57.4	49.2	47.1	44.9

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
66.3	67.2	64.3

24-Hour CNEL (dBA)
71.7

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o Palmdale Rd. (SR-18)
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,020 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.98	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.26	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.22	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	66.1	60.1	68.7	69.3
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.2	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	71.4	69.6	66.6	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	190	410	883
CNEL:	95	205	441	950

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o Dos Palmas Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,380 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.47	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.77	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.73	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.6	69.2	69.8
Medium Trucks:	63.7	62.2	55.8	54.3	62.7	62.9
Heavy Trucks:	63.7	62.3	53.2	54.5	62.9	63.0
Vehicle Noise:	71.9	70.1	67.1	62.3	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	205	442	952
CNEL:	102	221	475	1,024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o Luna Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,900 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.80	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.44	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.39	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.9	59.9	68.5	69.1
Medium Trucks:	63.0	61.5	55.1	53.6	62.1	62.3
Heavy Trucks:	63.0	61.6	52.6	53.8	62.2	62.3
Vehicle Noise:	71.2	69.4	66.5	61.6	70.2	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	185	399	860
CNEL:	92	199	429	925

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o La Mesa Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,730 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.54	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.70	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.66	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.5	71.6	69.8	63.8	72.4	73.0
Medium Trucks:	66.9	65.4	59.0	57.5	65.9	66.2
Heavy Trucks:	66.9	65.5	56.5	57.7	66.1	66.2
Vehicle Noise:	75.1	73.3	70.3	65.5	74.0	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	345	743
CNEL:	80	172	371	799

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o Bear Valley Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,480 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.12	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-16.12	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-20.07	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.1	71.2	69.4	63.3	72.0	72.6
Medium Trucks:	66.5	65.0	58.6	57.1	65.5	65.8
Heavy Trucks:	66.5	65.1	56.1	57.3	65.7	65.8
Vehicle Noise:	74.7	72.9	69.9	65.1	73.6	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	323	697
CNEL:	75	161	348	749

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: w/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,440 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.05	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.19	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.14	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.9	59.9	68.5	69.1
Medium Trucks:	63.0	61.5	55.1	53.6	62.0	62.2
Heavy Trucks:	63.0	61.6	52.5	53.8	62.2	62.3
Vehicle Noise:	71.2	69.4	66.4	61.6	70.1	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	158	340	733
CNEL:	79	170	366	788

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Luna Rd.
Road Segment: e/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	490 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.54	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-21.78	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.73	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.1	60.2	58.5	52.4	61.0	61.6
Medium Trucks:	56.1	54.6	48.3	46.7	55.2	55.4
Heavy Trucks:	57.5	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	64.2	62.4	59.1	54.6	63.1	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	30	65	139
CNEL:	15	32	69	149

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cantina St.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,200 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.60	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.64	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.59	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.2	65.5	59.4	68.0	68.6
Medium Trucks:	62.5	61.0	54.7	53.1	61.6	61.8
Heavy Trucks:	62.6	61.1	52.1	53.3	61.7	61.8
Vehicle Noise:	70.7	68.9	66.0	61.1	69.7	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	317	684
CNEL:	74	159	342	736

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cobalt Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,300 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.79	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.44	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.40	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.4	65.7	59.6	68.2	68.8
Medium Trucks:	62.7	61.2	54.8	53.3	61.8	62.0
Heavy Trucks:	62.7	61.3	52.3	53.5	61.9	62.0
Vehicle Noise:	70.9	69.1	66.2	61.3	69.9	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	152	327	705
CNEL:	76	163	352	758

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Amethyst Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,270 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.74	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.50	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.46	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.4	65.6	59.5	68.2	68.8
Medium Trucks:	62.7	61.1	54.8	53.2	61.7	61.9
Heavy Trucks:	62.7	61.3	52.2	53.5	61.8	62.0
Vehicle Noise:	70.8	69.1	66.1	61.2	69.8	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	150	324	698
CNEL:	75	162	349	751

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Palmdale Rd. (SR-18)

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,080 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.06	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.18	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.13	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.0	66.2	60.2	68.8	69.4
Medium Trucks:	63.3	61.8	55.4	53.9	62.3	62.5
Heavy Trucks:	63.3	61.9	52.8	54.1	62.4	62.6
Vehicle Noise:	71.5	69.7	66.7	61.9	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	90	193	415	895
CNEL:	96	207	447	963

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Dos Palmas Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,720 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.88	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.36	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.31	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.8	67.0	61.0	69.6	70.2
Medium Trucks:	64.1	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.1	62.7	53.7	54.9	63.3	63.4
Vehicle Noise:	72.3	70.5	67.6	62.7	71.2	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	102	219	471	1,015
CNEL:	109	235	507	1,092

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,160 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.17	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.06	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.02	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	63.4	62.0	53.0	54.2	62.6	62.7
Vehicle Noise:	71.6	69.8	66.8	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	196	423	910
CNEL:	98	211	455	979

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o La Mesa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.65	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.59	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.55	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	71.7	69.9	63.9	72.5	73.1
Medium Trucks:	67.0	65.5	59.1	57.6	66.1	66.3
Heavy Trucks:	67.0	65.6	56.6	57.8	66.2	66.3
Vehicle Noise:	75.2	73.4	70.5	65.6	74.1	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	163	351	755
CNEL:	81	175	377	813

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,520 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.19	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-16.05	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-20.00	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.1	71.2	69.5	63.4	72.0	72.6
Medium Trucks:	66.6	65.0	58.7	57.1	65.6	65.8
Heavy Trucks:	66.6	65.2	56.1	57.4	65.7	65.9
Vehicle Noise:	74.7	73.0	70.0	65.1	73.7	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	152	327	704
CNEL:	76	163	352	757

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: w/o SR-395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,540 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.23	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.01	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.97	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.8	66.1	60.0	68.6	69.3
Medium Trucks:	63.1	61.6	55.3	53.7	62.2	62.4
Heavy Trucks:	63.2	61.8	52.7	54.0	62.3	62.5
Vehicle Noise:	71.3	69.6	66.6	61.7	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	162	349	753
CNEL:	81	174	376	810

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Luna Rd. | Job Number: 11724
Road Segment: e/o SR-395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	680 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.11	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-20.35	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.31	1.39	-1.20	-5.56	0.000	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	61.7	59.9	53.8	62.5	63.1
Medium Trucks:	57.6	56.1	49.7	48.1	56.6	56.8
Heavy Trucks:	58.9	57.5	48.4	49.7	58.0	58.2
Vehicle Noise:	65.6	63.8	60.6	56.0	64.6	65.0

Centerline Distance to Noise Contour (in feet)

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

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cantina St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,360 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.91	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.33	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.29	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	67.5	65.8	59.7	68.3	68.9
Medium Trucks:	62.8	61.3	55.0	53.4	61.9	62.1
Heavy Trucks:	62.9	61.4	52.4	53.7	62.0	62.1
Vehicle Noise:	71.0	69.2	66.3	61.4	70.0	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	154	333	717
CNEL:	77	166	358	771

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cobalt Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,430 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.03	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.20	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.16	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.9	59.8	68.5	69.1
Medium Trucks:	63.0	61.4	55.1	53.5	62.0	62.2
Heavy Trucks:	63.0	61.6	52.5	53.8	62.1	62.3
Vehicle Noise:	71.1	69.4	66.4	61.5	70.1	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	339	731
CNEL:	79	169	365	786

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Amethyst Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,370 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.92	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.31	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.27	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	67.5	65.8	59.7	68.3	69.0
Medium Trucks:	62.8	61.3	55.0	53.4	61.9	62.1
Heavy Trucks:	62.9	61.5	52.4	53.7	62.0	62.2
Vehicle Noise:	71.0	69.3	66.3	61.4	70.0	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	155	334	719
CNEL:	77	167	359	773

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o Palmdale Rd. (SR-18)
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,100 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.09	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.15	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.10	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.0	66.2	60.2	68.8	69.4
Medium Trucks:	63.3	61.8	55.4	53.9	62.3	62.6
Heavy Trucks:	63.3	61.9	52.9	54.1	62.5	62.6
Vehicle Noise:	71.5	69.7	66.8	61.9	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	90	194	417	899
CNEL:	97	208	449	967

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o Dos Palmas Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,850 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.03	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.21	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.16	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.9	67.2	61.1	69.7	70.3
Medium Trucks:	64.2	62.7	56.4	54.8	63.3	63.5
Heavy Trucks:	64.3	62.8	53.8	55.1	63.4	63.5
Vehicle Noise:	72.4	70.7	67.7	62.8	71.4	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	104	224	482	1,039
CNEL:	112	241	519	1,117

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o Luna Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,260 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.31	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.93	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.88	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.5	60.4	69.0	69.6
Medium Trucks:	63.5	62.0	55.6	54.1	62.6	62.8
Heavy Trucks:	63.5	62.1	53.1	54.3	62.7	62.8
Vehicle Noise:	71.7	69.9	67.0	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	200	431	930
CNEL:	100	215	464	1,000

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o La Mesa Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,830 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.70	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.54	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.50	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	71.7	70.0	63.9	72.5	73.1
Medium Trucks:	67.1	65.6	59.2	57.6	66.1	66.3
Heavy Trucks:	67.1	65.7	56.6	57.9	66.2	66.4
Vehicle Noise:	75.2	73.5	70.5	65.6	74.2	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	353	761
CNEL:	82	176	380	818

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o Bear Valley Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,540 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.23	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-16.01	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.97	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.2	71.3	69.5	63.4	72.1	72.7
Medium Trucks:	66.6	65.1	58.7	57.2	65.6	65.9
Heavy Trucks:	66.6	65.2	56.2	57.4	65.8	65.9
Vehicle Noise:	74.8	73.0	70.0	65.2	73.7	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	153	329	708
CNEL:	76	164	353	761

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: w/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,570 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.28	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.96	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.92	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	66.1	60.1	68.7	69.3
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.2	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	71.4	69.6	66.7	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	163	352	759
CNEL:	82	176	379	816

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: Luna Rd.
Road Segment: e/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	750 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.69	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-19.93	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.88	1.39	-1.20	-5.56	0.000	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	62.1	60.3	54.3	62.9	63.5
Medium Trucks:	58.0	56.5	50.1	48.6	57.0	57.3
Heavy Trucks:	59.3	57.9	48.8	50.1	58.5	58.6
Vehicle Noise:	66.0	64.3	61.0	56.4	65.0	65.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	40	86	185
CNEL:	20	43	92	198

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cantina St.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,410 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.00	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.24	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.20	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.9	59.8	68.4	69.0
Medium Trucks:	62.9	61.4	55.0	53.5	62.0	62.2
Heavy Trucks:	63.0	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	71.1	69.3	66.4	61.5	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	337	727
CNEL:	78	168	363	782

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cobalt Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,470 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.10	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.13	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.09	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	66.0	59.9	68.5	69.1
Medium Trucks:	63.0	61.5	55.2	53.6	62.1	62.3
Heavy Trucks:	63.1	61.6	52.6	53.8	62.2	62.3
Vehicle Noise:	71.2	69.4	66.5	61.6	70.2	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	159	343	739
CNEL:	79	171	369	795

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Amethyst Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,410 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.00	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.24	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.20	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.9	59.8	68.4	69.0
Medium Trucks:	62.9	61.4	55.0	53.5	62.0	62.2
Heavy Trucks:	63.0	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	71.1	69.3	66.4	61.5	70.1	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	337	727
CNEL:	78	168	363	782

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: SR-395
Road Segment: n/o Palmdale Rd. (SR-18)
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,210 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.24	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.00	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.95	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.4	60.3	69.0	69.6
Medium Trucks:	63.4	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.5	62.1	53.0	54.3	62.6	62.8
Vehicle Noise:	71.6	69.9	66.9	62.0	70.6	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	92	198	427	920
CNEL:	99	213	459	990

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: SR-395
Road Segment: n/o Dos Palmas Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,600 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.74	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.50	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.45	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.6	66.9	60.8	69.5	70.1
Medium Trucks:	63.9	62.4	56.1	54.5	63.0	63.2
Heavy Trucks:	64.0	62.6	53.5	54.8	63.1	63.3
Vehicle Noise:	72.1	70.4	67.4	62.5	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	99	214	461	993
CNEL:	107	230	496	1,068

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: SR-395
Road Segment: n/o Luna Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,070 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.05	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-15.19	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.15	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	63.3	61.7	55.4	53.8	62.3	62.5
Heavy Trucks:	63.3	61.9	52.8	54.1	62.4	62.6
Vehicle Noise:	71.4	69.7	66.7	61.8	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	192	415	893
CNEL:	96	207	446	961

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: SR-395
Road Segment: n/o La Mesa Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,900 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.80	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.44	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.39	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.7	71.8	70.1	64.0	72.6	73.3
Medium Trucks:	67.2	65.7	59.3	57.8	66.2	66.4
Heavy Trucks:	67.2	65.8	56.7	58.0	66.3	66.5
Vehicle Noise:	75.3	73.6	70.6	65.7	74.3	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	167	359	773
CNEL:	83	179	386	832

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: SR-395
Road Segment: n/o Bear Valley Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,630 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.38	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.86	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.82	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.3	71.4	69.7	63.6	72.2	72.8
Medium Trucks:	66.7	65.2	58.9	57.3	65.8	66.0
Heavy Trucks:	66.8	65.4	56.3	57.6	65.9	66.0
Vehicle Noise:	74.9	73.1	70.2	65.3	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	156	336	725
CNEL:	78	168	362	779

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Palmdale Rd. (SR-18)
Road Segment: w/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,590 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.31	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.93	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.88	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	66.2	60.1	68.7	69.3
Medium Trucks:	63.2	61.7	55.4	53.8	62.3	62.5
Heavy Trucks:	63.3	61.8	52.8	54.1	62.4	62.5
Vehicle Noise:	71.4	69.7	66.7	61.8	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	354	763
CNEL:	82	177	381	820

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Luna Rd.
Road Segment: e/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	530 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.20	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-21.44	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.39	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.5	60.6	58.8	52.8	61.4	62.0
Medium Trucks:	56.5	55.0	48.6	47.1	55.5	55.8
Heavy Trucks:	57.8	56.4	47.3	48.6	56.9	57.1
Vehicle Noise:	64.5	62.8	59.5	54.9	63.5	63.9

Centerline Distance to Noise Contour (in feet)

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

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cantina St.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,340 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.87	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.37	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.32	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	67.5	65.7	59.7	68.3	68.9
Medium Trucks:	62.8	61.3	54.9	53.4	61.8	62.1
Heavy Trucks:	62.8	61.4	52.4	53.6	62.0	62.1
Vehicle Noise:	71.0	69.2	66.3	61.4	69.9	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	154	331	713
CNEL:	77	165	356	767

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cobalt Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,440 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.05	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.19	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.14	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.7	65.9	59.9	68.5	69.1
Medium Trucks:	63.0	61.5	55.1	53.6	62.0	62.2
Heavy Trucks:	63.0	61.6	52.5	53.8	62.2	62.3
Vehicle Noise:	71.2	69.4	66.4	61.6	70.1	70.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	158	340	733
CNEL:	79	170	366	788

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Amethyst Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,400 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.98	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.26	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.21	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.6	65.8	59.8	68.4	69.0
Medium Trucks:	62.9	61.4	55.0	53.5	61.9	62.2
Heavy Trucks:	62.9	61.5	52.5	53.7	62.1	62.2
Vehicle Noise:	71.1	69.3	66.4	61.5	70.0	70.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	156	336	725
CNEL:	78	168	362	780

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 — *Project Name:* Desert Grove
Road Name: SR-395 — *Job Number:* 11724
Road Segment: n/o Palmdale Rd. (SR-18)

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,260 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.31	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.93	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.88	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.5	60.4	69.0	69.6
Medium Trucks:	63.5	62.0	55.6	54.1	62.6	62.8
Heavy Trucks:	63.5	62.1	53.1	54.3	62.7	62.8
Vehicle Noise:	71.7	69.9	67.0	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	200	431	930
CNEL:	100	215	464	1,000

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 — *Project Name:* Desert Grove
Road Name: SR-395 — *Job Number:* 11724
Road Segment: n/o Dos Palmas Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,930 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.12	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.12	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.07	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	69.0	67.3	61.2	69.8	70.4
Medium Trucks:	64.3	62.8	56.5	54.9	63.4	63.6
Heavy Trucks:	64.4	62.9	53.9	55.2	63.5	63.6
Vehicle Noise:	72.5	70.7	67.8	62.9	71.5	71.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	227	489	1,053
CNEL:	113	244	526	1,133

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 — *Project Name:* Desert Grove
Road Name: SR-395 — *Job Number:* 11724
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,340 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.41	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.82	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.78	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.3	66.6	60.5	69.1	69.7
Medium Trucks:	63.6	62.1	55.7	54.2	62.7	62.9
Heavy Trucks:	63.7	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	71.8	70.0	67.1	62.2	70.8	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	204	439	945
CNEL:	102	219	472	1,016

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 — *Project Name:* Desert Grove
Road Name: SR-395 — *Job Number:* 11724
Road Segment: n/o La Mesa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,970 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.91	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.33	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.29	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.8	71.9	70.2	64.1	72.7	73.4
Medium Trucks:	67.3	65.8	59.4	57.9	66.3	66.5
Heavy Trucks:	67.3	65.9	56.8	58.1	66.4	66.6
Vehicle Noise:	75.4	73.7	70.7	65.8	74.4	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	169	365	786
CNEL:	85	182	392	845

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,670 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.44	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.80	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.75	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	71.5	69.7	63.7	72.3	72.9
Medium Trucks:	66.8	65.3	58.9	57.4	65.9	66.1
Heavy Trucks:	66.8	65.4	56.4	57.6	66.0	66.1
Vehicle Noise:	75.0	73.2	70.2	65.4	73.9	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	158	340	732
CNEL:	79	170	365	787

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: w/o SR-395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,680 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.46	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.78	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.74	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	63.4	62.0	53.0	54.2	62.6	62.7
Vehicle Noise:	71.6	69.8	66.8	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	168	362	780
CNEL:	84	181	390	839

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: Luna Rd. | Job Number: 11724
Road Segment: e/o SR-395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	710 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.93	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-20.17	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.12	1.39	-1.20	-5.56	0.000	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	61.8	60.1	54.0	62.6	63.3
Medium Trucks:	57.7	56.2	49.9	48.3	56.8	57.0
Heavy Trucks:	59.1	57.6	48.6	49.9	58.2	58.3
Vehicle Noise:	65.8	64.0	60.8	56.2	64.7	65.2

Centerline Distance to Noise Contour (in feet)

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

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cantina St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,490 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.14	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.10	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-20.05	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.8	66.0	59.9	68.6	69.2
Medium Trucks:	63.1	61.5	55.2	53.6	62.1	62.3
Heavy Trucks:	63.1	61.7	52.6	53.9	62.2	62.4
Vehicle Noise:	71.2	69.5	66.5	61.7	70.2	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	160	345	743
CNEL:	80	172	371	799

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | *Project Name:* Desert Grove
Road Name: Palmdale Rd. (SR-18) | *Job Number:* 11724
Road Segment: e/o Cobalt Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,570	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	51	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	72.0	feet
Centerline Dist. to Observer:	72.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.28	-2.06	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	82.40	-15.96	-2.05	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-19.92	-2.05	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.8	67.9	66.1	60.1	68.7	69.3
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.2	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	71.4	69.6	66.7	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	76	163	352	759
CNEL:	82	176	379	816

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | *Project Name:* Desert Grove
Road Name: Palmdale Rd. (SR-18) | *Job Number:* 11724
Road Segment: e/o Amethyst Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,510	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	51	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	72.0	feet
Centerline Dist. to Observer:	72.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.17	-2.06	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	82.40	-16.06	-2.05	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-20.02	-2.05	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	67.8	66.0	60.0	68.6	69.2
Medium Trucks:	63.1	61.6	55.2	53.7	62.1	62.4
Heavy Trucks:	63.1	61.7	52.7	53.9	62.3	62.4
Vehicle Noise:	71.3	69.5	66.6	61.7	70.2	70.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	75	161	347	747
CNEL:	80	173	373	803

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 & | *Project Name:* Desert Grove
Road Name: SR-395 | *Job Number:* 11724
Road Segment: n/o Palmdale Rd. (SR-18)

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,280	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	84.0	feet
Centerline Dist. to Observer:	84.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	2.34	-2.77	-1.20	*-4.75*	0.000	0.000
Medium Trucks:	82.40	-14.90	-2.76	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-18.86	-2.76	-1.20	*-5.21*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.1	68.2	66.5	60.4	69.0	69.7
Medium Trucks:	63.5	62.0	55.7	54.1	62.6	62.8
Heavy Trucks:	63.6	62.2	53.1	54.4	62.7	62.8
Vehicle Noise:	71.7	70.0	67.0	62.1	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	93	201	433	933
CNEL:	100	216	466	1,004

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 & | *Project Name:* Desert Grove
Road Name: SR-395 | *Job Number:* 11724
Road Segment: n/o Dos Palmas Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,050	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	84.0	feet
Centerline Dist. to Observer:	84.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.25	-2.77	-1.20	*-4.75*	0.000	0.000
Medium Trucks:	82.40	-13.99	-2.76	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.94	-2.76	-1.20	*-5.21*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.1	69.2	67.4	61.3	70.0	70.6
Medium Trucks:	64.5	62.9	56.6	55.0	63.5	63.7
Heavy Trucks:	64.5	63.1	54.0	55.3	63.6	63.8
Vehicle Noise:	72.6	70.9	67.9	63.0	71.6	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	107	231	499	1,074
CNEL:	116	249	536	1,156

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: SR-395
Road Segment: n/o Luna Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,440 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.54	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-14.70	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.65	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.7	60.6	69.3	69.9
Medium Trucks:	63.7	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	63.8	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	71.9	70.2	67.2	62.3	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	96	208	447	963
CNEL:	104	223	481	1,037

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: SR-395
Road Segment: n/o La Mesa Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,000 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.95	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.29	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.25	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.9	72.0	70.2	64.2	72.8	73.4
Medium Trucks:	67.3	65.8	59.4	57.9	66.4	66.6
Heavy Trucks:	67.3	65.9	56.9	58.1	66.5	66.6
Vehicle Noise:	75.5	73.7	70.8	65.9	74.4	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	367	791
CNEL:	85	183	395	851

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: SR-395
Road Segment: n/o Bear Valley Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,690 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.48	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-15.76	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.72	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	71.5	69.8	63.7	72.3	72.9
Medium Trucks:	66.8	65.3	59.0	57.4	65.9	66.1
Heavy Trucks:	66.9	65.4	56.4	57.7	66.0	66.1
Vehicle Noise:	75.0	73.2	70.3	65.4	74.0	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	158	341	735
CNEL:	79	170	367	791

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Palmdale Rd. (SR-18)
Road Segment: w/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,720 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.52	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.72	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.67	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.4	60.3	68.9	69.6
Medium Trucks:	63.4	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.5	62.1	53.0	54.3	62.6	62.8
Vehicle Noise:	71.6	69.9	66.9	62.0	70.6	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	366	788
CNEL:	85	183	393	848

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Luna Rd.
Road Segment: e/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	780 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.52	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-19.76	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.71	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	62.3	60.5	54.4	63.1	63.7
Medium Trucks:	58.2	56.6	50.3	48.7	57.2	57.4
Heavy Trucks:	59.5	58.1	49.0	50.3	58.6	58.7
Vehicle Noise:	66.2	64.4	61.2	56.6	65.2	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	88	190
CNEL:	20	44	94	203

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cantina St.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,550 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.24	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.00	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.95	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	66.1	60.0	68.7	69.3
Medium Trucks:	63.2	61.7	55.3	53.7	62.2	62.4
Heavy Trucks:	63.2	61.8	52.7	54.0	62.3	62.5
Vehicle Noise:	71.3	69.6	66.6	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	163	350	755
CNEL:	81	175	377	812

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cobalt Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,610 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.34	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.89	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.85	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.0	66.2	60.1	68.8	69.4
Medium Trucks:	63.3	61.8	55.4	53.8	62.3	62.5
Heavy Trucks:	63.3	61.9	52.8	54.1	62.4	62.6
Vehicle Noise:	71.4	69.7	66.7	61.9	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	165	356	767
CNEL:	82	178	383	825

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Amethyst Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,550 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.24	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-16.00	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.95	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	66.1	60.0	68.7	69.3
Medium Trucks:	63.2	61.7	55.3	53.7	62.2	62.4
Heavy Trucks:	63.2	61.8	52.7	54.0	62.3	62.5
Vehicle Noise:	71.3	69.6	66.6	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	163	350	755
CNEL:	81	175	377	812

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o Palmdale Rd. (SR-18)
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,290 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.50	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.74	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.69	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	64.7	63.2	56.8	55.3	63.8	64.0
Heavy Trucks:	64.7	63.3	54.3	55.5	63.9	64.0
Vehicle Noise:	72.9	71.1	68.2	63.3	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	112	240	518	1,116
CNEL:	120	259	557	1,201

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o Dos Palmas Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,520 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.73	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.51	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.47	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.6	67.9	61.8	70.4	71.0
Medium Trucks:	64.9	63.4	57.1	55.5	64.0	64.2
Heavy Trucks:	65.0	63.5	54.5	55.8	64.1	64.2
Vehicle Noise:	73.1	71.4	68.4	63.5	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	116	249	536	1,156
CNEL:	124	268	577	1,243

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o Luna Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,290 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.50	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.74	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.69	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	64.7	63.2	56.8	55.3	63.8	64.0
Heavy Trucks:	64.7	63.3	54.3	55.5	63.9	64.0
Vehicle Noise:	72.9	71.1	68.2	63.3	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	112	240	518	1,116
CNEL:	120	259	557	1,201

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o La Mesa Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,210 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.42	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-13.82	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-17.77	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.4	73.5	71.7	65.6	74.3	74.9
Medium Trucks:	68.8	67.3	60.9	59.4	67.8	68.1
Heavy Trucks:	68.8	67.4	58.4	59.6	68.0	68.1
Vehicle Noise:	77.0	75.2	72.2	67.4	75.9	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	99	214	460	991
CNEL:	107	230	495	1,066

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: SR-395
Road Segment: n/o Bear Valley Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,820 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.00	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-14.24	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-18.20	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.9	73.0	71.3	65.2	73.8	74.4
Medium Trucks:	68.4	66.9	60.5	58.9	67.4	67.6
Heavy Trucks:	68.4	67.0	57.9	59.2	67.5	67.7
Vehicle Noise:	76.5	74.8	71.8	66.9	75.5	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	93	200	431	929
CNEL:	100	215	464	1,000

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: w/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,580 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.29	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.94	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.90	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	66.1	60.1	68.7	69.3
Medium Trucks:	63.2	61.7	55.3	53.8	62.3	62.5
Heavy Trucks:	63.2	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	71.4	69.6	66.7	61.8	70.4	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	353	761
CNEL:	82	176	380	818

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Luna Rd.
Road Segment: e/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	520 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.28	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-21.52	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.47	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.4	60.5	58.7	52.7	61.3	61.9
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	57.7	56.3	47.3	48.5	56.9	57.0
Vehicle Noise:	64.4	62.7	59.4	54.9	63.4	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	31	67	145
CNEL:	16	33	72	155

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cantina St.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,560 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.26	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.98	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.93	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.9	66.1	60.1	68.7	69.3
Medium Trucks:	63.2	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	63.2	61.8	52.8	54.0	62.4	62.5
Vehicle Noise:	71.4	69.6	66.6	61.8	70.3	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	163	351	757
CNEL:	81	175	378	814

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cobalt Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,680 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.46	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.78	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.74	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	63.4	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	63.4	62.0	53.0	54.2	62.6	62.7
Vehicle Noise:	71.6	69.8	66.8	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	168	362	780
CNEL:	84	181	390	839

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Amethyst Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,620 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.36	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.88	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.83	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.0	66.2	60.2	68.8	69.4
Medium Trucks:	63.3	61.8	55.4	53.9	62.3	62.6
Heavy Trucks:	63.3	61.9	52.9	54.1	62.5	62.6
Vehicle Noise:	71.5	69.7	66.7	61.9	70.4	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	166	357	769
CNEL:	83	178	384	827

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Palmdale Rd. (SR-18)

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,350 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.56	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.68	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.63	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	64.8	63.3	56.9	55.4	63.8	64.0
Heavy Trucks:	64.8	63.4	54.3	55.6	63.9	64.1
Vehicle Noise:	73.0	71.2	68.2	63.4	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	243	523	1,127
CNEL:	121	261	563	1,212

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Dos Palmas Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	48,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,860 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.04	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.19	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.15	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.9	70.0	68.2	62.1	70.8	71.4
Medium Trucks:	65.2	63.7	57.4	55.8	64.3	64.5
Heavy Trucks:	65.3	63.9	54.8	56.1	64.4	64.6
Vehicle Noise:	73.4	71.7	68.7	63.8	72.4	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	121	261	563	1,213
CNEL:	131	281	606	1,305

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,560 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.77	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.47	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.43	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.7	67.9	61.9	70.5	71.1
Medium Trucks:	65.0	63.5	57.1	55.6	64.0	64.2
Heavy Trucks:	65.0	63.6	54.5	55.8	64.2	64.3
Vehicle Noise:	73.2	71.4	68.4	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	116	250	540	1,163
CNEL:	125	269	581	1,251

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o La Mesa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,280 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.49	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-13.75	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-17.70	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.4	73.5	71.8	65.7	74.3	74.9
Medium Trucks:	68.9	67.3	61.0	59.4	67.9	68.1
Heavy Trucks:	68.9	67.5	58.4	59.7	68.0	68.2
Vehicle Noise:	77.0	75.3	72.3	67.4	76.0	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	100	216	465	1,002
CNEL:	108	232	500	1,078

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,860 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.04	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-14.19	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-18.15	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.0	73.1	71.3	65.3	73.9	74.5
Medium Trucks:	68.4	66.9	60.5	59.0	67.5	67.7
Heavy Trucks:	68.4	67.0	58.0	59.2	67.6	67.7
Vehicle Noise:	76.6	74.8	71.9	67.0	75.5	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	202	434	936
CNEL:	101	217	467	1,007

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: w/o SR-395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,670 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.44	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.80	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.75	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.3	60.2	68.9	69.5
Medium Trucks:	63.4	61.9	55.5	53.9	62.4	62.6
Heavy Trucks:	63.4	62.0	52.9	54.2	62.5	62.7
Vehicle Noise:	71.5	69.8	66.8	62.0	70.5	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	78	168	361	778
CNEL:	84	180	389	837

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Luna Rd. | Job Number: 11724
Road Segment: e/o SR-395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	700 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.99	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-20.23	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.18	1.39	-1.20	-5.56	0.000	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	61.8	60.0	54.0	62.6	63.2
Medium Trucks:	57.7	56.2	49.8	48.3	56.7	57.0
Heavy Trucks:	59.0	57.6	48.5	49.8	58.2	58.3
Vehicle Noise:	65.7	64.0	60.7	56.1	64.7	65.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	38	82	177
CNEL:	19	41	88	189

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cantina St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,710 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.51	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.73	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.69	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.4	60.3	68.9	69.5
Medium Trucks:	63.4	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.5	62.0	53.0	54.3	62.6	62.7
Vehicle Noise:	71.6	69.8	66.9	62.0	70.6	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	169	365	786
CNEL:	85	182	392	846

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cobalt Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,810 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.66	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.57	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.53	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.3	66.5	60.5	69.1	69.7
Medium Trucks:	63.6	62.1	55.7	54.2	62.6	62.9
Heavy Trucks:	63.6	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	71.8	70.0	67.0	62.2	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	173	374	805
CNEL:	87	187	402	866

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Amethyst Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,720 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.52	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.72	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.67	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.4	60.3	68.9	69.6
Medium Trucks:	63.4	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.5	62.1	53.0	54.3	62.6	62.8
Vehicle Noise:	71.6	69.9	66.9	62.0	70.6	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	366	788
CNEL:	85	183	393	848

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o Palmdale Rd. (SR-18)
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,370 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.58	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.66	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.61	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	64.8	63.3	56.9	55.4	63.8	64.1
Heavy Trucks:	64.8	63.4	54.4	55.6	64.0	64.1
Vehicle Noise:	73.0	71.2	68.3	63.4	71.9	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	243	525	1,130
CNEL:	122	262	564	1,216

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o Dos Palmas Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,990 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.16	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.08	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.04	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.0	70.1	68.3	62.2	70.9	71.5
Medium Trucks:	65.4	63.9	57.5	55.9	64.4	64.6
Heavy Trucks:	65.4	64.0	54.9	56.2	64.5	64.7
Vehicle Noise:	73.5	71.8	68.8	64.0	72.5	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	123	266	573	1,235
CNEL:	133	286	617	1,328

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o Luna Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,650 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.85	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-13.39	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.34	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	69.8	68.0	61.9	70.6	71.2
Medium Trucks:	65.1	63.5	57.2	55.6	64.1	64.3
Heavy Trucks:	65.1	63.7	54.6	55.9	64.2	64.4
Vehicle Noise:	73.2	71.5	68.5	63.6	72.2	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	254	547	1,178
CNEL:	127	273	588	1,267

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o La Mesa Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,310 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.52	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-13.72	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-17.67	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.5	73.6	71.8	65.7	74.4	75.0
Medium Trucks:	68.9	67.4	61.0	59.5	67.9	68.2
Heavy Trucks:	68.9	67.5	58.5	59.7	68.1	68.2
Vehicle Noise:	77.1	75.3	72.3	67.5	76.0	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	101	217	467	1,007
CNEL:	108	233	503	1,083

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: SR-395
Road Segment: n/o Bear Valley Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,880 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.07	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-14.17	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-18.13	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	75.0	73.1	71.3	65.3	73.9	74.5
Medium Trucks:	68.4	66.9	60.6	59.0	67.5	67.7
Heavy Trucks:	68.5	67.0	58.0	59.3	67.6	67.7
Vehicle Noise:	76.6	74.8	71.9	67.0	75.6	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	202	436	939
CNEL:	101	218	469	1,010

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: w/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,710 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.51	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.73	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.69	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	68.1	66.4	60.3	68.9	69.5
Medium Trucks:	63.4	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.5	62.0	53.0	54.3	62.6	62.7
Vehicle Noise:	71.6	69.8	66.9	62.0	70.6	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	169	365	786
CNEL:	85	182	392	846

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: Luna Rd.
Road Segment: e/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	770 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.57	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-19.81	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.77	1.39	-1.20	-5.56	0.000	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	62.2	60.4	54.4	63.0	63.6
Medium Trucks:	58.1	56.6	50.2	48.7	57.1	57.4
Heavy Trucks:	59.4	58.0	49.0	50.2	58.6	58.7
Vehicle Noise:	66.1	64.4	61.1	56.6	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	87	188
CNEL:	20	43	94	202

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cantina St.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,770 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.60	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.64	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.59	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.5	60.4	69.0	69.6
Medium Trucks:	63.5	62.0	55.7	54.1	62.6	62.8
Heavy Trucks:	63.6	62.1	53.1	54.3	62.7	62.8
Vehicle Noise:	71.7	69.9	67.0	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	172	370	798
CNEL:	86	185	398	858

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cobalt Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,860 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.74	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.50	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.45	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.4	66.6	60.5	69.2	69.8
Medium Trucks:	63.7	62.2	55.8	54.2	62.7	62.9
Heavy Trucks:	63.7	62.3	53.2	54.5	62.8	63.0
Vehicle Noise:	71.8	70.1	67.1	62.3	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	176	378	815
CNEL:	88	189	407	877

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing With Full Project | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Amethyst Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,760 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.59	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.65	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.61	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	68.2	66.4	60.4	69.0	69.6
Medium Trucks:	63.5	62.0	55.6	54.1	62.6	62.8
Heavy Trucks:	63.5	62.1	53.1	54.3	62.7	62.8
Vehicle Noise:	71.7	69.9	67.0	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	171	369	796
CNEL:	86	184	397	856

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Palmdale Rd. (SR-18)

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	55,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,550 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.62	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.62	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.57	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.5	68.8	62.7	71.3	71.9
Medium Trucks:	65.8	64.3	58.0	56.4	64.9	65.1
Heavy Trucks:	65.9	64.4	55.4	56.7	65.0	65.1
Vehicle Noise:	74.0	72.2	69.3	64.4	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	133	286	615	1,325
CNEL:	143	307	662	1,426

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Dos Palmas Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,650 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.70	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.54	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.50	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	65.9	64.4	58.0	56.5	64.9	65.2
Heavy Trucks:	65.9	64.5	55.5	56.7	65.1	65.2
Vehicle Noise:	74.1	72.3	69.4	64.5	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	289	623	1,341
CNEL:	144	311	670	1,443

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: SR-395
Road Segment: n/o Luna Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	5,690	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	84.0	feet
Centerline Dist. to Observer:	84.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	4.73	-2.77	-1.20	*-4.75*	0.000	0.000
Medium Trucks:	82.40	-12.51	-2.76	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.47	-2.76	-1.20	*-5.21*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	70.6	68.9	62.8	71.4	72.0
Medium Trucks:	65.9	64.4	58.1	56.5	65.0	65.2
Heavy Trucks:	66.0	64.5	55.5	56.8	65.1	65.2
Vehicle Noise:	74.1	72.4	69.4	64.5	73.1	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	135	290	625	1,348
CNEL:	145	312	673	1,450

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: SR-395
Road Segment: n/o La Mesa Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	5,690	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	11	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	40.0	feet
Centerline Dist. to Observer:	40.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	4.73	1.36	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	82.40	-12.51	1.40	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-16.47	1.39	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	76.7	74.8	73.0	67.0	75.6	76.2
Medium Trucks:	70.1	68.6	62.2	60.7	69.1	69.4
Heavy Trucks:	70.1	68.7	59.7	60.9	69.3	69.4
Vehicle Noise:	78.3	76.5	73.5	68.7	77.2	77.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	121	261	563	1,212
CNEL:	130	281	605	1,304

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: SR-395
Road Segment: n/o Bear Valley Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	51,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	5,170	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	11	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	40.0	feet
Centerline Dist. to Observer:	40.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	4.31	1.36	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	82.40	-12.93	1.40	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-16.88	1.39	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	76.3	74.4	72.6	66.5	75.2	75.8
Medium Trucks:	69.7	68.2	61.8	60.3	68.7	69.0
Heavy Trucks:	69.7	68.3	59.3	60.5	68.9	69.0
Vehicle Noise:	77.8	76.1	73.1	68.3	76.8	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	114	245	528	1,137
CNEL:	122	263	568	1,223

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Palmdale Rd. (SR-18)
Road Segment: w/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,710	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	51	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	72.0	feet
Centerline Dist. to Observer:	72.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.51	-2.06	-1.20	*-4.72*	0.000	0.000
Medium Trucks:	82.40	-15.73	-2.05	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-19.69	-2.05	-1.20	*-5.26*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.0	68.1	66.4	60.3	68.9	69.5
Medium Trucks:	63.4	61.9	55.6	54.0	62.5	62.7
Heavy Trucks:	63.5	62.0	53.0	54.3	62.6	62.7
Vehicle Noise:	71.6	69.8	66.9	62.0	70.6	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	79	169	365	786
CNEL:	85	182	392	846

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Luna Rd.
Road Segment: e/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.04	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-21.27	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-25.23	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.7	59.0	52.9	61.5	62.1
Medium Trucks:	56.6	55.1	48.8	47.2	55.7	55.9
Heavy Trucks:	58.0	56.5	47.5	48.7	57.1	57.2
Vehicle Noise:	64.7	62.9	59.6	55.1	63.6	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	70	151
CNEL:	16	35	75	161

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cantina St.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,920 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.83	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.41	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.36	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.7	60.6	69.3	69.9
Medium Trucks:	63.7	62.2	55.9	54.3	62.8	63.0
Heavy Trucks:	63.8	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	71.9	70.2	67.2	62.3	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	83	178	383	826
CNEL:	89	191	413	889

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cobalt Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,070 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.05	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.19	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.15	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	66.9	60.9	69.5	70.1
Medium Trucks:	64.0	62.5	56.1	54.6	63.0	63.2
Heavy Trucks:	64.0	62.6	53.5	54.8	63.1	63.3
Vehicle Noise:	72.2	70.4	67.4	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	184	396	854
CNEL:	92	198	427	919

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 Without
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Amethyst Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,970 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.91	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.33	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.29	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.5	66.8	60.7	69.3	69.9
Medium Trucks:	63.8	62.3	56.0	54.4	62.9	63.1
Heavy Trucks:	63.9	62.4	53.4	54.7	63.0	63.1
Vehicle Noise:	72.0	70.2	67.3	62.4	71.0	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	84	180	388	836
CNEL:	90	194	417	899

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 — *Project Name:* Desert Grove
Road Name: SR-395 — *Job Number:* 11724
Road Segment: n/o Palmdale Rd. (SR-18)

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,610 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.67	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.57	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.53	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	65.9	64.4	58.0	56.5	64.9	65.1
Heavy Trucks:	65.9	64.5	55.4	56.7	65.1	65.2
Vehicle Noise:	74.1	72.3	69.3	64.5	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	133	288	620	1,335
CNEL:	144	309	667	1,436

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 — *Project Name:* Desert Grove
Road Name: SR-395 — *Job Number:* 11724
Road Segment: n/o Dos Palmas Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	60,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,000 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.96	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.28	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.24	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	70.9	69.1	63.0	71.7	72.3
Medium Trucks:	66.2	64.7	58.3	56.7	65.2	65.4
Heavy Trucks:	66.2	64.8	55.7	57.0	65.3	65.5
Vehicle Noise:	74.3	72.6	69.6	64.8	73.3	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	140	301	648	1,396
CNEL:	150	324	697	1,502

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 — *Project Name:* Desert Grove
Road Name: SR-395 — *Job Number:* 11724
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,960 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.93	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.31	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.26	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.8	69.1	63.0	71.6	72.2
Medium Trucks:	66.1	64.6	58.3	56.7	65.2	65.4
Heavy Trucks:	66.2	64.7	55.7	57.0	65.3	65.4
Vehicle Noise:	74.3	72.6	69.6	64.7	73.3	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	139	299	645	1,390
CNEL:	150	322	694	1,495

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 — *Project Name:* Desert Grove
Road Name: SR-395 — *Job Number:* 11724
Road Segment: n/o La Mesa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	57,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,760 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.78	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-12.46	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-16.41	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.7	74.8	73.1	67.0	75.6	76.2
Medium Trucks:	70.1	68.6	62.3	60.7	69.2	69.4
Heavy Trucks:	70.2	68.8	59.7	61.0	69.3	69.5
Vehicle Noise:	78.3	76.6	73.6	68.7	77.3	77.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	567	1,222
CNEL:	131	283	610	1,314

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	52,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,210 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.35	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-12.89	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-16.85	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.3	74.4	72.6	66.6	75.2	75.8
Medium Trucks:	69.7	68.2	61.8	60.3	68.8	69.0
Heavy Trucks:	69.7	68.3	59.3	60.5	68.9	69.0
Vehicle Noise:	77.9	76.1	73.2	68.3	76.8	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	114	246	530	1,143
CNEL:	123	265	571	1,229

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: w/o SR-395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.65	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.59	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.55	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.3	66.5	60.5	69.1	69.7
Medium Trucks:	63.6	62.1	55.7	54.2	62.6	62.8
Heavy Trucks:	63.6	62.2	53.1	54.4	62.7	62.9
Vehicle Noise:	71.8	70.0	67.0	62.2	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	173	373	803
CNEL:	86	186	401	864

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: Luna Rd. | Job Number: 11724
Road Segment: e/o SR-395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	730 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.81	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-20.04	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-24.00	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.9	62.0	60.2	54.1	62.8	63.4
Medium Trucks:	57.9	56.4	50.0	48.5	56.9	57.1
Heavy Trucks:	59.2	57.8	48.7	50.0	58.3	58.5
Vehicle Noise:	65.9	64.2	60.9	56.3	64.9	65.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	39	84	182
CNEL:	19	42	90	195

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cantina St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,070 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.05	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.19	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.15	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	66.9	60.9	69.5	70.1
Medium Trucks:	64.0	62.5	56.1	54.6	63.0	63.2
Heavy Trucks:	64.0	62.6	53.5	54.8	63.1	63.3
Vehicle Noise:	72.2	70.4	67.4	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	184	396	854
CNEL:	92	198	427	919

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Cobalt Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,200 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.23	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.01	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.97	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.9	67.1	61.0	69.7	70.3
Medium Trucks:	64.1	62.6	56.3	54.7	63.2	63.4
Heavy Trucks:	64.2	62.8	53.7	55.0	63.3	63.5
Vehicle Noise:	72.3	70.6	67.6	62.7	71.3	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	189	408	878
CNEL:	94	204	438	945

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 | Project Name: Desert Grove
Road Name: Palmdale Rd. (SR-18) | Job Number: 11724
Road Segment: e/o Amethyst Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,080 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.06	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.18	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.13	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	66.9	60.9	69.5	70.1
Medium Trucks:	64.0	62.5	56.1	54.6	63.0	63.3
Heavy Trucks:	64.0	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	72.2	70.4	67.4	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	184	397	856
CNEL:	92	198	427	921

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 & | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Palmdale Rd. (SR-18)

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,630 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.68	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.56	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.51	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	70.6	68.8	62.8	71.4	72.0
Medium Trucks:	65.9	64.4	58.0	56.5	64.9	65.2
Heavy Trucks:	65.9	64.5	55.5	56.7	65.1	65.2
Vehicle Noise:	74.1	72.3	69.4	64.5	73.0	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	288	621	1,338
CNEL:	144	310	668	1,439

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 & | Project Name: Desert Grove
Road Name: SR-395 | Job Number: 11724
Road Segment: n/o Dos Palmas Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	61,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,120 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	5.04	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.19	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.15	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.9	71.0	69.2	63.1	71.8	72.4
Medium Trucks:	66.2	64.7	58.4	56.8	65.3	65.5
Heavy Trucks:	66.3	64.9	55.8	57.1	65.4	65.6
Vehicle Noise:	74.4	72.7	69.7	64.8	73.4	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	141	305	657	1,415
CNEL:	152	328	706	1,522

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: SR-395
Road Segment: n/o Luna Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	60,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,050 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	84.0 feet
Centerline Dist. to Observer:	84.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	75.331
Medium Trucks:	75.213
Heavy Trucks:	75.225

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	5.00	-2.77	-1.20	-4.75	0.000	0.000
Medium Trucks:	82.40	-12.24	-2.76	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.20	-2.76	-1.20	-5.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	70.9	69.1	63.1	71.7	72.3
Medium Trucks:	66.2	64.7	58.3	56.8	65.2	65.5
Heavy Trucks:	66.2	64.8	55.8	57.0	65.4	65.5
Vehicle Noise:	74.4	72.6	69.7	64.8	73.3	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	140	302	652	1,404
CNEL:	151	325	701	1,510

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: SR-395
Road Segment: n/o La Mesa Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	57,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,790 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.80	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-12.43	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-16.39	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.7	74.8	73.1	67.0	75.6	76.3
Medium Trucks:	70.2	68.7	62.3	60.8	69.2	69.4
Heavy Trucks:	70.2	68.8	59.7	61.0	69.3	69.5
Vehicle Noise:	78.3	76.6	73.6	68.7	77.3	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	123	264	569	1,226
CNEL:	132	284	612	1,319

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: SR-395
Road Segment: n/o Bear Valley Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	52,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,230 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.36	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-12.88	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-16.83	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.3	74.4	72.6	66.6	75.2	75.8
Medium Trucks:	69.7	68.2	61.9	60.3	68.8	69.0
Heavy Trucks:	69.8	68.3	59.3	60.6	68.9	69.0
Vehicle Noise:	77.9	76.1	73.2	68.3	76.9	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	115	247	532	1,146
CNEL:	123	266	572	1,232

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Palmdale Rd. (SR-18)
Road Segment: w/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,840 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.71	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.53	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.48	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.3	66.6	60.5	69.1	69.7
Medium Trucks:	63.6	62.1	55.8	54.2	62.7	62.9
Heavy Trucks:	63.7	62.2	53.2	54.5	62.8	62.9
Vehicle Noise:	71.8	70.1	67.1	62.2	70.8	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	175	376	811
CNEL:	87	188	405	872

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Luna Rd.
Road Segment: e/o SR-395
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	790 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	11 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	39.934
Medium Trucks:	39.712
Heavy Trucks:	39.734

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.46	1.36	-1.20	-4.59	0.000	0.000
Medium Trucks:	77.72	-19.70	1.40	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.66	1.39	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	62.3	60.5	54.5	63.1	63.7
Medium Trucks:	58.2	56.7	50.3	48.8	57.3	57.5
Heavy Trucks:	59.5	58.1	49.1	50.3	58.7	58.8
Vehicle Noise:	66.2	64.5	61.2	56.7	65.2	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	89	192
CNEL:	21	44	95	205

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cantina St.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,130 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.13	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.11	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.06	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.8	67.0	60.9	69.6	70.2
Medium Trucks:	64.1	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	64.1	62.7	53.6	54.9	63.2	63.4
Vehicle Noise:	72.2	70.5	67.5	62.6	71.2	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	87	186	402	865
CNEL:	93	201	432	931

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Cobalt Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,250 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.30	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-14.94	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-18.90	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.9	67.2	61.1	69.7	70.3
Medium Trucks:	64.2	62.7	56.3	54.8	63.3	63.5
Heavy Trucks:	64.2	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	72.4	70.6	67.7	62.8	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	89	191	412	887
CNEL:	95	206	443	954

Tuesday, January 08, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Opening Year 2019 w/ Phase 1 &
Road Name: Palmdale Rd. (SR-18)
Road Segment: e/o Amethyst Rd.
Project Name: Desert Grove
Job Number: 11724

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,110 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	72.0 feet
Centerline Dist. to Observer:	72.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	67.519
Medium Trucks:	67.387
Heavy Trucks:	67.400

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.11	-2.06	-1.20	-4.72	0.000	0.000
Medium Trucks:	82.40	-15.13	-2.05	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-19.09	-2.05	-1.20	-5.26	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.7	67.0	60.9	69.5	70.1
Medium Trucks:	64.0	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	64.1	62.6	53.6	54.9	63.2	63.3
Vehicle Noise:	72.2	70.4	67.5	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	86	186	400	862
CNEL:	93	200	430	927

Tuesday, January 08, 2019

APPENDIX 9.1:

OPERATIONAL NOISE LEVEL CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R1**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	208.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	208.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	208.0	-32.4	-32.4	-32.4	-32.4	-32.4	-32.4
Shielding (Barrier Attenuation)	208.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.8	-32.4	-32.4	-32.4	-32.4	-32.4
60 Minute Hourly Adjustment		**44.8**	**-32.4**	**-32.4**	**-32.4**	**-32.4**	**-32.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R1**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	275.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	275.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	275.0	-25.3	-25.3	-25.3	-25.3	-25.3	-25.3
Shielding (Barrier Attenuation)	275.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		36.7	-25.3	-25.3	-25.3	-25.3	-25.3
60 Minute Hourly Adjustment		**36.7**	**-25.3**	**-25.3**	**-25.3**	**-25.3**	**-25.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R1**
Source: Gas Station Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	885.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	885.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	885.0	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Shielding (Barrier Attenuation)	885.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		23.2	-45.0	-45.0	-45.0	-45.0	-45.0
60 Minute Hourly Adjustment		**23.2**	**-45.0**	**-45.0**	**-45.0**	**-45.0**	**-45.0**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R1**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	232.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	232.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	232.0	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0
Shielding (Barrier Attenuation)	232.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		35.1	-25.0	-25.0	-25.0	-25.0	-25.0
60 Minute Hourly Adjustment		**35.1**	**-25.0**	**-25.0**	**-25.0**	**-25.0**	**-25.0**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R1** *Project Name:* Victorville Retail
Source: Car Wash Tunnel Entrance/Exit (Air Blow *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	535.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	535.0	feet	*Noise Source Height:*	10.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	74.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	535.0	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0
Shielding (Barrier Attenuation)	535.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		49.9	-25.0	-25.0	-25.0	-25.0	-25.0
60 Minute Hourly Adjustment		**49.9**	**-25.0**	**-25.0**	**-25.0**	**-25.0**	**-25.0**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R1** *Project Name:* Victorville Retail
Source: Car Wash Entry/Vacuum Activity *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	471.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	471.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	471.0	-39.5	-39.5	-39.5	-39.5	-39.5	-39.5
Shielding (Barrier Attenuation)	471.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		35.1	-39.5	-39.5	-39.5	-39.5	-39.5
60 Minute Hourly Adjustment		**35.1**	**-39.5**	**-39.5**	**-39.5**	**-39.5**	**-39.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R1**
Source: Loading Dock Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	670.0	feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	10.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	660.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	20.0	77.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	670.0	-30.5	-30.5	-30.5	-30.5	-30.5	-30.5
Shielding (Barrier Attenuation)	10.0	-15.7	-15.7	-15.7	-15.7	-15.7	-15.7
Raw (Distance + Barrier)		31.1	-46.2	-46.2	-46.2	-46.2	-46.2
60 Minute Hourly Adjustment		**31.1**	**-46.2**	**-46.2**	**-46.2**	**-46.2**	**-46.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R1**
Source: Shopping Cart Corral
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	521.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	521.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	72.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	521.0	-40.4	-40.4	-40.4	-40.4	-40.4	-40.4
Shielding (Barrier Attenuation)	521.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		32.5	-40.4	-40.4	-40.4	-40.4	-40.4
60 Minute Hourly Adjustment		**32.5**	**-40.4**	**-40.4**	**-40.4**	**-40.4**	**-40.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R1**
Source: RV Idling/Parking Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	284.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	284.0 feet	*Noise Source Height:*	6.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	284.0	-21.8	-21.8	-21.8	-21.8	-21.8	-21.8
Shielding (Barrier Attenuation)	284.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		54.6	-21.8	-21.8	-21.8	-21.8	-21.8
60 Minute Hourly Adjustment		**54.6**	**-21.8**	**-21.8**	**-21.8**	**-21.8**	**-21.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R2**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	206.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	206.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	206.0	-32.3	-32.3	-32.3	-32.3	-32.3	-32.3
Shielding (Barrier Attenuation)	206.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.9	-32.3	-32.3	-32.3	-32.3	-32.3
60 Minute Hourly Adjustment		**44.9**	**-32.3**	**-32.3**	**-32.3**	**-32.3**	**-32.3**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R2**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	289.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	289.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	289.0	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
Shielding (Barrier Attenuation)	289.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		36.3	-25.7	-25.7	-25.7	-25.7	-25.7
60 Minute Hourly Adjustment		**36.3**	**-25.7**	**-25.7**	**-25.7**	**-25.7**	**-25.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R2**
Source: Gas Station Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	255.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	255.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	255.0	-34.2	-34.2	-34.2	-34.2	-34.2	-34.2
Shielding (Barrier Attenuation)	255.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.0	-34.2	-34.2	-34.2	-34.2	-34.2
60 Minute Hourly Adjustment		**34.0**	**-34.2**	**-34.2**	**-34.2**	**-34.2**	**-34.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R2**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	184.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	184.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	184.0	-23.5	-23.5	-23.5	-23.5	-23.5	-23.5
Shielding (Barrier Attenuation)	184.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		36.6	-23.5	-23.5	-23.5	-23.5	-23.5
60 Minute Hourly Adjustment		**36.6**	**-23.5**	**-23.5**	**-23.5**	**-23.5**	**-23.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R2**
Source: Car Wash Tunnel Entrance/Exit (Air Blow
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,035.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,035.0	feet	*Noise Source Height:*	10.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	74.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,035.0	-30.8	-30.8	-30.8	-30.8	-30.8	-30.8
Shielding (Barrier Attenuation)	1,035.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.1	-30.8	-30.8	-30.8	-30.8	-30.8
60 Minute Hourly Adjustment		**44.1**	**-30.8**	**-30.8**	**-30.8**	**-30.8**	**-30.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R2** *Project Name:* Victorville Retail
Source: Car Wash Entry/Vacuum Activity *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	976.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	976.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	976.0	-45.8	-45.8	-45.8	-45.8	-45.8	-45.8
Shielding (Barrier Attenuation)	976.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.8	-45.8	-45.8	-45.8	-45.8	-45.8
60 Minute Hourly Adjustment		**28.8**	**-45.8**	**-45.8**	**-45.8**	**-45.8**	**-45.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R2** *Project Name:* Victorville Retail
Source: Loading Dock Activity *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	954.0 feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	10.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	944.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	20.0	77.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	954.0	-33.6	-33.6	-33.6	-33.6	-33.6	-33.6
Shielding (Barrier Attenuation)	10.0	-15.7	-15.7	-15.7	-15.7	-15.7	-15.7
Raw (Distance + Barrier)		28.0	-49.3	-49.3	-49.3	-49.3	-49.3
60 Minute Hourly Adjustment		**28.0**	**-49.3**	**-49.3**	**-49.3**	**-49.3**	**-49.3**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R2**
Source: Shopping Cart Corral
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	608.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	608.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	72.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	608.0	-41.7	-41.7	-41.7	-41.7	-41.7	-41.7
Shielding (Barrier Attenuation)	608.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		31.2	-41.7	-41.7	-41.7	-41.7	-41.7
60 Minute Hourly Adjustment		**31.2**	**-41.7**	**-41.7**	**-41.7**	**-41.7**	**-41.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R2**
Source: RV Idling/Parking Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	459.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	459.0	feet	*Noise Source Height:*	6.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	459.0	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9
Shielding (Barrier Attenuation)	459.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		51.5	-24.9	-24.9	-24.9	-24.9	-24.9
60 Minute Hourly Adjustment		**51.5**	**-24.9**	**-24.9**	**-24.9**	**-24.9**	**-24.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R3**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	175.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	175.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	175.0	-30.9	-30.9	-30.9	-30.9	-30.9	-30.9
Shielding (Barrier Attenuation)	175.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		46.3	-30.9	-30.9	-30.9	-30.9	-30.9
60 Minute Hourly Adjustment		**46.3**	**-30.9**	**-30.9**	**-30.9**	**-30.9**	**-30.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R3**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	496.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	496.0	feet	*Noise Source Height:*	3.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	496.0	-30.4	-30.4	-30.4	-30.4	-30.4	-30.4
Shielding (Barrier Attenuation)	496.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		31.6	-30.4	-30.4	-30.4	-30.4	-30.4
60 Minute Hourly Adjustment		**31.6**	**-30.4**	**-30.4**	**-30.4**	**-30.4**	**-30.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R3**
Source: Gas Station Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	157.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	157.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	157.0	-29.9	-29.9	-29.9	-29.9	-29.9	-29.9
Shielding (Barrier Attenuation)	157.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		38.3	-29.9	-29.9	-29.9	-29.9	-29.9
60 Minute Hourly Adjustment		**38.3**	**-29.9**	**-29.9**	**-29.9**	**-29.9**	**-29.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R3**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	53.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	53.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	53.0	-15.4	-15.4	-15.4	-15.4	-15.4	-15.4
Shielding (Barrier Attenuation)	53.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.7	-15.4	-15.4	-15.4	-15.4	-15.4
60 Minute Hourly Adjustment		**44.7**	**-15.4**	**-15.4**	**-15.4**	**-15.4**	**-15.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R3** *Project Name:* Victorville Retail
Source: Car Wash Tunnel Entrance/Exit (Air Blow *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,113.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	1,113.0	feet	*Noise Source Height:*	10.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	74.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,113.0	-31.4	-31.4	-31.4	-31.4	-31.4	-31.4
Shielding (Barrier Attenuation)	1,113.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		43.5	-31.4	-31.4	-31.4	-31.4	-31.4
60 Minute Hourly Adjustment		**43.5**	**-31.4**	**-31.4**	**-31.4**	**-31.4**	**-31.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R3** *Project Name:* Victorville Retail
Source: Car Wash Entry/Vacuum Activity *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,071.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	1,071.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,071.0	-46.6	-46.6	-46.6	-46.6	-46.6	-46.6
Shielding (Barrier Attenuation)	1,071.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.0	-46.6	-46.6	-46.6	-46.6	-46.6
60 Minute Hourly Adjustment		**28.0**	**-46.6**	**-46.6**	**-46.6**	**-46.6**	**-46.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R3**
Source: Loading Dock Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	894.0	feet	***Barrier Height:***	**20.0 feet**
Noise Distance to Barrier:	10.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	884.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	20.0	77.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	894.0	-33.0	-33.0	-33.0	-33.0	-33.0	-33.0
Shielding (Barrier Attenuation)	10.0	-15.7	-15.7	-15.7	-15.7	-15.7	-15.7
Raw (Distance + Barrier)		28.6	-48.7	-48.7	-48.7	-48.7	-48.7
60 Minute Hourly Adjustment		**28.6**	**-48.7**	**-48.7**	**-48.7**	**-48.7**	**-48.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R3**
Source: Shopping Cart Corral
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	682.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	682.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	72.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	682.0	-42.7	-42.7	-42.7	-42.7	-42.7	-42.7
Shielding (Barrier Attenuation)	682.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		30.2	-42.7	-42.7	-42.7	-42.7	-42.7
60 Minute Hourly Adjustment		**30.2**	**-42.7**	**-42.7**	**-42.7**	**-42.7**	**-42.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R3**
Source: RV Idling/Parking Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	802.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	802.0 feet	*Noise Source Height:*	6.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	802.0	-28.6	-28.6	-28.6	-28.6	-28.6	-28.6
Shielding (Barrier Attenuation)	802.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		47.8	-28.6	-28.6	-28.6	-28.6	-28.6
60 Minute Hourly Adjustment		**47.8**	**-28.6**	**-28.6**	**-28.6**	**-28.6**	**-28.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R4**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,302.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,302.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,302.0	-48.3	-48.3	-48.3	-48.3	-48.3	-48.3
Shielding (Barrier Attenuation)	1,302.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.9	-48.3	-48.3	-48.3	-48.3	-48.3
60 Minute Hourly Adjustment		**28.9**	**-48.3**	**-48.3**	**-48.3**	**-48.3**	**-48.3**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R4**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,801.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,801.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,801.0	-41.6	-41.6	-41.6	-41.6	-41.6	-41.6
Shielding (Barrier Attenuation)	1,801.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		20.4	-41.6	-41.6	-41.6	-41.6	-41.6
60 Minute Hourly Adjustment		**20.4**	**-41.6**	**-41.6**	**-41.6**	**-41.6**	**-41.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R4**
Source: Gas Station Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,484.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,484.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,484.0	-49.4	-49.4	-49.4	-49.4	-49.4	-49.4
Shielding (Barrier Attenuation)	1,484.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		18.8	-49.4	-49.4	-49.4	-49.4	-49.4
60 Minute Hourly Adjustment		**18.8**	**-49.4**	**-49.4**	**-49.4**	**-49.4**	**-49.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R4**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,315.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,315.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,315.0	-36.3	-36.3	-36.3	-36.3	-36.3	-36.3
Shielding (Barrier Attenuation)	1,315.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		23.8	-36.3	-36.3	-36.3	-36.3	-36.3
60 Minute Hourly Adjustment		**23.8**	**-36.3**	**-36.3**	**-36.3**	**-36.3**	**-36.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R4**
Source: Car Wash Tunnel Entrance/Exit (Air Blow
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	2,106.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	2,106.0	feet	*Noise Source Height:*	10.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	74.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,106.0	-36.9	-36.9	-36.9	-36.9	-36.9	-36.9
Shielding (Barrier Attenuation)	2,106.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		38.0	-36.9	-36.9	-36.9	-36.9	-36.9
60 Minute Hourly Adjustment		**38.0**	**-36.9**	**-36.9**	**-36.9**	**-36.9**	**-36.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R4**
Source: Car Wash Entry/Vacuum Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	2,084.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	2,084.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,084.0	-52.4	-52.4	-52.4	-52.4	-52.4	-52.4
Shielding (Barrier Attenuation)	2,084.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		22.2	-52.4	-52.4	-52.4	-52.4	-52.4
60 Minute Hourly Adjustment		**22.2**	**-52.4**	**-52.4**	**-52.4**	**-52.4**	**-52.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R4**
Source: Loading Dock Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,820.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,820.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	20.0	77.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,820.0	-39.2	-39.2	-39.2	-39.2	-39.2	-39.2
Shielding (Barrier Attenuation)	1,820.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		38.1	-39.2	-39.2	-39.2	-39.2	-39.2
60 Minute Hourly Adjustment		**38.1**	**-39.2**	**-39.2**	**-39.2**	**-39.2**	**-39.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R4**
Source: Shopping Cart Corral
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,835.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,835.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	72.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,835.0	-51.3	-51.3	-51.3	-51.3	-51.3	-51.3
Shielding (Barrier Attenuation)	1,835.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		21.6	-51.3	-51.3	-51.3	-51.3	-51.3
60 Minute Hourly Adjustment		**21.6**	**-51.3**	**-51.3**	**-51.3**	**-51.3**	**-51.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R4**
Source: RV Idling/Parking Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	2,090.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	2,090.0	feet	*Noise Source Height:*	6.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	2,090.0	-34.8	-34.8	-34.8	-34.8	-34.8	-34.8
Shielding (Barrier Attenuation)	2,090.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		41.6	-34.8	-34.8	-34.8	-34.8	-34.8
60 Minute Hourly Adjustment		**41.6**	**-34.8**	**-34.8**	**-34.8**	**-34.8**	**-34.8**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R5**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	781.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	781.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	781.0	-43.9	-43.9	-43.9	-43.9	-43.9	-43.9
Shielding (Barrier Attenuation)	781.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		33.3	-43.9	-43.9	-43.9	-43.9	-43.9
60 Minute Hourly Adjustment		**33.3**	**-43.9**	**-43.9**	**-43.9**	**-43.9**	**-43.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R5**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,284.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,284.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,284.0	-38.6	-38.6	-38.6	-38.6	-38.6	-38.6
Shielding (Barrier Attenuation)	1,284.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		23.4	-38.6	-38.6	-38.6	-38.6	-38.6
60 Minute Hourly Adjustment		**23.4**	**-38.6**	**-38.6**	**-38.6**	**-38.6**	**-38.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R5**
Source: Gas Station Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,157.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,157.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,157.0	-47.3	-47.3	-47.3	-47.3	-47.3	-47.3
Shielding (Barrier Attenuation)	1,157.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		20.9	-47.3	-47.3	-47.3	-47.3	-47.3
60 Minute Hourly Adjustment		**20.9**	**-47.3**	**-47.3**	**-47.3**	**-47.3**	**-47.3**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R5**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	766.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	766.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	766.0	-32.8	-32.8	-32.8	-32.8	-32.8	-32.8
Shielding (Barrier Attenuation)	766.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		27.3	-32.8	-32.8	-32.8	-32.8	-32.8
60 Minute Hourly Adjustment		**27.3**	**-32.8**	**-32.8**	**-32.8**	**-32.8**	**-32.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R5** *Project Name:* Victorville Retail
Source: Car Wash Tunnel Entrance/Exit (Air Blow *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,076.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	1,076.0	feet	*Noise Source Height:*	10.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	74.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,076.0	-31.1	-31.1	-31.1	-31.1	-31.1	-31.1
Shielding (Barrier Attenuation)	1,076.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		43.8	-31.1	-31.1	-31.1	-31.1	-31.1
60 Minute Hourly Adjustment		**43.8**	**-31.1**	**-31.1**	**-31.1**	**-31.1**	**-31.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R5** *Project Name:* Victorville Retail
Source: Car Wash Entry/Vacuum Activity *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,052.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	1,052.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,052.0	-46.5	-46.5	-46.5	-46.5	-46.5	-46.5
Shielding (Barrier Attenuation)	1,052.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.1	-46.5	-46.5	-46.5	-46.5	-46.5
60 Minute Hourly Adjustment		**28.1**	**-46.5**	**-46.5**	**-46.5**	**-46.5**	**-46.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R5**
Source: Loading Dock Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	809.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	809.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	20.0	77.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	809.0	-32.1	-32.1	-32.1	-32.1	-32.1	-32.1
Shielding (Barrier Attenuation)	809.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		45.2	-32.1	-32.1	-32.1	-32.1	-32.1
60 Minute Hourly Adjustment		**45.2**	**-32.1**	**-32.1**	**-32.1**	**-32.1**	**-32.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R5**
Source: Shopping Cart Corral
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,081.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,081.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	72.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,081.0	-46.7	-46.7	-46.7	-46.7	-46.7	-46.7
Shielding (Barrier Attenuation)	1,081.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		26.2	-46.7	-46.7	-46.7	-46.7	-46.7
60 Minute Hourly Adjustment		**26.2**	**-46.7**	**-46.7**	**-46.7**	**-46.7**	**-46.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R5**
Source: RV Idling/Parking Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,401.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	1,401.0	feet	*Noise Source Height:*	6.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,401.0	-32.2	-32.2	-32.2	-32.2	-32.2	-32.2
Shielding (Barrier Attenuation)	1,401.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		44.2	-32.2	-32.2	-32.2	-32.2	-32.2
60 Minute Hourly Adjustment		**44.2**	**-32.2**	**-32.2**	**-32.2**	**-32.2**	**-32.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R6**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	140.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	140.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	140.0	-28.9	-28.9	-28.9	-28.9	-28.9	-28.9
Shielding (Barrier Attenuation)	140.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		48.3	-28.9	-28.9	-28.9	-28.9	-28.9
60 Minute Hourly Adjustment		**48.3**	**-28.9**	**-28.9**	**-28.9**	**-28.9**	**-28.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R6**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	534.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	534.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	534.0	-31.0	-31.0	-31.0	-31.0	-31.0	-31.0
Shielding (Barrier Attenuation)	534.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		31.0	-31.0	-31.0	-31.0	-31.0	-31.0
60 Minute Hourly Adjustment		**31.0**	**-31.0**	**-31.0**	**-31.0**	**-31.0**	**-31.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R6**
Source: Gas Station Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	495.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	495.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	495.0	-39.9	-39.9	-39.9	-39.9	-39.9	-39.9
Shielding (Barrier Attenuation)	495.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.3	-39.9	-39.9	-39.9	-39.9	-39.9
60 Minute Hourly Adjustment		**28.3**	**-39.9**	**-39.9**	**-39.9**	**-39.9**	**-39.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R6**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	126.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	126.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	126.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0
Shielding (Barrier Attenuation)	126.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		39.1	-21.0	-21.0	-21.0	-21.0	-21.0
60 Minute Hourly Adjustment		**39.1**	**-21.0**	**-21.0**	**-21.0**	**-21.0**	**-21.0**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R6**
Source: Car Wash Tunnel Entrance/Exit (Air Blow
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	533.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	533.0 feet	*Noise Source Height:*	10.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	74.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	533.0	-25.0	-25.0	-25.0	-25.0	-25.0	-25.0
Shielding (Barrier Attenuation)	533.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		49.9	-25.0	-25.0	-25.0	-25.0	-25.0
60 Minute Hourly Adjustment		**49.9**	**-25.0**	**-25.0**	**-25.0**	**-25.0**	**-25.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R6**
Source: Car Wash Entry/Vacuum Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	500.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	500.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	500.0	-40.0	-40.0	-40.0	-40.0	-40.0	-40.0
Shielding (Barrier Attenuation)	500.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		34.6	-40.0	-40.0	-40.0	-40.0	-40.0
60 Minute Hourly Adjustment		**34.6**	**-40.0**	**-40.0**	**-40.0**	**-40.0**	**-40.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R6**
Source: Loading Dock Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	256.0	feet	***Barrier Height:***	**20.0**	**feet**
Noise Distance to Barrier:	10.0	feet	*Noise Source Height:*	8.0	feet
Barrier Distance to Observer:	246.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	20.0	77.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	256.0	-22.1	-22.1	-22.1	-22.1	-22.1	-22.1
Shielding (Barrier Attenuation)	10.0	-15.9	-15.9	-15.9	-15.9	-15.9	-15.9
Raw (Distance + Barrier)		39.3	-38.0	-38.0	-38.0	-38.0	-38.0
60 Minute Hourly Adjustment		**39.3**	**-38.0**	**-38.0**	**-38.0**	**-38.0**	**-38.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R6**
Source: Shopping Cart Corral
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	314.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	314.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	72.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	314.0	-36.0	-36.0	-36.0	-36.0	-36.0	-36.0
Shielding (Barrier Attenuation)	314.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		36.9	-36.0	-36.0	-36.0	-36.0	-36.0
60 Minute Hourly Adjustment		**36.9**	**-36.0**	**-36.0**	**-36.0**	**-36.0**	**-36.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R6**
Source: RV Idling/Parking Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	631.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	631.0 feet	*Noise Source Height:*	6.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	631.0	-27.0	-27.0	-27.0	-27.0	-27.0	-27.0
Shielding (Barrier Attenuation)	631.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		49.4	-27.0	-27.0	-27.0	-27.0	-27.0
60 Minute Hourly Adjustment		**49.4**	**-27.0**	**-27.0**	**-27.0**	**-27.0**	**-27.0**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R7**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	510.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	510.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	510.0	-40.2	-40.2	-40.2	-40.2	-40.2	-40.2
Shielding (Barrier Attenuation)	510.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		37.0	-40.2	-40.2	-40.2	-40.2	-40.2
60 Minute Hourly Adjustment		**37.0**	**-40.2**	**-40.2**	**-40.2**	**-40.2**	**-40.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R7**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	954.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	954.0	feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	954.0	-36.1	-36.1	-36.1	-36.1	-36.1	-36.1
Shielding (Barrier Attenuation)	954.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		25.9	-36.1	-36.1	-36.1	-36.1	-36.1
60 Minute Hourly Adjustment		**25.9**	**-36.1**	**-36.1**	**-36.1**	**-36.1**	**-36.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R7**
Source: Gas Station Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,239.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	1,239.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,239.0	-47.9	-47.9	-47.9	-47.9	-47.9	-47.9
Shielding (Barrier Attenuation)	1,239.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		20.3	-47.9	-47.9	-47.9	-47.9	-47.9
60 Minute Hourly Adjustment		**20.3**	**-47.9**	**-47.9**	**-47.9**	**-47.9**	**-47.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R7**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	503.0	feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	503.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	503.0	-30.0	-30.0	-30.0	-30.0	-30.0	-30.0
Shielding (Barrier Attenuation)	503.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		30.1	-30.0	-30.0	-30.0	-30.0	-30.0
60 Minute Hourly Adjustment		**30.1**	**-30.0**	**-30.0**	**-30.0**	**-30.0**	**-30.0**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R7** *Project Name:* Victorville Retail
Source: Car Wash Tunnel Entrance/Exit (Air Blow *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	503.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	503.0	feet	*Noise Source Height:*	10.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	74.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	503.0	-24.5	-24.5	-24.5	-24.5	-24.5	-24.5
Shielding (Barrier Attenuation)	503.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		50.4	-24.5	-24.5	-24.5	-24.5	-24.5
60 Minute Hourly Adjustment		**50.4**	**-24.5**	**-24.5**	**-24.5**	**-24.5**	**-24.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R7** *Project Name:* Victorville Retail
Source: Car Wash Entry/Vacuum Activity *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	480.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	480.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	480.0	-39.6	-39.6	-39.6	-39.6	-39.6	-39.6
Shielding (Barrier Attenuation)	480.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		35.0	-39.6	-39.6	-39.6	-39.6	-39.6
60 Minute Hourly Adjustment		**35.0**	**-39.6**	**-39.6**	**-39.6**	**-39.6**	**-39.6**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R7**
Source: Loading Dock Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	472.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	472.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	20.0	77.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	472.0	-27.5	-27.5	-27.5	-27.5	-27.5	-27.5
Shielding (Barrier Attenuation)	472.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		49.8	-27.5	-27.5	-27.5	-27.5	-27.5
60 Minute Hourly Adjustment		**49.8**	**-27.5**	**-27.5**	**-27.5**	**-27.5**	**-27.5**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R7**
Source: Shopping Cart Corral
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	815.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	815.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	72.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	815.0	-44.2	-44.2	-44.2	-44.2	-44.2	-44.2
Shielding (Barrier Attenuation)	815.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		28.7	-44.2	-44.2	-44.2	-44.2	-44.2
60 Minute Hourly Adjustment		**28.7**	**-44.2**	**-44.2**	**-44.2**	**-44.2**	**-44.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R7**
Source: RV Idling/Parking Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	1,062.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	1,062.0	feet	*Noise Source Height:*	6.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	15.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	1,062.0	-30.4	-30.4	-30.4	-30.4	-30.4	-30.4
Shielding (Barrier Attenuation)	1,062.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		46.0	-30.4	-30.4	-30.4	-30.4	-30.4
60 Minute Hourly Adjustment		**46.0**	**-30.4**	**-30.4**	**-30.4**	**-30.4**	**-30.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

2/15/2019

Observer Location: **R8**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	204.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	204.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	0.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	10.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	204.0	-32.2	-32.2	-32.2	-32.2	-32.2	-32.2
Shielding (Barrier Attenuation)	204.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		45.0	-32.2	-32.2	-32.2	-32.2	-32.2
60 Minute Hourly Adjustment		**45.0**	**-32.2**	**-32.2**	**-32.2**	**-32.2**	**-32.2**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R8**
Source: Drive-Through Speakerphone
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	411.0	feet	***Barrier Height:***	**10.0**	**feet**
Noise Distance to Barrier:	90.0	feet	*Noise Source Height:*	3.0	feet
Barrier Distance to Observer:	321.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	15.0	62.0	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	411.0	-28.8	-28.8	-28.8	-28.8	-28.8	-28.8
Shielding (Barrier Attenuation)	90.0	-7.5	-7.5	-7.5	-7.5	-7.5	-7.5
Raw (Distance + Barrier)		25.7	-36.3	-36.3	-36.3	-36.3	-36.3
60 Minute Hourly Adjustment		**25.7**	**-36.3**	**-36.3**	**-36.3**	**-36.3**	**-36.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R8**
Source: Gas Station Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	658.0	feet	***Barrier Height:***	**0.0**	**feet**
Noise Distance to Barrier:	110.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	548.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	68.2	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	658.0	-42.4	-42.4	-42.4	-42.4	-42.4	-42.4
Shielding (Barrier Attenuation)	110.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		25.8	-42.4	-42.4	-42.4	-42.4	-42.4
60 Minute Hourly Adjustment		**25.8**	**-42.4**	**-42.4**	**-42.4**	**-42.4**	**-42.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R8** *Project Name:* Victorville Retail
Source: Parking Lot Vehicle Movements *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	166.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	166.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	60.1	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	166.0	-22.8	-22.8	-22.8	-22.8	-22.8	-22.8
Shielding (Barrier Attenuation)	166.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		37.3	-22.8	-22.8	-22.8	-22.8	-22.8
60 Minute Hourly Adjustment		**37.3**	**-22.8**	**-22.8**	**-22.8**	**-22.8**	**-22.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R8** *Project Name:* Victorville Retail
Source: Car Wash Tunnel Entrance/Exit (Air Blow *Job Number:* 11724
Condition: Operational *Analyst:* A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	694.0 feet	***Barrier Height:***	**10.0 feet**
Noise Distance to Barrier:	365.0 feet	*Noise Source Height:*	10.0 feet
Barrier Distance to Observer:	329.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	74.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	694.0	-27.3	-27.3	-27.3	-27.3	-27.3	-27.3
Shielding (Barrier Attenuation)	365.0	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
Raw (Distance + Barrier)		42.4	-32.5	-32.5	-32.5	-32.5	-32.5
60 Minute Hourly Adjustment		**42.4**	**-32.5**	**-32.5**	**-32.5**	**-32.5**	**-32.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R8**
Source: Car Wash Entry/Vacuum Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	618.0	feet	***Barrier Height:***	**10.0**	**feet**
Noise Distance to Barrier:	120.0	feet	*Noise Source Height:*	5.0	feet
Barrier Distance to Observer:	498.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	74.6	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	618.0	-41.8	-41.8	-41.8	-41.8	-41.8	-41.8
Shielding (Barrier Attenuation)	120.0	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2
Raw (Distance + Barrier)		26.6	-48.0	-48.0	-48.0	-48.0	-48.0
60 Minute Hourly Adjustment		**26.6**	**-48.0**	**-48.0**	**-48.0**	**-48.0**	**-48.0**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R8**
Source: Loading Dock Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	725.0	feet	***Barrier Height:***	**20.0**	**feet**
Noise Distance to Barrier:	10.0	feet	*Noise Source Height:*	8.0	feet
Barrier Distance to Observer:	715.0	feet	*Observer Height:*	5.0	feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0	
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0	
Barrier Elevation:	0.0	feet			

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	20.0	77.3	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	725.0	-31.2	-31.2	-31.2	-31.2	-31.2	-31.2
Shielding (Barrier Attenuation)	10.0	-15.7	-15.7	-15.7	-15.7	-15.7	-15.7
Raw (Distance + Barrier)		30.4	-46.9	-46.9	-46.9	-46.9	-46.9
60 Minute Hourly Adjustment		**30.4**	**-46.9**	**-46.9**	**-46.9**	**-46.9**	**-46.9**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R8**
Source: Shopping Cart Corral
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	471.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	471.0 feet	*Noise Source Height:*	3.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	72.9	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	471.0	-39.5	-39.5	-39.5	-39.5	-39.5	-39.5
Shielding (Barrier Attenuation)	471.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		33.4	-39.5	-39.5	-39.5	-39.5	-39.5
60 Minute Hourly Adjustment		**33.4**	**-39.5**	**-39.5**	**-39.5**	**-39.5**	**-39.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 2/15/2019

Observer Location: **R8**
Source: RV Idling/Parking Activity
Condition: Operational

Project Name: Victorville Retail
Job Number: 11724
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	91.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	91.0 feet	*Noise Source Height:*	6.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	15.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	76.4	0.0	0.0	0.0	0.0	0.0
Distance Attenuation	91.0	-14.4	-14.4	-14.4	-14.4	-14.4	-14.4
Shielding (Barrier Attenuation)	91.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		62.0	-14.4	-14.4	-14.4	-14.4	-14.4
60 Minute Hourly Adjustment		**62.0**	**-14.4**	**-14.4**	**-14.4**	**-14.4**	**-14.4**