Glen Ivy Senior Community

NOISE IMPACT ANALYSIS

COUNTY OF RIVERSIDE

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LIST OF ABBREVIATED TERMS

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

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Glen Ivy Senior Community development ("Project"). The Project site is located on the southwest corner of Temescal Canyon Road and Trilogy Parkway in the County of Riverside. The Project includes the development of 141 assisted living dwelling units (DU) (109 standard assisted living DUs and 32 memory care DUs) and 75 senior adult housing attached DUs. This noise study has been prepared to satisfy applicable County of Riverside noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

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

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
On-Site Traffic Noise	8	*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

OPERATIONAL NOISE IMPACTS

The Project is not expected to include any specific type of operational noise (stationary source) levels beyond the typical noise sources associated with typical residential land use in the Project study area, such as people moving around the site, parking lot vehicle movements, roof-top air conditioning units, trash enclosure, etc. and is considered a noise-sensitive receiving land use. Therefore, no potential operational noise impacts for the residential land use are analyzed in the noise study.

CONSTRUCTION NOISE IMPACTS

The Project-related construction noise impacts are expected to create short-term and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the Project site boundary. 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. Observations of typical residential construction activities indicate that the most noticeable noise sources tend to include heavy construction equipment, hammers, electric drills, workers talking, and radios playing music. While the Project construction noise levels will satisfy the reasonable daytime 80 dBA L_{eq}

significance threshold during Project construction activities, the construction noise generated during peak activities and single-event noise sources during Project construction will still be heard at the adjacent sensitive residential homes. Therefore, to reduce Project construction noise levels at the adjacent sensitive receiver locations the following construction noise abatement measures shall be required:

1. Project construction activities and truck deliveries shall be limited to the hours between 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May. (County of Riverside Municipal Code, Section 9.48.020 (I)).

2. During all Project site construction, the construction contractor shall equip all construction equipment, mobile or stationary, with properly operating and maintained mufflers, consistent with manufacturers' standards.

3. The construction contractor shall locate/stage all stationary equipment such that the location will create the greatest physical distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction activities.

4. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise-sensitive receivers nearest the Project site.

5. The construction contractor shall post a publicly visible sign with the telephone number and designated person to contact regarding noise complaints. The construction contractor, within 48 hours of receipt of a noise complaint, shall either take corrective actions or, if immediate action is not feasible, provide a plan or corrective action to address the source of the noise complaint.

6. Electrically powered air compressors and similar power tools shall be used, when feasible, in place of diesel equipment.

7. No music or electronically reinforced speech from construction workers shall be allowed within the Project site.

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Glen Ivy Senior Community ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Glen Ivy Senior Community site is generally located on the southwest corner of Temescal Canyon Road and Trilogy Parkway in the County of Riverside, as shown on Exhibit 1-A. The Project site is currently vacant. The Project site is currently designated for Commercial Retail (CR) uses (2). The Project site is entirely surrounded by residential uses. Interstate 15 (I-15) is approximately 0.40 miles east of the Project site.

1.2 PROJECT DESCRIPTION

As shown in Exhibit 1-B, the Project currently includes the development of 141 assisted living dwelling units (DU) (109 standard assisted living DUs and 32 memory care DUs) and 75 senior adult housing attached DUs. Consistent with the *Glen Ivy Senior Community Traffic Analysis* (TA) prepared by Urban Crossroads, Inc., this noise study will evaluate the previous plan (which is more conservative) and consists of 130 beds of assisted living use and 35 memory care beds for standard assisted living for a total of 165 beds plus the 76 senior adult housing attached DUs. The anticipated Project opening year is 2023. Per the TA, the Project is expected to generate a total of approximately 712 two-way vehicular trips per day (356 trips inbound and 356 trips outbound) (3).

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN

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2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (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 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 County of Riverside 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 receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (6)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (4)

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (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)

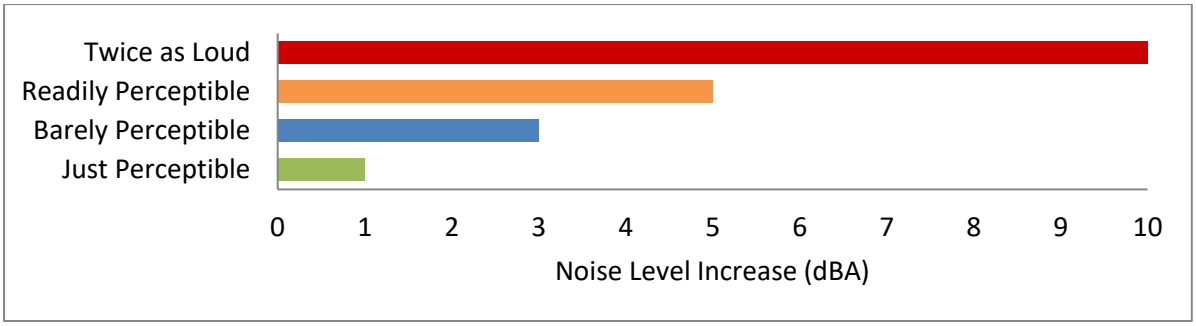
2.7 COMMUNITY RESPONSE TO NOISE

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. 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. 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



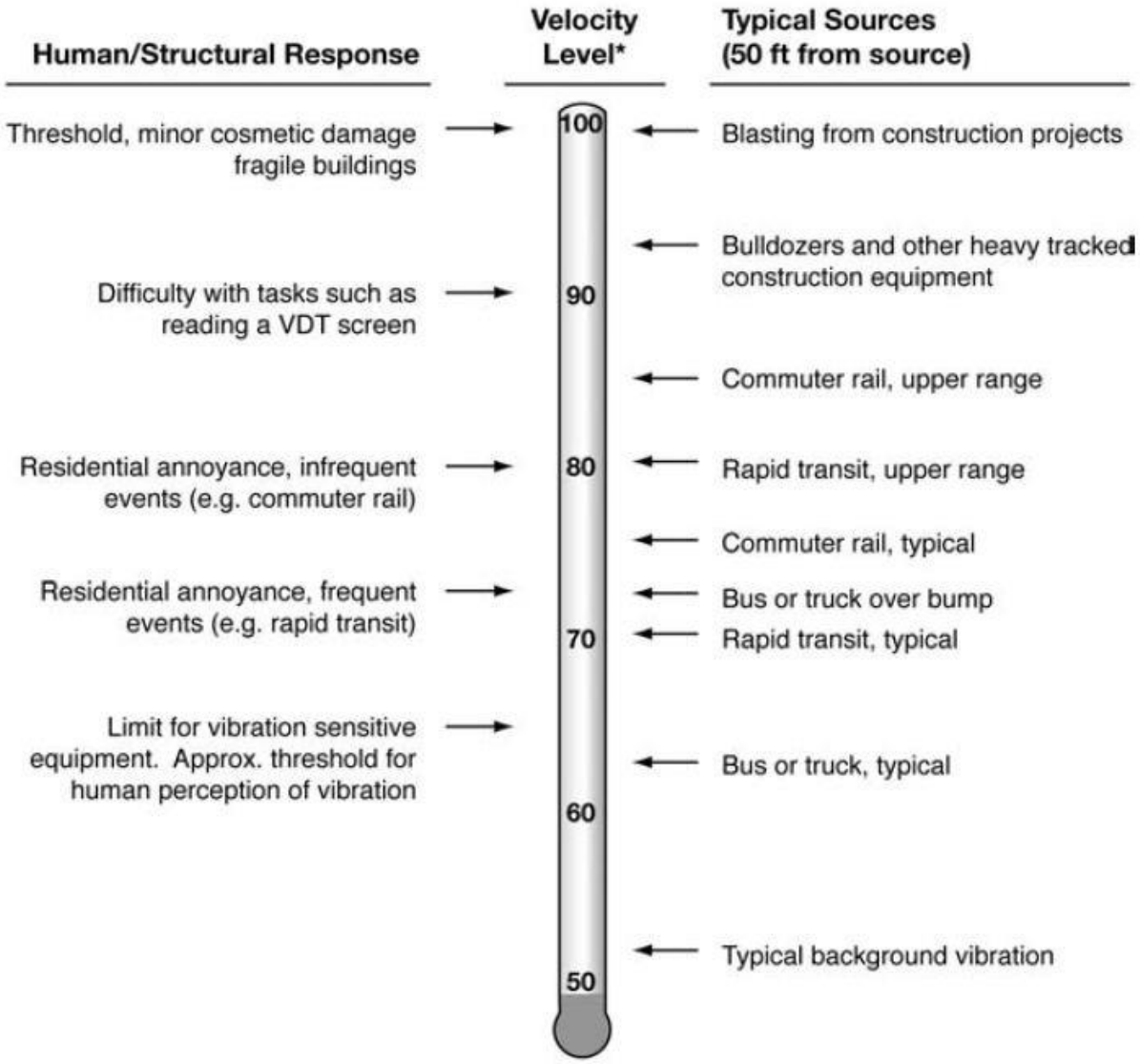
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (9) , vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities

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

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



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

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

3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (10) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING CODE

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

3.3 COUNTY OF RIVERSIDE GENERAL PLAN NOISE ELEMENT

The County of Riverside has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of the County of Riverside from excessive exposure to noise. (11) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. In addition, the Noise Element identifies several polices to minimize the impacts of excessive noise levels throughout the community and establishes noise level

requirements for all land uses. To protect County of Riverside residents from excessive noise, the Noise Element contains the following policies related to the Project:

N 1.1 Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used.

N 1.3 Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 CNEL:

- *Schools*
- *Hospitals*
- *Rest Homes*
- *Long Term Care Facilities*
- *Mental Care Facilities*
- *Residential Uses*
- *Libraries*
- *Passive Recreation Uses*
- *Places of Worship*

N 1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.

N 4.1 Prohibit facility-related noise, received by any sensitive use, from exceeding the following worst-case noise levels:

a. 45 dBA 10-minute L_{eq} between 10:00 p.m. and 7:00 a.m.;

b. 65 dBA 10-minute L_{eq} between 7:00 a.m. and 10:00 p.m.

N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable standards.

N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse impacts on surrounding areas.

N 13.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the [County] for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:

i. Temporary noise attenuation fences;

ii. Preferential location and equipment; and

iii. Use of current noise suppression technology and equipment.

N 16.3 Prohibit exposure of residential dwellings to perceptible ground vibration from passing trains as perceived at the ground or second floor. Perceptible motion shall be presumed to be a motion velocity of 0.01 inches/second over a range of 1 to 100 Hz.

To ensure noise-sensitive land uses are protected from high levels of noise (N 1.1), Table N-1 of the Noise Element identifies guidelines to evaluate proposed developments based on exterior and interior noise level limits for land uses and requires a noise analysis to determine needed mitigation measures if necessary. The Noise Element identifies residential use as a noise-sensitive land use (N 1.3) and discourages new development in areas with transportation related levels of 65 dBA CNEL or greater existing ambient noise levels. To prevent and mitigate noise impacts for its residents (N 1.5), County of Riverside requires noise attenuation measures for

sensitive land use exposed to transportation related noise levels higher than 65 dBA CNEL. Policy N 4.1 of the Noise Element sets a stationary-source exterior noise limit to not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. To prevent high levels of construction noise from impacting noise-sensitive land uses, policies N 13.1 through 13.3 identify construction noise mitigation requirements for new development located near existing noise-sensitive land uses. Policy 16.3 establishes the vibration perception threshold for rail-related vibration levels, used in this analysis as a threshold for determining potential vibration impacts due to Project construction. (11)

3.3.1 LAND USE COMPATIBILITY

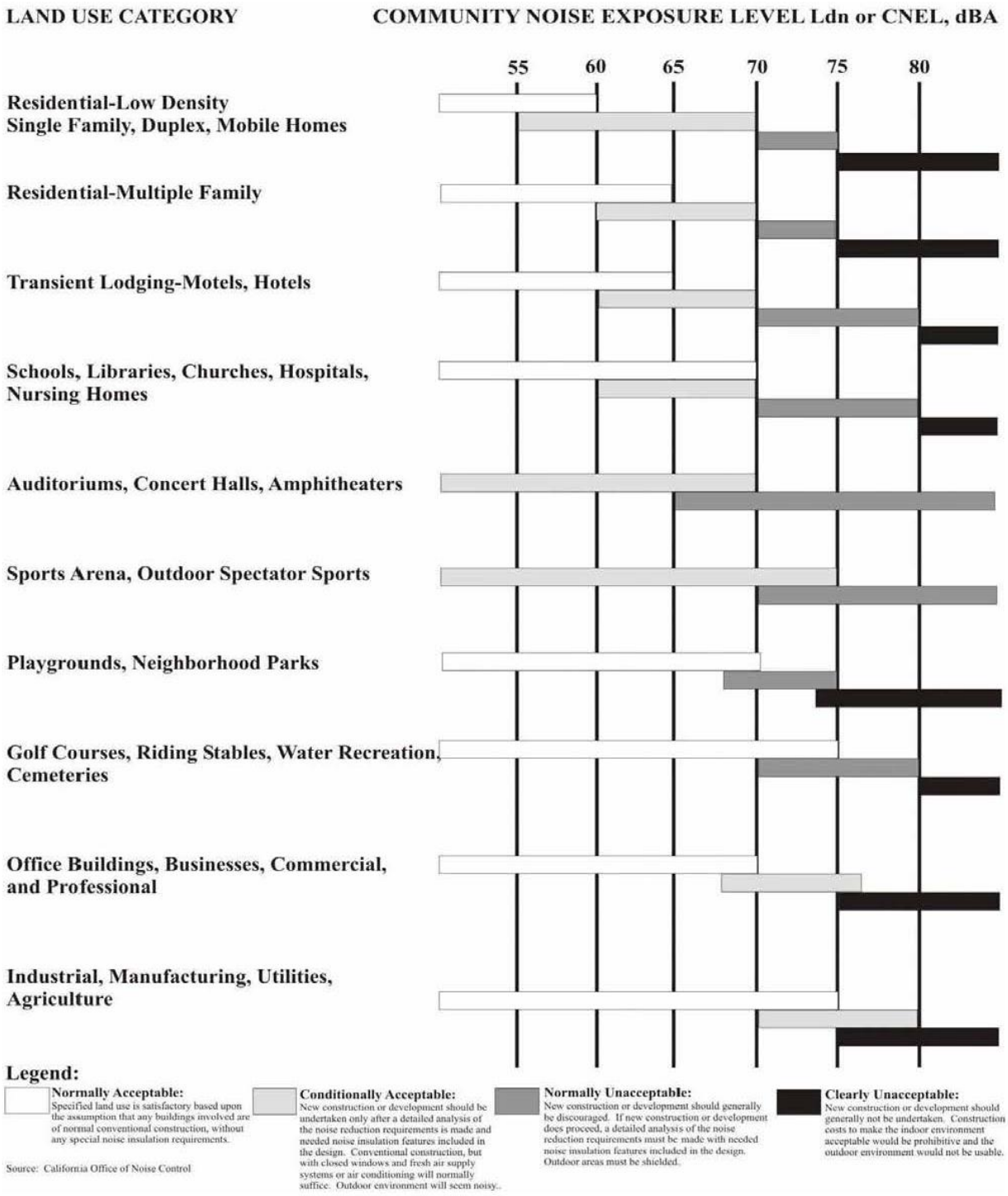
The noise criteria identified in the County of Riverside Noise Element (Table N-1) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the County with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Land Use Compatibility for Community Noise Exposure* matrix describes categories of compatibility and not specific noise standards. Residential designated land uses in the Project study area are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* with exterior noise levels of up to 70 dBA CNEL. For *conditionally acceptable* exterior noise levels, approaching 80 dBA CNEL for Project land uses, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice*. (11)

3.3.2 COUNTY OF RIVERSIDE STATIONARY NOISE STANDARDS

The County of Riverside has set stationary-source hourly average L_{eq} exterior noise limits to control courtyard and sports park activities associated with the development of the proposed Glen Ivy Senior Community. The County considers noise generated using motor vehicles to be a stationary noise source when operated on private property such as at a loading dock. These facility-related noises, as projected to any portion of any surrounding property containing a *habitable dwelling, hospital, school, library or nursing home*, must not exceed the following worst-case noise levels.

EXHIBIT 3-A: LAND USE COMPATIBILITY FOR COMMUNITY NOISE EXPOSURE



Source: County of Riverside General Plan Noise Element, Table N-1.

Policy N 4.1 of the County of Riverside General Plan Noise Element sets a stationary-source average L_{eq} exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. (11)

The County of Riverside Municipal Code Section 9.52.040 *General sound level standards* identify lower, more restrictive exterior noise level standards, which for the purpose of this report, are used to evaluate potential Project-related operational noise level limits instead of the higher the General Plan exterior noise level standards previously identified. The County of Riverside Municipal Code identifies exterior noise level limits of 55 dBA L_{eq} during the daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. for noise-sensitive uses. (12) The County of Riverside Municipal Code Noise Section is included in Appendix 3.1.

Based on several discussions with the County of Riverside Department of Environmental Health (DEH), Office of Industrial Hygiene (OIH), it is important to recognize that the County of Riverside Municipal Code noise level standards, incorrectly identify maximum noise level (L_{max}) standards that should instead reflect the average L_{eq} noise levels. Moreover, the County of Riverside DEH OIH's April 15th, 2015 *Requirements for determining and mitigating, non-transportation noise source impacts to residential properties* also identifies operational (stationary-source) noise level limits using the L_{eq} metric, consistent with the direction of the County of Riverside General Plan guidelines and standards provided in the Noise Element. Therefore, this report has been prepared consistent with direction of the County of Riverside DEH OIH guidelines and standards using the average L_{eq} noise level metric for stationary-source (operational) noise level evaluation.

3.4 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the proposed Project, the County of Riverside has established limits to the hours of operation. Section 9.52.020 of the County's Noise Regulation ordinance indicates that noise associated with any private construction activity located within one-quarter of a mile from an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May. (12) Neither the County's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for

construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (9 p. 179)

3.5 VIBRATION STANDARDS

The County of Riverside does not have vibration standards for temporary construction, but the County's General Plan Noise Element does contain the human reaction to typical vibration levels. Vibration levels with peak particle velocity of 0.0787 inches per second are considered readily perceptible and above 0.1968 in/sec are considered annoying to people in buildings. Further, County of Riverside General Plan Policy N 16.3 identifies a motion velocity perception threshold for vibration due to passing trains of 0.01 inches per second (in/sec) over the range of one to 100 Hz, which is used in this noise study to assess potential impacts due to Project construction vibration levels. (11)

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

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Project site is not located within two miles of a public airport or within an airport land use plan. The closest airport is the Corona Municipal Airport located approximately 11 miles northwest of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to CEQA Appendix G Guideline C.

4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the 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.* (1) Unfortunately, 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) (13) developed guidance to be used for the assessment of project-generated increases

in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (14) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the existing noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS 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.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (6 p. 9) and Caltrans (15 p. 2_48).

4.3 NON-NOISE-SENSITIVE RECEIVERS

The County of Riverside General Plan Noise Element, Table N-1, *Land Use Compatibility for Community Noise Exposure* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise levels for non-noise-sensitive land uses is 70 dBA CNEL. Noise

levels greater than 70 dBA CNEL are considered *conditionally acceptable* per the *Land Use Compatibility for Community Noise Exposure*. (11)

To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria were used. When the without Project noise levels at the non-noise-sensitive land uses are below the *normally acceptable* 70 dBA CNEL compatibility criteria, a *readily perceptible* 5 dBA or greater noise level increase is considered a significant impact. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the County of Riverside General Plan Noise Element, Table N-1, *Land Use Compatibility for Community Noise Exposure normally acceptable* 70 dBA CNEL exterior noise level criteria.

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

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[1]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
	Non-Noise-Sensitive[1,2]	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
On-Site Traffic	Residential[3]	Exterior Noise Level Criteria	65 dBA CNEL	
		Interior Noise Level Standard	45 dBA CNEL	
Construction	Noise-Sensitive	Noise Level Threshold[4]	80 dBA L_{eq}	
		Vibration Level Threshold[5]	0.01 in/sec RMS	

[1] FICON, 1992.
[2] County of Riverside General Plan Noise Element, Table N-1.
[3] County of Riverside General Plan Municipal Code, Section 9.52.040.
[4] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[5] County of Riverside General Plan Noise Element, Policy N 16.3.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at five locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, November 11, 2020. 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. (16)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (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*. (9)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (9) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

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

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the 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. Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions.

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

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located northwest of the Project site on Warm Springs Drive at 24120 Warm Springs Drive.	50.3	51.3	57.7
L2	Located north of the Project site on Trilogy Parkway and Temescal Canyon Road in existing vacant lot.	65.7	62.7	69.8
L3	Located east of the Project site on Swift Deer Trail near existing single-family residential home at 24327 Swift Deer Trail.	52.3	51.7	58.4
L4	Located south of the Project site on Glen Ivy Road near the Glen Ivy RV Park at 24601 Glen Ivy Road.	57.9	55.9	62.9
L5	Located by the west side of the Project site near the Glen Ivy RV Park at 24601 Glen Ivy Road.	57.9	55.9	62.9

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

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-related noise associated with surface streets. The 24-hour existing noise level measurement results are shown on Table 5-1.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

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6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with OPR land use/noise compatibility standards, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (17) 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. (18) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (19)

This methodology is consistent with the County of Riverside Office of Industrial Hygiene *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures*, which specifically requires the FHWA RD-77-108 model to be used in analysis within the County's jurisdiction. (20)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site dBA CNEL transportation noise impacts. Table 6-1 identifies the study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the County of Riverside General Plan Circulation Element, and the posted vehicle speeds. Where posted vehicle speeds are unavailable, the 40-mph speed identified in the County of Riverside Office of Industrial Hygiene Noise Study Guidelines is used. The ADT volumes used in this study area presented on Table 6-2 are based on the *Glen Ivy Senior Community Traffic Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios under both Without and With Project alternatives for RIRO at Driveway 4 and Full Access at Driveway 4; Existing 2020, Existing plus Ambient Growth (EA) 2023, EA plus Cumulative Projects (EAC) 2023, and Horizon Year 2040.

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. In addition, the off-site traffic noise analysis maintains a peak hour to average daily traffic (peak-to-daily) relationship of approximately 6.19%. The *General Plan Noise Element* (11) requires that future on-site traffic noise impacts be assessed using the maximum capacity design standard for highways and major roads. However, this analysis relies on a comparative analysis of the off-site traffic noise impacts, without and with project ADT traffic volumes from the Project traffic study. The use of the maximum capacity design standards is typically reserved for determining the future long-range on-site traffic noise impacts, not the comparative contributions associated with the off-site Project traffic noise level impacts.

The average daily traffic (ADT) volumes used for this study are presented on Table 6-2. Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits and Table 6-4 presents the traffic flow distributions (vehicle mix) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA noise prediction model.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Classification[2]	Centerline Distance to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	Collector	37'	40
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	Collector	37'	40
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	Collector	37'	40
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	Major	59'	45
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	Major	59'	45

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] Glen Ivy Senior Community Traffic Analysis, Urban Crossroads, Inc.
[3] Based upon the right-of-way distances for each roadway classification provided in the General Plan Circulation Element.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]											
			Existing 2020			Existing Plus Ambient Growth (EA) 2023			Existing Plus Ambient Growth Plus Cumulative Projects (EAC) 2023			Horizon Year (HY) 2040		
			Without Project	With Project RIRO at Dwy. 4	With Project Full Access at Dwy. 4	Without Project	With Project RIRO at Dwy. 4	With Project Full Access at Dwy. 4	Without Project	With Project RIRO at Dwy. 4	With Project Full Access at Dwy. 4	Without Project	With Project RIRO at Dwy. 4	With Project Full Access at Dwy. 4
1	Temescal Canyon Rd.	n/o Lawson Rd.	17,280	17,742	17,742	18,337	18,799	18,799	24,370	24,832	24,832	30,390	30,852	30,852
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	16,257	16,720	16,721	17,252	17,715	17,716	34,273	34,736	34,737	39,937	40,400	40,401
3	Temescal Canyon Rd.	s/o Dwy. 4	13,928	14,106	14,106	14,781	14,959	14,959	31,855	32,033	32,033	36,707	36,885	36,885
4	Trilogy Pkwy.	w/o Dwy. 1	4,734	4,806	4,806	5,024	5,096	5,096	6,930	7,002	7,002	8,579	8,651	8,651
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	4,734	5,107	4,976	5,024	5,397	5,266	6,930	7,303	7,172	8,579	8,952	8,821

[1] Glen Ivy Senior Community Traffic Analysis, Urban Crossroads, Inc.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Riverside County (Expressway, Arterial, Major)				
Autos	75.55%	14.02%	10.43%	100.00%
Medium Trucks	48.00%	2.00%	50.00%	100.00%
Heavy Trucks	48.00%	2.00%	50.00%	100.00%
Riverside County (Secondary, Collector)				
Autos	75.55%	13.96%	10.49%	100.00%
Medium Trucks	48.92%	2.17%	48.91%	100.00%
Heavy Trucks	47.30%	5.40%	47.30%	100.00%

[1] County of Riverside Office of Industrial Hygiene, 2017.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

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

Roadway	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
Expressway, Arterial, Major[1]	92.00%	3.00%	5.00%	100.00%
Secondary, Collector[1]	97.42%	1.84%	0.74%	100.00%

[1] County of Riverside Office of Industrial Hygiene, 2017.

6.3 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-5 presents the on-site roadway parameters including the ADT volumes used for this study. The on-site roadway parameters are based on the County of Riverside General Plan Circulation Element roadway classifications and consistent with the County of Riverside office of Industrial Hygiene Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures. (20)

The maximum two-way traffic volumes at a level of service C, shown on Table 6-5, were obtained from Figure C-3 of the 2008 County of Riverside General Plan Circulation Element (21) and reflect future long-range traffic conditions needed to assess the on-site traffic noise environment and to identify the appropriate noise mitigation measures that address the worst-case future noise conditions. Consistent with the County of Riverside Office of Industrial Hygiene noise study requirements, hard site conditions were used to analyze the potential on-site traffic noise impacts for the Project study area. (20) Hard site conditions account for the sound propagation loss over a reflective surface between the source and the receiver.

TABLE 6-5: ON-SITE ROADWAY PARAMETERS

Roadway Segment	Classification[1]	Lanes	Average Daily Traffic Volume[2]	Speed Limit (mph)[2]	Site Conditions[2]
Temescal Canyon Road	Major	4	27,300	40	Hard
Trilogy Parkway	Major	4	27,300	40	Hard

[1] Road classifications based upon the County of Riverside General Plan Circulation Element.
[2] County of Riverside Office of Industrial Hygiene Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures.

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7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with development of the proposed Project, noise contours were developed based on *Glen Ivy Senior Community Traffic Analysis*. (3) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at 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 for each traffic condition. Appendix 7.1 includes the traffic noise level contours worksheets for each traffic condition.

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	73.3	61	132	284
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	74.7	76	165	355
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	74.4	72	156	336
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	71.1	70	151	326
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	71.2	71	154	331

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING PLUS PROJECT RIRO AT DRIVEWAY 4 CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	71.8	49	105	227
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.6	47	101	218
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	70.8	42	90	195
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.5	RW	118	254
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	69.8	RW	123	264

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: EXISTING PLUS PROJECT FULL ACCESS AT DRIVEWAY 4 CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	71.8	49	105	227
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.6	47	101	218
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	70.8	42	90	195
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.5	RW	118	254
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	69.7	RW	121	260

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: EA 2023 WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	72.0	50	108	232
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.7	48	103	222
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	71.0	43	93	201
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.7	RW	121	261
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	69.7	RW	121	261

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: EA 2023 WITH PROJECT RIRO AT DRIVEWAY 4 CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	72.1	51	109	236
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.8	49	105	226
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	71.1	44	94	202
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.8	RW	123	264
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	70.0	59	127	274

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: EA 2023 WITH PROJECT FULL ACCESS AT DRIVEWAY 4 CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	72.1	51	109	236
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.8	49	105	226
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	71.1	44	94	202
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.8	RW	123	264
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	69.9	RW	125	270

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-7: EAC 2023 WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	73.2	60	130	280
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	74.7	76	163	352
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	74.3	72	155	335
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	71.1	70	150	324
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	71.1	70	150	324

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-8: EAC WITH PROJECT RIRO AT DRIVEWAY 4 CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	73.3	61	132	284
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	74.7	76	165	355
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	74.4	72	156	336
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	71.1	70	151	326
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	71.3	72	156	335

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-9: EAC 2023 WITH PROJECT FULL ACCESS AT DRIVEWAY 4 CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	73.3	61	132	284
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	74.7	76	165	355
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	74.4	72	156	336
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	71.1	70	151	326
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	71.2	71	154	331

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-10: HY 2040 WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	74.1	70	151	325
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	75.3	84	181	389
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	75.0	79	171	368
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	72.0	80	173	373
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	72.0	80	173	373

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-11: HY 2040 WITH PROJECT RIRO AT DRIVEWAY 4 CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	74.2	71	152	328
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	75.4	85	182	392
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	75.0	80	171	369
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	72.1	81	174	376
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	72.2	83	178	384

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-12: HY 2040 WITH PROJECT FULL ACCESS AT DRIVEWAY 4 CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	74.2	71	152	328
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	75.4	85	182	392
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	75.0	80	171	369
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	72.1	81	174	376
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	72.1	82	177	380

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING 2020 PROJECT RIRO AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the *Glen Ivy Senior Community Traffic Analysis* prepared by Urban Crossroads, Inc. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Therefore, no mitigation measures are considered to reduce the Existing Plus Project traffic noise level increases. The future EA, EAC and HY traffic noise conditions that include all cumulative projects are used to determine the significance of the Project off-site traffic noise level increases on the study area roadway segments. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 69.4 to 71.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project RIRO at Driveway 4 conditions will range from 69.5 to 71.8 dBA

CNEL. Table 7-13 shows that the Project off-site traffic noise level impacts will range from 0.0 to 0.4 dBA CNEL.

7.3 EXISTING 2020 PROJECT FULL ACCESS AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the *Glen Ivy Senior Community Traffic Analysis* prepared by Urban Crossroads, Inc. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Therefore, no mitigation measures are considered to reduce the Existing Plus Project traffic noise level increases. The future EA, EAC and HY traffic noise conditions that include all cumulative projects are used to determine the significance of the Project off-site traffic noise level increases on the study area roadway segments. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 69.4 to 71.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-3 shows the Existing with Project Full Access at Driveway 4 conditions will range from 69.5 to 71.8 dBA CNEL. Table 7-14 shows that the Project off-site traffic noise level impacts will range from 0.0 to 0.3 dBA CNEL.

7.4 EA 2023 PROJECT RIRO AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

Table 7-4 presents the Existing plus Ambient Growth (EA) without Project conditions CNEL noise levels. The EA without Project exterior noise levels are expected to range from 69.7 to 72.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-5 shows the EA with Project RIRO at Driveway 4 conditions will range from 69.8 to 72.1 dBA CNEL. Table 7-15 shows that the Project off-site traffic noise level increases will range from 0.1 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

7.5 EA 2023 PROJECT FULL ACCESS AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

Table 7-4 presents the Existing plus Ambient Growth (EA) without Project conditions CNEL noise levels. The EA without Project exterior noise levels are expected to range from 69.7 to 72.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the EA with Project Full Access at Driveway 4 conditions will range from 69.8 to 72.1 dBA CNEL. Table 7-16 shows that the Project off-site traffic noise level increases will range from 0.1 to 0.2 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

7.6 EAC 2023 PROJECT RIRO AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

Table 7-7 presents the Existing plus Ambient Growth Plus Cumulative Projects (EAC) without Project conditions CNEL noise levels. The EAC without Project exterior noise levels are expected

to range from 71.1 to 74.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-8 shows the EAC with Project RIRO at Driveway 4 conditions will range from 71.1 to 74.7 dBA CNEL. Table 7-17 shows that the Project off-site traffic noise level increases will range from 0.0 to 0.2 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

7.7 EAC 2023 Project Full Access at Driveway 4 Traffic Noise Level Increases

Table 7-7 presents the Existing plus Ambient Growth Plus Cumulative Projects (EAC) without Project conditions CNEL noise levels. The EAC without Project exterior noise levels are expected to range from 71.1 to 74.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-9 shows the EAC with Project Full Access at Driveway 4 conditions will range from 71.1 to 74.7 dBA CNEL. Table 7-18 shows that the Project off-site traffic noise level increases will range from 0.0 to 0.1 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

7.8 HY 2040 Project RIRO at Driveway 4 Traffic Noise Level Increases

Table 7-10 presents the Horizon Year (HY) without Project conditions CNEL noise levels. The HY without Project exterior noise levels are expected to range from 72.0 to 75.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-11 shows the HY with Project RIRO at Driveway 4 conditions will range from 72.1 to 75.4 dBA CNEL. Table 7-19 shows that the Project off-site traffic noise level increases will range from 0.0 to 0.2 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

7.9 HY 2040 Project Full Access at Driveway 4 Traffic Noise Level Increases

Table 7-10 presents the Horizon Year (HY) without Project conditions CNEL noise levels. The HY without Project exterior noise levels are expected to range from 72.0 to 75.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-12 shows the HY with Project Full Access at Driveway 4 conditions will range from 72.1 to 75.4 dBA CNEL. Table 7-20 shows that the Project off-site traffic noise level increases will range from 0.0 to 0.1 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated Project-related traffic noise levels.

TABLE 7-13: EXISTING WITH PROJECT RIRO AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	71.7	71.8	0.1	3.0	No
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.4	71.6	0.2	3.0	No
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	70.8	70.8	0.0	1.5	No
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.4	69.5	0.1	1.5	No
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	69.4	69.8	0.4	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-14: EXISTING WITH PROJECT FULL ACCESS AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	71.7	71.8	0.1	3.0	No
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.4	71.6	0.2	3.0	No
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	70.8	70.8	0.0	1.5	No
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.4	69.5	0.1	1.5	No
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	69.4	69.7	0.3	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-15: EA 2023 WITH PROJECT RIRO AT DRIVEAY 4 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	72.0	72.1	0.1	3.0	No
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.7	71.8	0.1	3.0	No
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	71.0	71.1	0.1	1.5	No
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.7	69.8	0.1	1.5	No
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	69.7	70.0	0.3	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-16: EA 2023 WITH PROJECT FULL ACCESS AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	72.0	72.1	0.1	3.0	No
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	71.7	71.8	0.1	3.0	No
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	71.0	71.1	0.1	1.5	No
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	69.7	69.8	0.1	1.5	No
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	69.7	69.9	0.2	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-17: EAC 2023 WITH PROJECT RIRO AT DRIVEAY 4 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	73.2	73.3	0.1	3.0	No
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	74.7	74.7	0.0	3.0	No
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	74.3	74.4	0.1	1.5	No
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	71.1	71.1	0.0	1.5	No
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	71.1	71.3	0.2	3.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-18: EAC 2023 WITH PROJECT FULL ACCESS AT DRIVEWAY 4 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	73.2	73.3	0.1	3.0	No
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	74.7	74.7	0.0	3.0	No
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	74.3	74.4	0.1	1.5	No
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	71.1	71.1	0.0	1.5	No
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	71.1	71.2	0.1	3.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-19: HY 2040 WITH PROJECT RIRO AT DRIVEAY 4 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	74.1	74.2	0.1	3.0	No
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	75.3	75.4	0.1	3.0	No
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	75.0	75.0	0.0	1.5	No
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	72.0	72.1	0.1	1.5	No
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	72.0	72.2	0.2	3.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-20: HY 2040 WITH PROJECT FULL ACCESS AT DRIVEAY 4 TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Temescal Canyon Rd.	n/o Lawson Rd.	Non-Sensitive	74.1	74.2	0.1	3.0	No
2	Temescal Canyon Rd.	n/o Trilogy Pkwy.	Non-Sensitive	75.3	75.4	0.1	3.0	No
3	Temescal Canyon Rd.	s/o Dwy. 4	Sensitive	75.0	75.0	0.0	1.5	No
4	Trilogy Pkwy.	w/o Dwy. 1	Sensitive	72.0	72.1	0.1	1.5	No
5	Trilogy Pkwy.	w/o Temescal Canyon Rd.	Non-Sensitive	72.0	72.1	0.1	3.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

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8 ON-SITE TRANSPORTATION NOISE IMPACTS

An on-site exterior noise impact analysis has been completed to determine the noise exposure levels that would result from adjacent transportation noise sources in the Project study area, and to identify potential noise mitigation measures that would achieve acceptable Project exterior and interior noise levels. The primary source of transportation noise affecting the Project site is anticipated to be from Temescal Canyon Road and Trilogy Parkway. The Project would also be exposed to background traffic noise from the I-15 Freeway. However, due to the distance, topography and intervening structures, traffic noise from Freeway will not make a substantive contribution to the existing ambient noise conditions. This section analyzes on-site exterior and interior noise levels at the Project buildings.

8.1 EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model, and the parameters outlined in Section 6, the expected future exterior noise levels at the first-floor building façades were calculated. Table 8-1 presents a summary of future exterior noise level impacts at the first-floor receiver locations. The on-site transportation noise level impacts indicate that the unmitigated exterior noise levels will range from 67.5 to 75.0 dBA CNEL. The on-site traffic noise analysis calculations are provided in Appendix 8.1. Based on Exhibit 3-A, land use for nursing homes is considered *conditionally acceptable* as noise approaches 70 dBA CNEL and *normally unacceptable* up to 80 dBA CNEL. For *normally unacceptable* conditions, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design and outdoor areas must be shielded. Since the Project does not include any exposed outdoor areas facing Temescal Canyon Road and Trilogy Parkway, the on-site traffic noise analysis focuses on the noise sensitive interior spaces.

TABLE 8-1: UNMITIGATED EXTERIOR TRAFFIC NOISE LEVELS

Receiver Location	Roadway	Unmitigated Exterior Noise Level (dBA CNEL)	Land Use Compatibility[1]
Memory Care	Temescal Cyn. Rd.	75.0	*Normally Unacceptable*
Assisted Living	Temescal Cyn. Rd.	69.2	*Conditionally Acceptable*
Memory Care	Trilogy Pkwy.	74.2	*Normally Unacceptable*
Independent Living	Trilogy Pkwy.	71.7	*Normally Unacceptable*

[1] Based on the General Plan land use compatibility standards for Nursing Homes as shown on Exhibit 3-A.

8.2 INTERIOR NOISE ANALYSIS

To ensure that the Project provides an acceptable interior noise environment, this analysis relies on the County of Riverside 45 dBA CNEL interior noise limit for new construction.

8.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (6) (22) However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: [1] weather-stripped solid core exterior doors; [2] upgraded dual glazed windows; [3] mechanical ventilation/air conditioning; and [4] exterior wall/roof assembles free of cut outs or openings.

8.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Table 8-3 shows that the future unmitigated exterior noise levels at the building façades are expected to range from 69.2 to 75.0 dBA CNEL requiring an interior noise level reduction ranging from 24.2 to 30.0 dBA CNEL. Therefore, a windows-closed condition requiring a means of mechanical ventilation (e.g. air conditioning), upgraded windows and glass doors with a minimum sound transmission class (STC) rating of 34 are required for windows and doors facing Temescal Canyon Road and Trilogy Parkway as shown on Exhibit 8-A. Table 8-2 shows that with the upgraded windows, the interior noise levels will range from 37.2 to 43.7 dBA CNEL. The interior noise level assessment demonstrates that the Project will satisfy the County of Riverside 45 dBA CNEL interior noise level requirements with the required upgraded windows.

TABLE 8-2: INTERIOR TRAFFIC NOISE LEVELS

Receiver Location	Roadway	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]
Memory Care	Temescal Cyn. Rd.	75.0	30.0	32.0	Yes	43.0
Assisted Living	Temescal Cyn. Rd.	69.2	24.2	32.0	Yes	37.2
Memory Care	Trilogy Pkwy.	74.2	29.2	32.0	Yes	42.2
Independent Living	Trilogy Pkwy.	71.7	26.7	32.0	No	39.7

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the 45 dBA CNEL interior noise limits.
[3] Minimum noise reduction based on approximately 2 dBA less than the upgraded STC rating for all windows/glass doors..
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.

EXHIBIT 8-B: ON-SITE INTERIOR NOISE RECOMMENDATIONS

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9 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, four receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents the existing noise sensitive residence at 24120 Warm Spring Drive, approximately 1,004 feet west of the Project site. R1 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement near this location, L1, is used to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence located 396 feet east of Temescal Canyon Road at 24423 Swift Deer Trail. R2 is placed in the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R3: Location R3 represents the Glen Ivy RV Park located 89 feet south of the Project site at 24601 Glen Ivy Road. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the nearest RV parking stall. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

R4: Location R4 represents the Glen Ivy RV Park outdoor pool area located 92 feet west of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R4 is placed on the pool deck. A 24-hour noise measurement near this location, L5, is used to describe the existing ambient noise environment.

EXHIBIT 9-A: RECEIVER LOCATIONS

10 CONSTRUCTION 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 noise source locations in relation to the nearby sensitive receiver locations previously described in Section 9.

10.1 CONSTRUCTION NOISE LEVELS

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

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels.

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 of 30 feet and 50 feet, all construction noise level measurements presented on Table 10-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet.

EXHIBIT 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

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

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

10.3 CADNAA NOISE PREDICTION MODEL

To fully describe the Project construction noise levels, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

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

when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.0 was used in the CadnaA noise analysis to account for hard site conditions. Appendix 10.1 includes the detailed noise model inputs used to estimate the Project construction noise levels presented in this section.

10.4 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 10-2, the construction noise levels are expected to range from 51.8 to 72.4 dBA L_{eq}, and the highest construction levels are expected to range from 61.9 to 72.4 dBA L_{eq} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

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

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	61.9	60.1	58.2	57.8	51.8	61.9
R2	66.7	64.9	63.0	62.6	56.6	66.7
R3	72.4	70.6	68.7	68.3	62.3	72.4
R4	72.4	70.6	68.7	68.3	62.3	72.4

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

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

10.5 CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

TABLE 10-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	61.9	80	No
R2	66.7	80	No
R3	72.4	80	No
R4	72.4	80	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 10-2.
[3] Construction noise level thresholds as shown on Table 4-2.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

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. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (9) However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

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

Using the vibration source level of construction equipment provided on Table 10-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate

the Project vibration impacts. Table 10-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 89 to 1,004 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.000 to 0.009 in/sec RMS and will remain below the County of Riverside threshold of 0.01 in/sec RMS at all receiver locations, as shown on Table 10-5. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.

TABLE 10-5: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Receiver Levels (in/sec) RMS[2]					Threshold (in/sec) RMS[4]	Threshold Exceeded?[5]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration		
R1	1,004'	0.000	0.000	0.000	0.000	0.000	0.01	No
R2	396'	0.000	0.000	0.001	0.001	0.001	0.01	No
R3	89'	0.000	0.004	0.008	0.009	0.009	0.01	No
R4	92'	0.000	0.004	0.008	0.009	0.009	0.01	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-8. Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[3] Source: County of Riverside General Plan Noise Element, Policy N 16.3.
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

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

11 REFERENCES

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16. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
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19. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
20. **County of Riverside, Office of Industrial Hygiene.** *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures.* April 2015.
21. **County of Riverside.** *General Plan Circulation Element.* 2008.

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12 CERTIFICATION

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

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EDUCATION

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

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

PROFESSIONAL REGISTRATIONS

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

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

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APPENDIX 3.1:

COUNTY OF RIVERSIDE MUNICIPAL CODE

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Chapter 9.52 - NOISE REGULATION

Sections:

9.52.010 - Intent.

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

(Ord. 847 § 1, 2006)

9.52.020 - Exemptions.

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

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

B. Capital improvement projects of a governmental agency;

C. The maintenance or repair of public properties;

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

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

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

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

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

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

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

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

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

L. Heating and air conditioning equipment;

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

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

(Ord. 847 § 2, 2006)

9.52.030 - Definitions.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(Ord. 847 § 3, 2006)

9.52.040 - General sound level standards.

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

TABLE 1

Sound Level Standards (Db L_{max})

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

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

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

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

(Ord. 847 § 4, 2006)

9.52.050 - Sound level measurement methodology.

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

(Ord. 847 § 5, 2006)

9.52.060 - Special sound sources standards.

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

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

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

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

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

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

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

(Ord. 847 § 6, 2006)

9.52.070 - Exceptions.

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

A. Application and Processing.

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

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

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

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

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

(Ord. 847 § 7, 2006)

9.52.080 - Enforcement.

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

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

9.52.090 - Duty to cooperate.

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

(Ord. 847 § 9, 2006)

9.52.100 - Violations and penalties.

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

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

(Ord. 847 § 10, 2006)

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 13032 Study Area Photos

L1_E
33, 45' 56.610000", 117, 29' 39.370000"

L1_N
33, 45' 56.630000", 117, 29' 39.350000"

L1_S
33, 45' 56.610000", 117, 29' 39.370000"

L1_W
33, 45' 56.570000", 117, 29' 39.430000"

L2_E
33, 46' 1.320000", 117, 29' 15.120000"

L2_N
33, 46' 1.320000", 117, 29' 15.120000"

JN: 13032 Study Area Photos

L2_S
33, 46' 1.260000", 117, 29' 15.290000"

L2_W
33, 46' 1.220000", 117, 29' 15.310000"

L3_E
33, 45' 58.860000", 117, 29' 5.230000"

L3_N
33, 45' 58.910000", 117, 29' 5.760000"

L3_S
33, 45' 58.830000", 117, 29' 5.290000"

L3_W
33, 45' 58.820000", 117, 29' 5.340000"

JN: 13032 Study Area Photos

L4_E
33, 45' 48.630000", 117, 29' 13.200000"

L4_N
33, 45' 48.700000", 117, 29' 13.360000"

L4_S
33, 45' 48.610000", 117, 29' 13.200000"

L4_W
33, 45' 48.600000", 117, 29' 13.200000"

L5_E
33, 45' 56.110000", 117, 29' 19.740000"

L5_N
33, 45' 56.140000", 117, 29' 19.710000"

JN: 13032 Study Area Photos

L5_S
33, 45' 56.070000", 117, 29' 19.710000"

L5_W
33, 45' 56.060000", 117, 29' 19.710000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

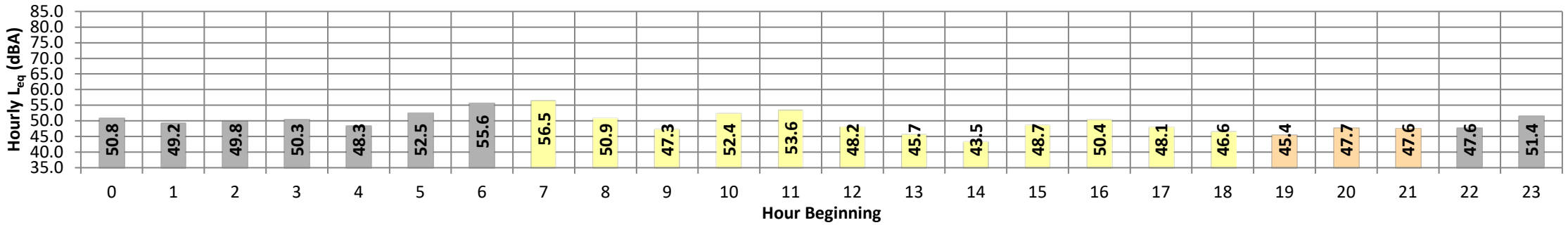
Date: Wednesday, November 11, 2020
Project: Glen Ivy Senior Community

Location: L1 - Located northwest of the Project site on Warm Springs Drive near country club at 24120 Warm Springs Drive.

Meter: Piccolo II

JN: 13032
Analyst: P. Mara

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	50.8	52.7	49.3	52.5	52.4	52.1	52.0	51.4	50.7	49.8	49.6	49.4	50.8	10.0	60.8
	1	49.2	51.7	47.0	51.6	51.4	51.1	50.8	49.8	48.9	47.6	47.4	47.1	49.2	10.0	59.2
	2	49.8	52.0	48.2	51.8	51.6	51.2	51.0	50.3	49.7	48.6	48.5	48.3	49.8	10.0	59.8
	3	50.3	52.7	48.6	52.5	52.3	51.9	51.6	50.8	50.2	49.2	49.0	48.7	50.3	10.0	60.3
	4	48.3	51.2	46.2	50.9	50.5	50.1	49.7	48.8	48.1	46.8	46.6	46.3	48.3	10.0	58.3
	5	52.5	56.6	50.4	56.4	56.0	55.1	54.6	52.7	51.9	51.0	50.8	50.5	52.5	10.0	62.5
	6	55.6	61.0	52.8	60.7	60.4	59.8	59.1	55.1	54.3	53.3	53.2	52.9	55.6	10.0	65.6
Day	7	56.5	64.3	53.0	64.0	63.7	62.2	60.0	55.6	54.7	53.6	53.4	53.1	56.5	0.0	56.5
	8	50.9	56.5	47.6	56.1	55.7	54.5	53.5	51.4	50.0	48.2	48.0	47.7	50.9	0.0	50.9
	9	47.3	53.1	44.5	52.7	52.2	50.9	50.0	47.7	46.5	45.0	44.8	44.6	47.3	0.0	47.3
	10	52.4	62.6	41.7	62.2	61.9	60.3	58.7	50.5	45.3	42.6	42.3	41.8	52.4	0.0	52.4
	11	53.6	65.6	40.0	65.3	64.7	62.3	59.3	46.6	43.1	40.8	40.4	40.1	53.6	0.0	53.6
	12	48.2	57.4	39.4	57.0	56.4	54.3	52.8	48.8	44.5	40.5	40.0	39.6	48.2	0.0	48.2
	13	45.7	55.4	36.8	54.7	53.7	51.6	50.5	45.9	42.4	38.0	37.5	37.0	45.7	0.0	45.7
	14	43.5	53.4	37.3	52.8	52.0	49.9	47.7	42.7	40.4	38.0	37.7	37.4	43.5	0.0	43.5
	15	48.7	60.6	38.8	59.9	58.7	55.5	53.1	47.1	44.0	39.8	39.3	38.9	48.7	0.0	48.7
	16	50.4	60.1	43.8	59.2	57.8	55.2	54.0	51.2	47.8	44.5	44.2	43.9	50.4	0.0	50.4
	17	48.1	53.9	44.7	53.6	53.2	52.1	51.3	48.6	47.0	45.3	45.0	44.7	48.1	0.0	48.1
	18	46.6	52.7	43.2	52.3	51.8	50.6	49.5	47.0	45.5	43.8	43.5	43.3	46.6	0.0	46.6
Evening	19	45.4	49.9	42.3	49.6	49.4	48.7	48.0	46.0	44.7	43.1	42.8	42.4	45.4	5.0	50.4
	20	47.7	51.4	45.3	51.2	50.9	50.5	50.0	48.3	47.1	45.9	45.7	45.4	47.7	5.0	52.7
	21	47.6	52.6	44.5	52.4	52.0	51.1	50.3	47.9	46.6	45.1	44.9	44.6	47.6	5.0	52.6
Night	22	47.6	51.2	45.3	51.0	50.7	50.0	49.5	48.1	47.3	46.0	45.7	45.4	47.6	10.0	57.6
	23	51.4	64.9	43.8	64.1	63.1	56.6	52.9	48.5	46.3	44.4	44.2	43.9	51.4	10.0	61.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	43.5	52.7	36.8	52.3	51.8	49.9	47.7	42.7	40.4	38.0	37.5	37.0
	Max	56.5	65.6	53.0	65.3	64.7	62.3	60.0	55.6	54.7	53.6	53.4	53.1
Energy Average		50.8	Average:		57.5	56.8	54.9	53.4	48.6	45.9	43.3	43.0	42.7
Evening	Min	45.4	49.9	42.3	49.6	49.4	48.7	48.0	46.0	44.7	43.1	42.8	42.4
	Max	47.7	52.6	45.3	52.4	52.0	51.1	50.3	48.3	47.1	45.9	45.7	45.4
Energy Average		47.0	Average:		51.1	50.8	50.1	49.4	47.4	46.1	44.7	44.5	44.2
Night	Min	47.6	51.2	43.8	50.9	50.5	50.0	49.5	48.1	46.3	44.4	44.2	43.9
	Max	55.6	64.9	52.8	64.1	63.1	59.8	59.1	55.1	54.3	53.3	53.2	52.9
Energy Average		51.3	Average:		54.6	54.3	53.1	52.4	50.6	49.7	48.5	48.3	48.1

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
50.7	50.3	51.3

24-Hour CNEL (dBA)
57.7

24-Hour Noise Level Measurement Summary

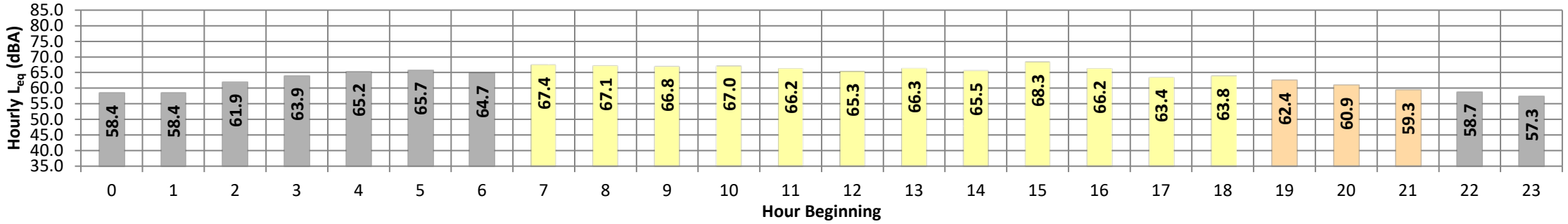
Date: Wednesday, November 11, 2020
Project: Glen Ivy Senior Community

Location: L2 - Located north of the Project site on Trilogy Parkway and Temescal Canyon Road in existing vacant lot.

Meter: Piccolo I

JN: 13032
Analyst: P. Mara

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	58.4	79.6	46.8	70.0	67.0	63.0	61.0	55.0	53.0	49.0	49.0	48.0	58.4	10.0	68.4
	1	58.4	78.6	49.7	69.0	67.0	63.0	61.0	55.0	53.0	51.0	51.0	50.0	58.4	10.0	68.4
	2	61.9	80.5	47.6	73.0	72.0	68.0	65.0	59.0	54.0	50.0	49.0	48.0	61.9	10.0	71.9
	3	63.9	79.9	50.1	73.0	72.0	70.0	68.0	62.0	58.0	53.0	52.0	51.0	63.9	10.0	73.9
	4	65.2	83.4	52.3	74.0	73.0	71.0	70.0	64.0	60.0	56.0	55.0	54.0	65.2	10.0	75.2
	5	65.7	79.3	53.3	74.0	73.0	71.0	70.0	65.0	61.0	57.0	56.0	54.0	65.7	10.0	75.7
	6	64.7	81.8	51.9	74.0	72.0	70.0	69.0	64.0	60.0	55.0	55.0	52.0	64.7	10.0	74.7
Day	7	67.4	92.3	48.7	76.0	74.0	72.0	70.0	65.0	61.0	54.0	53.0	50.0	67.4	0.0	67.4
	8	67.1	81.2	45.4	76.0	75.0	73.0	72.0	67.0	62.0	55.0	53.0	49.0	67.1	0.0	67.1
	9	66.8	82.5	47.2	76.0	75.0	72.0	71.0	66.0	61.0	54.0	52.0	49.0	66.8	0.0	66.8
	10	67.0	85.3	49.3	77.0	75.0	72.0	71.0	66.0	62.0	55.0	54.0	51.0	67.0	0.0	67.0
	11	66.2	83.0	47.0	76.0	74.0	72.0	71.0	65.0	61.0	54.0	53.0	50.0	66.2	0.0	66.2
	12	65.3	84.8	49.0	75.0	73.0	71.0	69.0	64.0	60.0	54.0	53.0	50.0	65.3	0.0	65.3
	13	66.3	85.3	49.3	77.0	75.0	71.0	69.0	65.0	61.0	56.0	54.0	52.0	66.3	0.0	66.3
	14	65.5	83.6	52.6	75.0	73.0	70.0	68.0	65.0	62.0	57.0	56.0	54.0	65.5	0.0	65.5
	15	68.3	89.9	53.4	80.0	77.0	72.0	70.0	65.0	63.0	58.0	57.0	55.0	68.3	0.0	68.3
	16	66.2	90.2	49.7	73.0	70.0	68.0	67.0	65.0	62.0	57.0	56.0	53.0	66.2	0.0	66.2
	17	63.4	77.9	49.1	71.0	70.0	67.0	66.0	64.0	61.0	55.0	54.0	51.0	63.4	0.0	63.4
	18	63.8	83.9	51.3	74.0	70.0	67.0	66.0	63.0	60.0	54.0	53.0	52.0	63.8	0.0	63.8
Evening	19	62.4	83.7	52.2	71.0	68.0	66.0	65.0	62.0	59.0	56.0	55.0	54.0	62.4	5.0	67.4
	20	60.9	82.0	50.5	70.0	66.0	64.0	63.0	61.0	57.0	53.0	52.0	51.0	60.9	5.0	65.9
	21	59.3	76.6	49.6	68.0	66.0	64.0	63.0	59.0	55.0	52.0	51.0	50.0	59.3	5.0	64.3
Night	22	58.7	78.0	50.7	69.0	66.0	63.0	62.0	56.0	54.0	52.0	52.0	51.0	58.7	10.0	68.7
	23	57.3	73.5	50.6	68.0	65.0	62.0	60.0	55.0	53.0	52.0	51.0	51.0	57.3	10.0	67.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.4	77.9	45.4	71.0	70.0	67.0	66.0	63.0	60.0	54.0	52.0	49.0
	Max	68.3	92.3	53.4	80.0	77.0	73.0	72.0	67.0	63.0	58.0	57.0	55.0
Energy Average		66.3	Average:		75.5	73.4	70.6	69.2	65.0	61.3	55.3	54.0	51.3
Evening	Min	59.3	76.6	49.6	68.0	66.0	64.0	63.0	59.0	55.0	52.0	51.0	50.0
	Max	62.4	83.7	52.2	71.0	68.0	66.0	65.0	62.0	59.0	56.0	55.0	54.0
Energy Average		61.0	Average:		69.7	66.7	64.7	63.7	60.7	57.0	53.7	52.7	51.7
Night	Min	57.3	73.5	46.8	68.0	65.0	62.0	60.0	55.0	53.0	49.0	49.0	48.0
	Max	65.7	83.4	53.3	74.0	73.0	71.0	70.0	65.0	61.0	57.0	56.0	54.0
Energy Average		62.7	Average:		71.6	69.7	66.8	65.1	59.4	56.2	52.8	52.2	51.0

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
64.8	**65.7**	**62.7**

24-Hour CNEL (dBA)

69.8

24-Hour Noise Level Measurement Summary

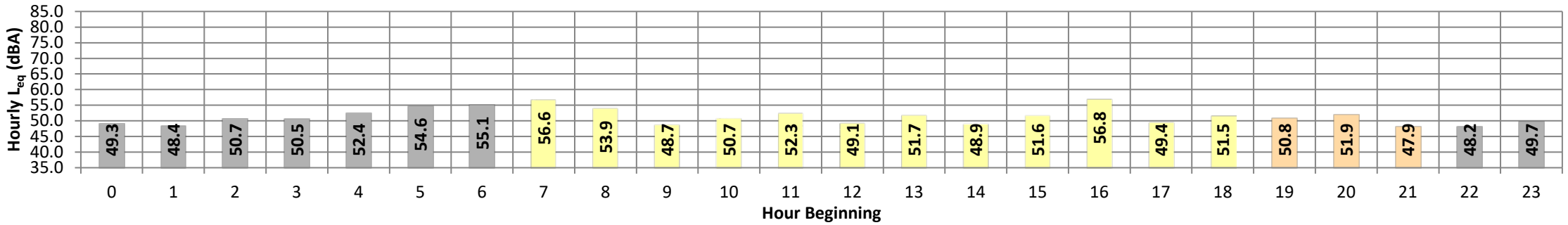
Date: Wednesday, November 11, 2020
Project: Glen Ivy Senior Community

Location: L3 - Located east of the Project site on Swift Deer Trail near existing single-family residential home at 24327 Swift Deer Trail.

Meter: Piccolo II

JN: 13032
Analyst: P. Mara

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	49.3	55.1	46.8	54.9	54.4	52.6	51.7	49.3	48.4	47.4	47.2	46.9	49.3	10.0	59.3
	1	48.4	53.1	45.8	52.9	52.6	51.6	50.7	48.8	47.6	46.3	46.1	45.9	48.4	10.0	58.4
	2	50.7	52.9	49.0	52.7	52.6	52.2	51.9	51.3	50.4	49.5	49.3	49.1	50.7	10.0	60.7
	3	50.5	54.0	47.8	53.7	53.3	52.7	52.4	51.1	50.2	48.5	48.3	47.9	50.5	10.0	60.5
	4	52.4	56.8	49.9	56.6	56.2	55.3	54.5	52.8	51.9	50.6	50.3	50.0	52.4	10.0	62.4
	5	54.6	59.3	52.3	59.0	58.2	56.7	56.1	55.0	54.2	53.0	52.7	52.4	54.6	10.0	64.6
	6	55.1	59.7	53.0	59.5	59.2	58.0	56.7	55.3	54.6	53.6	53.3	53.1	55.1	10.0	65.1
Day	7	56.6	61.7	53.8	61.5	61.1	59.6	58.6	57.0	56.0	54.6	54.3	54.0	56.6	0.0	56.6
	8	53.9	59.9	49.0	59.7	59.3	57.7	56.6	54.6	53.0	50.2	49.7	49.2	53.9	0.0	53.9
	9	48.7	57.0	44.0	56.5	55.8	54.0	52.7	48.6	46.5	44.7	44.4	44.1	48.7	0.0	48.7
	10	50.7	60.1	42.3	59.6	58.7	56.1	54.5	51.4	48.0	43.9	43.3	42.5	50.7	0.0	50.7
	11	52.3	64.5	42.1	64.0	63.1	60.0	56.3	48.9	45.9	43.1	42.7	42.2	52.3	0.0	52.3
	12	49.1	58.1	43.1	57.7	57.2	54.9	53.1	48.9	46.3	44.0	43.6	43.2	49.1	0.0	49.1
	13	51.7	63.8	43.0	62.8	61.7	58.4	55.6	49.8	47.0	43.9	43.5	43.1	51.7	0.0	51.7
	14	48.9	59.0	43.7	58.3	57.3	54.5	52.2	47.8	46.3	44.5	44.2	43.8	48.9	0.0	48.9
	15	51.6	60.2	46.0	59.8	59.0	56.5	54.9	51.9	50.0	47.0	46.5	46.1	51.6	0.0	51.6
	16	56.8	65.3	46.8	64.9	64.4	63.3	62.3	58.2	50.1	47.6	47.3	46.9	56.8	0.0	56.8
	17	49.4	59.1	43.7	58.8	58.0	55.4	53.5	48.5	45.9	44.4	44.0	43.8	49.4	0.0	49.4
	18	51.5	61.3	44.2	60.9	60.3	58.1	55.9	50.8	48.0	44.8	44.5	44.3	51.5	0.0	51.5
Evening	19	50.8	59.0	46.1	58.5	58.1	56.4	54.6	50.9	48.5	46.8	46.5	46.2	50.8	5.0	55.8
	20	51.9	60.7	48.4	60.5	59.9	57.3	54.8	51.0	49.9	48.9	48.7	48.4	51.9	5.0	56.9
	21	47.9	54.9	44.7	54.7	54.2	52.1	50.7	48.0	46.6	45.2	45.0	44.8	47.9	5.0	52.9
Night	22	48.2	52.9	45.9	52.8	52.5	51.2	50.2	48.3	47.5	46.4	46.2	46.0	48.2	10.0	58.2
	23	49.7	54.9	45.7	54.6	54.3	53.5	52.8	50.6	48.4	46.5	46.2	45.8	49.7	10.0	59.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.7	57.0	42.1	56.5	55.8	54.0	52.2	47.8	45.9	43.1	42.7	42.2
	Max	56.8	65.3	53.8	64.9	64.4	63.3	62.3	58.2	56.0	54.6	54.3	54.0
Energy Average		52.7	Average:		60.4	59.7	57.4	55.5	51.4	48.6	46.0	45.7	45.3
Evening	Min	47.9	54.9	44.7	54.7	54.2	52.1	50.7	48.0	46.6	45.2	45.0	44.8
	Max	51.9	60.7	48.4	60.5	59.9	57.3	54.8	51.0	49.9	48.9	48.7	48.4
Energy Average		50.5	Average:		57.9	57.4	55.3	53.4	50.0	48.3	47.0	46.7	46.5
Night	Min	48.2	52.9	45.7	52.7	52.5	51.2	50.2	48.3	47.5	46.3	46.1	45.8
	Max	55.1	59.7	53.0	59.5	59.2	58.0	56.7	55.3	54.6	53.6	53.3	53.1
Energy Average		51.7	Average:		55.2	54.8	53.8	53.0	51.4	50.4	49.1	48.8	48.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
52.1	52.3	51.7

24-Hour CNEL (dBA)
58.4

24-Hour Noise Level Measurement Summary

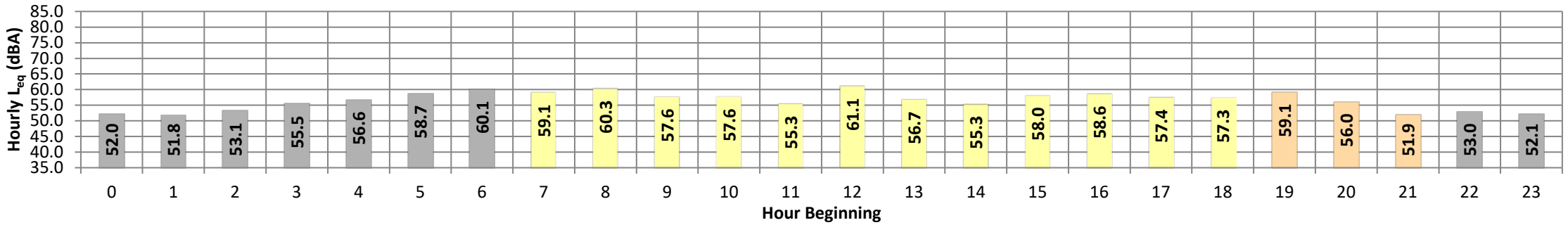
Date: Wednesday, November 11, 2020
Project: Glen Ivy Senior Community

Location: L4 - Located south of the Project site on Glen Ivy Road near the Glen Ivy RV Park at 24601 Glen Ivy Road.

Meter: Piccolo II

JN: 13032
Analyst: P. Mara

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	52.0	59.5	48.2	58.9	58.2	56.5	55.0	52.3	50.4	48.8	48.5	48.3	52.0	10.0	62.0
	1	51.8	59.4	47.9	59.0	58.2	56.0	54.7	52.0	50.5	48.6	48.3	48.0	51.8	10.0	61.8
	2	53.1	61.2	49.6	60.8	59.8	57.4	55.9	52.9	51.7	50.3	50.0	49.7	53.1	10.0	63.1
	3	55.5	64.5	50.3	64.0	63.3	60.9	58.9	55.2	53.4	51.1	50.8	50.5	55.5	10.0	65.5
	4	56.6	64.8	52.0	64.3	63.6	61.3	59.8	57.0	54.9	52.8	52.4	52.1	56.6	10.0	66.6
	5	58.7	67.0	54.1	66.6	65.8	63.7	61.8	58.8	57.0	54.8	54.5	54.2	58.7	10.0	68.7
	6	60.1	68.0	56.2	67.3	66.2	64.3	63.2	60.4	58.7	57.0	56.6	56.3	60.1	10.0	70.1
Day	7	59.1	68.6	53.8	68.0	67.0	64.4	62.6	58.8	56.8	54.6	54.2	53.9	59.1	0.0	59.1
	8	60.3	74.4	49.5	73.5	71.9	67.0	63.1	55.9	53.1	50.3	50.0	49.6	60.3	0.0	60.3
	9	57.6	68.5	48.6	68.1	67.3	64.6	62.3	55.9	53.0	49.8	49.2	48.8	57.6	0.0	57.6
	10	57.6	70.5	47.1	69.7	68.6	64.3	61.0	55.2	51.9	48.3	47.8	47.2	57.6	0.0	57.6
	11	55.3	66.7	47.0	66.0	65.0	61.7	59.4	54.1	51.5	48.3	47.7	47.2	55.3	0.0	55.3
	12	61.1	74.3	46.6	73.3	72.5	69.6	65.0	55.6	51.7	47.7	47.2	46.7	61.1	0.0	61.1
	13	56.7	70.3	46.3	69.6	68.2	63.4	59.7	53.1	50.3	47.4	46.9	46.4	56.7	0.0	56.7
	14	55.3	67.3	47.1	66.8	65.6	61.7	59.1	53.6	50.6	47.9	47.5	47.2	55.3	0.0	55.3
	15	58.0	71.2	48.2	70.5	69.1	64.6	61.2	55.0	52.2	49.3	48.9	48.4	58.0	0.0	58.0
	16	58.6	82.2	50.0	81.6	80.1	74.3	69.0	59.2	54.3	50.8	50.4	50.1	58.6	0.0	58.6
	17	57.4	69.9	47.8	69.3	68.1	64.2	61.2	54.8	52.0	48.8	48.4	47.9	57.4	0.0	57.4
	18	57.3	69.8	47.7	69.1	67.8	63.7	61.2	54.8	51.9	48.8	48.3	47.8	57.3	0.0	57.3
Evening	19	59.1	72.8	49.1	72.0	70.5	65.9	62.3	55.4	52.8	50.1	49.6	49.2	59.1	5.0	64.1
	20	56.0	67.6	50.1	67.2	66.2	62.1	58.8	53.9	52.4	50.7	50.5	50.2	56.0	5.0	61.0
	21	51.9	60.6	47.2	60.2	59.5	57.0	55.2	51.8	50.2	47.9	47.6	47.3	51.9	5.0	56.9
Night	22	53.0	64.6	47.0	64.1	63.1	59.0	55.7	51.0	49.5	47.6	47.3	47.0	53.0	10.0	63.0
	23	52.1	62.4	46.8	61.9	60.9	57.3	55.0	51.4	49.7	47.6	47.2	46.9	52.1	10.0	62.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.3	66.7	46.3	66.0	65.0	61.7	59.1	53.1	50.3	47.4	46.9	46.4
	Max	61.1	82.2	53.8	81.6	80.1	74.3	69.0	59.2	56.8	54.6	54.2	53.9
Energy Average		58.2	Average:		70.5	69.3	65.3	62.1	55.5	52.4	49.3	48.9	48.4
Evening	Min	51.9	60.6	47.2	60.2	59.5	57.0	55.2	51.8	50.2	47.9	47.6	47.3
	Max	59.1	72.8	50.1	72.0	70.5	65.9	62.3	55.4	52.8	50.7	50.5	50.2
Energy Average		56.6	Average:		66.5	65.4	61.6	58.8	53.7	51.8	49.6	49.3	48.9
Night	Min	51.8	59.4	46.8	58.9	58.2	56.0	54.7	51.0	49.5	47.6	47.2	46.9
	Max	60.1	68.0	56.2	67.3	66.2	64.3	63.2	60.4	58.7	57.0	56.6	56.3
Energy Average		55.9	Average:		63.0	62.1	59.6	57.8	54.6	52.9	51.0	50.6	50.3

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
57.3	57.9	55.9

24-Hour CNEL (dBA)
62.9

24-Hour Noise Level Measurement Summary

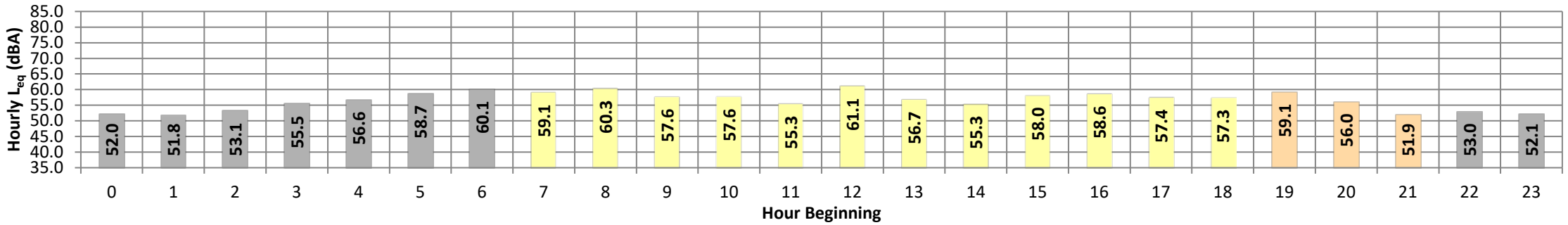
Date: Wednesday, November 11, 2020
Project: Glen Ivy Senior Community

Location: L5 - Located by the west side of the Project site near the Glen Ivy RV Park at 24601 Glen Ivy Road.

Meter: Piccolo II

JN: 13032
Analyst: P. Mara

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	52.0	59.5	48.2	58.9	58.2	56.5	55.0	52.3	50.4	48.8	48.5	48.3	52.0	10.0	62.0
	1	51.8	59.4	47.9	59.0	58.2	56.0	54.7	52.0	50.5	48.6	48.3	48.0	51.8	10.0	61.8
	2	53.1	61.2	49.6	60.8	59.8	57.4	55.9	52.9	51.7	50.3	50.0	49.7	53.1	10.0	63.1
	3	55.5	64.5	50.3	64.0	63.3	60.9	58.9	55.2	53.4	51.1	50.8	50.5	55.5	10.0	65.5
	4	56.6	64.8	52.0	64.3	63.6	61.3	59.8	57.0	54.9	52.8	52.4	52.1	56.6	10.0	66.6
	5	58.7	67.0	54.1	66.6	65.8	63.7	61.8	58.8	57.0	54.8	54.5	54.2	58.7	10.0	68.7
	6	60.1	68.0	56.2	67.3	66.2	64.3	63.2	60.4	58.7	57.0	56.6	56.3	60.1	10.0	70.1
Day	7	59.1	68.6	53.8	68.0	67.0	64.4	62.6	58.8	56.8	54.6	54.2	53.9	59.1	0.0	59.1
	8	60.3	74.4	49.5	73.5	71.9	67.0	63.1	55.9	53.1	50.3	50.0	49.6	60.3	0.0	60.3
	9	57.6	68.5	48.6	68.1	67.3	64.6	62.3	55.9	53.0	49.8	49.2	48.8	57.6	0.0	57.6
	10	57.6	70.5	47.1	69.7	68.6	64.3	61.0	55.2	51.9	48.3	47.8	47.2	57.6	0.0	57.6
	11	55.3	66.7	47.0	66.0	65.0	61.7	59.4	54.1	51.5	48.3	47.7	47.2	55.3	0.0	55.3
	12	61.1	74.3	46.6	73.3	72.5	69.6	65.0	55.6	51.7	47.7	47.2	46.7	61.1	0.0	61.1
	13	56.7	70.3	46.3	69.6	68.2	63.4	59.7	53.1	50.3	47.4	46.9	46.4	56.7	0.0	56.7
	14	55.3	67.3	47.1	66.8	65.6	61.7	59.1	53.6	50.6	47.9	47.5	47.2	55.3	0.0	55.3
	15	58.0	71.2	48.2	70.5	69.1	64.6	61.2	55.0	52.2	49.3	48.9	48.4	58.0	0.0	58.0
	16	58.6	82.2	50.0	81.6	80.1	74.3	69.0	59.2	54.3	50.8	50.4	50.1	58.6	0.0	58.6
	17	57.4	69.9	47.8	69.3	68.1	64.2	61.2	54.8	52.0	48.8	48.4	47.9	57.4	0.0	57.4
	18	57.3	69.8	47.7	69.1	67.8	63.7	61.2	54.8	51.9	48.8	48.3	47.8	57.3	0.0	57.3
Evening	19	59.1	72.8	49.1	72.0	70.5	65.9	62.3	55.4	52.8	50.1	49.6	49.2	59.1	5.0	64.1
	20	56.0	67.6	50.1	67.2	66.2	62.1	58.8	53.9	52.4	50.7	50.5	50.2	56.0	5.0	61.0
	21	51.9	60.6	47.2	60.2	59.5	57.0	55.2	51.8	50.2	47.9	47.6	47.3	51.9	5.0	56.9
Night	22	53.0	64.6	47.0	64.1	63.1	59.0	55.7	51.0	49.5	47.6	47.3	47.0	53.0	10.0	63.0
	23	52.1	62.4	46.8	61.9	60.9	57.3	55.0	51.4	49.7	47.6	47.2	46.9	52.1	10.0	62.1

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	55.3	66.7	46.3	66.0	65.0	61.7	59.1	53.1	50.3	47.4	46.9	46.4
	Max	61.1	82.2	53.8	81.6	80.1	74.3	69.0	59.2	56.8	54.6	54.2	53.9
Energy Average		58.2	Average:		70.5	69.3	65.3	62.1	55.5	52.4	49.3	48.9	48.4
Evening	Min	51.9	60.6	47.2	60.2	59.5	57.0	55.2	51.8	50.2	47.9	47.6	47.3
	Max	59.1	72.8	50.1	72.0	70.5	65.9	62.3	55.4	52.8	50.7	50.5	50.2
Energy Average		56.6	Average:		66.5	65.4	61.6	58.8	53.7	51.8	49.6	49.3	48.9
Night	Min	51.8	59.4	46.8	58.9	58.2	56.0	54.7	51.0	49.5	47.6	47.2	46.9
	Max	60.1	68.0	56.2	67.3	66.2	64.3	63.2	60.4	58.7	57.0	56.6	56.3
Energy Average		55.9	Average:		63.0	62.1	59.6	57.8	54.6	52.9	51.0	50.6	50.3

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
57.3	**57.9**	**55.9**

24-Hour CNEL (dBA)

62.9

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APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,280	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,070	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.15	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-18.39	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-22.34	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.0	66.1	64.8	58.8	67.2	67.8
Medium Trucks:	60.1	58.2	50.7	59.5	65.7	65.7
Heavy Trucks:	61.4	59.4	56.0	60.7	66.9	67.0
Vehicle Noise:	68.1	67.5	65.5	64.5	71.4	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	46	99	213	459
CNEL:	48	103	223	480

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,928	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	862	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.08	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-19.32	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-23.28	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.1	65.2	63.9	57.9	66.3	66.9
Medium Trucks:	59.1	57.3	49.8	58.6	64.7	64.8
Heavy Trucks:	60.4	58.5	55.1	59.7	65.9	66.0
Vehicle Noise:	67.1	66.6	64.6	63.6	70.5	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	86	184	397
CNEL:	42	90	193	416

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,257	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,006	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.41	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-18.65	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-22.61	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.8	65.9	64.5	58.5	67.0	67.6
Medium Trucks:	59.8	58.0	50.5	59.2	65.4	65.4
Heavy Trucks:	61.1	59.2	55.8	60.4	66.6	66.7
Vehicle Noise:	67.8	67.2	65.2	64.2	71.1	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	44	95	204	441
CNEL:	46	99	214	461

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,734	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	293	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-7.53	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-22.40	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.18	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.1	59.3	57.9	51.9	60.3	60.9
Medium Trucks:	55.3	53.4	45.6	54.8	60.9	61.0
Heavy Trucks:	62.3	60.4	52.6	61.8	68.0	68.0
Vehicle Noise:	64.5	63.3	59.2	62.9	69.3	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	115	247	532
CNEL:	54	117	251	541

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,734	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	293	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-7.53	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-22.40	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.18	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.1	59.3	57.9	51.9	60.3	60.9
Medium Trucks:	55.3	53.4	45.6	54.8	60.9	61.0
Heavy Trucks:	62.3	60.4	52.6	61.8	68.0	68.0
Vehicle Noise:	64.5	63.3	59.2	62.9	69.3	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	115	247	532
CNEL:	54	117	251	541

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P RIRO
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,720	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,035	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.29	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-18.53	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-22.48	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.9	66.0	64.7	58.7	67.1	67.7
Medium Trucks:	59.9	58.1	50.6	59.3	65.5	65.6
Heavy Trucks:	61.2	59.3	55.9	60.5	66.7	66.8
Vehicle Noise:	67.9	67.4	65.4	64.3	71.3	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	45	97	208	449
CNEL:	47	101	218	469

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P RIRO
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,742	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,098	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.03	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-18.27	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-22.23	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.2	66.2	64.9	58.9	67.3	68.0
Medium Trucks:	60.2	58.4	50.9	59.6	65.8	65.8
Heavy Trucks:	61.5	59.5	56.1	60.8	67.0	67.1
Vehicle Noise:	68.2	67.6	65.6	64.6	71.5	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	47	101	217	467
CNEL:	49	105	227	488

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P RIRO
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,106	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	873	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.03	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-19.27	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-23.22	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.2	65.2	63.9	57.9	66.3	67.0
Medium Trucks:	59.2	57.4	49.9	58.6	64.8	64.8
Heavy Trucks:	60.5	58.5	55.1	59.8	66.0	66.1
Vehicle Noise:	67.2	66.6	64.6	63.6	70.5	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	86	186	401
CNEL:	42	90	195	419

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P RIRO
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,806 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	297 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.46	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-22.33	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.11	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.2	59.4	57.9	51.9	60.4	61.0
Medium Trucks:	55.3	53.4	45.6	54.8	61.0	61.0
Heavy Trucks:	62.3	60.4	52.7	61.9	68.0	68.1
Vehicle Noise:	64.6	63.4	59.3	63.0	69.4	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	249	537
CNEL:	55	118	254	547

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P FULL
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,742 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,098 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.03	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-18.27	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.23	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	66.2	64.9	58.9	67.3	68.0
Medium Trucks:	60.2	58.4	50.9	59.6	65.8	65.8
Heavy Trucks:	61.5	59.5	56.1	60.8	67.0	67.1
Vehicle Noise:	68.2	67.6	65.6	64.6	71.5	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	101	217	467
CNEL:	49	105	227	488

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P RIRO
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,107 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	316 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.20	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-22.07	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.85	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	59.6	58.2	52.2	60.7	61.3
Medium Trucks:	55.6	53.7	45.9	55.1	61.3	61.3
Heavy Trucks:	62.6	60.7	52.9	62.1	68.3	68.3
Vehicle Noise:	64.9	63.7	59.5	63.3	69.7	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	121	260	560
CNEL:	57	123	264	569

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P FULL
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,721 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,035 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.29	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-18.53	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.48	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	66.0	64.7	58.7	67.1	67.7
Medium Trucks:	59.9	58.1	50.6	59.3	65.5	65.6
Heavy Trucks:	61.2	59.3	55.9	60.5	66.7	66.8
Vehicle Noise:	67.9	67.4	65.4	64.3	71.3	71.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	45	97	208	449
CNEL:	47	101	218	469

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P FULL
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,106 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	873 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.03	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-19.27	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.22	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	65.2	63.9	57.9	66.3	67.0
Medium Trucks:	59.2	57.4	49.9	58.6	64.8	64.8
Heavy Trucks:	60.5	58.5	55.1	59.8	66.0	66.1
Vehicle Noise:	67.2	66.6	64.6	63.6	70.5	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	86	186	401
CNEL:	42	90	195	419

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P FULL
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,976 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	308 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.31	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-22.18	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.96	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.3	59.5	58.1	52.1	60.5	61.2
Medium Trucks:	55.5	53.6	45.8	55.0	61.2	61.2
Heavy Trucks:	62.5	60.6	52.8	62.0	68.2	68.2
Vehicle Noise:	64.7	63.6	59.4	63.2	69.5	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	255	550
CNEL:	56	121	260	560

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P FULL
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,806 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	297 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.46	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-22.33	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.11	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.2	59.4	57.9	51.9	60.4	61.0
Medium Trucks:	55.3	53.4	45.6	54.8	61.0	61.0
Heavy Trucks:	62.3	60.4	52.7	61.9	68.0	68.1
Vehicle Noise:	64.6	63.4	59.3	63.0	69.4	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	249	537
CNEL:	55	118	254	547

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,337 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,135 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.89	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-18.13	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.08	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.3	66.4	65.1	59.1	67.5	68.1
Medium Trucks:	60.3	58.5	51.0	59.7	65.9	66.0
Heavy Trucks:	61.6	59.7	56.3	60.9	67.1	67.2
Vehicle Noise:	68.3	67.8	65.8	64.7	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	103	222	477
CNEL:	50	108	232	499

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,252 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,068 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.15	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-18.39	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.35	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	66.1	64.8	58.8	67.2	67.8
Medium Trucks:	60.0	58.2	50.7	59.5	65.7	65.7
Heavy Trucks:	61.4	59.4	56.0	60.7	66.9	67.0
Vehicle Noise:	68.1	67.5	65.5	64.5	71.4	71.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	99	213	458
CNEL:	48	103	222	479

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,024 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	311 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.27	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-22.14	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.92	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	59.6	58.1	52.1	60.6	61.2
Medium Trucks:	55.5	53.6	45.8	55.0	61.2	61.2
Heavy Trucks:	62.5	60.6	52.9	62.1	68.2	68.2
Vehicle Noise:	64.8	63.6	59.5	63.2	69.6	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	554
CNEL:	56	121	261	563

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,781 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	915 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.83	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-19.06	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-23.02	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	65.4	64.1	58.1	66.5	67.2
Medium Trucks:	59.4	57.6	50.1	58.8	65.0	65.0
Heavy Trucks:	60.7	58.7	55.3	60.0	66.2	66.3
Vehicle Noise:	67.4	66.8	64.8	63.8	70.7	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	89	192	413
CNEL:	43	93	201	432

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,024 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	311 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.27	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-22.14	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.92	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	59.6	58.1	52.1	60.6	61.2
Medium Trucks:	55.5	53.6	45.8	55.0	61.2	61.2
Heavy Trucks:	62.5	60.6	52.9	62.1	68.2	68.2
Vehicle Noise:	64.8	63.6	59.5	63.2	69.6	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	554
CNEL:	56	121	261	563

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP RIRO
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,799 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,164 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-0.78	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-18.02	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-21.98	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	66.5	65.2	59.2	67.6	68.2
Medium Trucks:	60.4	58.6	51.1	59.9	66.0	66.1
Heavy Trucks:	61.7	59.8	56.4	61.0	67.2	67.3
Vehicle Noise:	68.4	67.9	65.9	64.9	71.8	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	105	225	485
CNEL:	51	109	236	508

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP RIRO
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,959 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	926 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.77	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-19.01	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.97	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	65.5	64.2	58.2	66.6	67.2
Medium Trucks:	59.4	57.6	50.1	58.9	65.0	65.1
Heavy Trucks:	60.7	58.8	55.4	60.0	66.2	66.3
Vehicle Noise:	67.4	66.9	64.9	63.9	70.8	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	90	193	417
CNEL:	44	94	202	436

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP RIRO
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,715 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,097 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.04	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-18.28	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-22.23	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	66.2	64.9	58.9	67.3	68.0
Medium Trucks:	60.2	58.4	50.8	59.6	65.8	65.8
Heavy Trucks:	61.5	59.5	56.1	60.8	67.0	67.1
Vehicle Noise:	68.2	67.6	65.6	64.6	71.5	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	101	217	467
CNEL:	49	105	226	488

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP RIRO
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,096 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	315 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.21	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-22.08	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.86	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	59.6	58.2	52.2	60.6	61.3
Medium Trucks:	55.6	53.7	45.9	55.1	61.3	61.3
Heavy Trucks:	62.6	60.7	52.9	62.1	68.3	68.3
Vehicle Noise:	64.8	63.7	59.5	63.3	69.6	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	259	559
CNEL:	57	123	264	569

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP RIRO
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,397	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	334	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-6.96	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-21.83	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.61	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.7	59.9	58.5	52.4	60.9	61.5
Medium Trucks:	55.8	53.9	46.1	55.4	61.5	61.5
Heavy Trucks:	62.8	60.9	53.2	62.4	68.5	68.6
Vehicle Noise:	65.1	63.9	59.8	63.5	69.9	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	270	581
CNEL:	59	127	274	591

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP FULL
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,716	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,097	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.04	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-18.28	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-22.23	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.2	66.2	64.9	58.9	67.3	68.0
Medium Trucks:	60.2	58.4	50.8	59.6	65.8	65.8
Heavy Trucks:	61.5	59.5	56.1	60.8	67.0	67.1
Vehicle Noise:	68.2	67.6	65.6	64.6	71.5	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	47	101	217	467
CNEL:	49	105	226	488

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP FULL
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,799	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,164	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-0.78	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-18.02	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-21.98	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.4	66.5	65.2	59.2	67.6	68.2
Medium Trucks:	60.4	58.6	51.1	59.9	66.0	66.1
Heavy Trucks:	61.7	59.8	56.4	61.0	67.2	67.3
Vehicle Noise:	68.4	67.9	65.9	64.9	71.8	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	49	105	225	485
CNEL:	51	109	236	508

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP FULL
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,959	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	926	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.77	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-19.01	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-22.97	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.4	65.5	64.2	58.2	66.6	67.2
Medium Trucks:	59.4	57.6	50.1	58.9	65.0	65.1
Heavy Trucks:	60.7	58.8	55.4	60.0	66.2	66.3
Vehicle Noise:	67.4	66.9	64.9	63.9	70.8	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	193	417
CNEL:	44	94	202	436

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP FULL
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,096 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	315 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.21	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-22.08	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.86	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.4	59.6	58.2	52.2	60.6	61.3
Medium Trucks:	55.6	53.7	45.9	55.1	61.3	61.3
Heavy Trucks:	62.6	60.7	52.9	62.1	68.3	68.3
Vehicle Noise:	64.8	63.7	59.5	63.3	69.6	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	259	559
CNEL:	57	123	264	569

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,370 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,509 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.35	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-16.89	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.85	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	67.6	66.3	60.3	68.7	69.3
Medium Trucks:	61.6	59.7	52.2	61.0	67.2	67.2
Heavy Trucks:	62.9	60.9	57.5	62.2	68.4	68.5
Vehicle Noise:	69.6	69.0	67.0	66.0	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	124	268	577
CNEL:	60	130	280	603

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP FULL
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,266 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	326 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-7.07	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-21.93	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.72	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.6	59.8	58.3	52.3	60.8	61.4
Medium Trucks:	55.7	53.8	46.0	55.2	61.4	61.4
Heavy Trucks:	62.7	60.8	53.1	62.3	68.4	68.5
Vehicle Noise:	65.0	63.8	59.7	63.4	69.8	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	123	265	571
CNEL:	58	125	270	581

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,273 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	2,121 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.83	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.41	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.37	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.0	69.1	67.8	61.8	70.2	70.8
Medium Trucks:	63.0	61.2	53.7	62.5	68.6	68.7
Heavy Trucks:	64.3	62.4	59.0	63.6	69.8	69.9
Vehicle Noise:	71.0	70.5	68.5	67.5	74.4	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	156	336	724
CNEL:	76	163	352	757

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Glen Ivy Senior Com.
Road Name: Temescal Canyon Rd. | Job Number: 13032
Road Segment: s/o Dwy. 4

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,855	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,972	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.51	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.73	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.68	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	68.8	67.5	61.5	69.9	70.5
Medium Trucks:	62.7	60.9	53.4	62.1	68.3	68.4
Heavy Trucks:	64.0	62.1	58.7	63.3	69.5	69.6
Vehicle Noise:	70.7	70.2	68.2	67.1	74.1	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	320	690
CNEL:	72	155	335	721

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Glen Ivy Senior Com.
Road Name: Trilogy Pkwy. | Job Number: 13032
Road Segment: w/o Temescal Canyon Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,930	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	429	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.88	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-20.74	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.52	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	60.9	59.5	53.5	62.0	62.6
Medium Trucks:	56.9	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	63.9	62.0	54.2	63.5	69.6	69.6
Vehicle Noise:	66.2	65.0	60.9	64.6	71.0	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	318	686
CNEL:	70	150	324	698

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC | Project Name: Glen Ivy Senior Com.
Road Name: Trilogy Pkwy. | Job Number: 13032
Road Segment: w/o Dwy. 1

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,930	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	429	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.88	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-20.74	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.52	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	60.9	59.5	53.5	62.0	62.6
Medium Trucks:	56.9	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	63.9	62.0	54.2	63.5	69.6	69.6
Vehicle Noise:	66.2	65.0	60.9	64.6	71.0	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	318	686
CNEL:	70	150	324	698

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC RIRO | Project Name: Glen Ivy Senior Com.
Road Name: Temescal Canyon Rd. | Job Number: 13032
Road Segment: n/o Lawson Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,832	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,537	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.43	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-16.81	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.77	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	67.7	66.4	60.4	68.8	69.4
Medium Trucks:	61.6	59.8	52.3	61.1	67.2	67.3
Heavy Trucks:	63.0	61.0	57.6	62.2	68.4	68.5
Vehicle Noise:	69.6	69.1	67.1	66.1	73.0	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	584
CNEL:	61	132	284	611

Monday, December 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC RIRO
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,736 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	2,150 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.89	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.35	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.31	1.92	-1.20	-5.61	0.000	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	69.2	67.8	61.8	70.2	70.9
Medium Trucks:	63.1	61.3	53.8	62.5	68.7	68.7
Heavy Trucks:	64.4	62.4	59.1	63.7	69.9	70.0
Vehicle Noise:	71.1	70.5	68.5	67.5	74.4	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	339	731
CNEL:	76	165	355	764

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC RIRO
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,002 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	433 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.83	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-20.70	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.48	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	61.0	59.6	53.6	62.0	62.6
Medium Trucks:	57.0	55.1	47.3	56.5	62.6	62.7
Heavy Trucks:	64.0	62.1	54.3	63.5	69.7	69.7
Vehicle Noise:	66.2	65.0	60.9	64.6	71.0	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	691
CNEL:	70	151	326	703

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC RIRO
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,033 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,983 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.53	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.70	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.66	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	68.8	67.5	61.5	69.9	70.5
Medium Trucks:	62.7	60.9	53.4	62.2	68.3	68.4
Heavy Trucks:	64.1	62.1	58.7	63.3	69.5	69.6
Vehicle Noise:	70.8	70.2	68.2	67.2	74.1	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	692
CNEL:	72	156	336	724

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC RIRO
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,303 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	452 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.65	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-20.51	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.30	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.0	61.2	59.8	53.7	62.2	62.8
Medium Trucks:	57.1	55.2	47.5	56.7	62.8	62.9
Heavy Trucks:	64.2	62.3	54.5	63.7	69.8	69.9
Vehicle Noise:	66.4	65.2	61.1	64.8	71.2	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	153	330	710
CNEL:	72	156	335	723

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC FULL
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,832 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,537 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.43	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-16.81	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-20.77	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	67.7	66.4	60.4	68.8	69.4
Medium Trucks:	61.6	59.8	52.3	61.1	67.2	67.3
Heavy Trucks:	63.0	61.0	57.6	62.2	68.4	68.5
Vehicle Noise:	69.6	69.1	67.1	66.1	73.0	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	584
CNEL:	61	132	284	611

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC FULL
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,033 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,983 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.53	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.70	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.66	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	68.8	67.5	61.5	69.9	70.5
Medium Trucks:	62.7	60.9	53.4	62.2	68.3	68.4
Heavy Trucks:	64.1	62.1	58.7	63.3	69.5	69.6
Vehicle Noise:	70.8	70.2	68.2	67.2	74.1	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	692
CNEL:	72	156	336	724

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC FULL
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,737 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	2,150 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.89	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.35	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.31	1.92	-1.20	-5.61	0.000	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	69.2	67.8	61.8	70.2	70.9
Medium Trucks:	63.1	61.3	53.8	62.5	68.7	68.7
Heavy Trucks:	64.4	62.4	59.1	63.7	69.9	70.0
Vehicle Noise:	71.1	70.5	68.5	67.5	74.4	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	73	157	339	731
CNEL:	76	165	355	764

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC FULL
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,002 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	433 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.83	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-20.70	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.48	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.8	61.0	59.6	53.6	62.0	62.6
Medium Trucks:	57.0	55.1	47.3	56.5	62.6	62.7
Heavy Trucks:	64.0	62.1	54.3	63.5	69.7	69.7
Vehicle Noise:	66.2	65.0	60.9	64.6	71.0	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	691
CNEL:	70	151	326	703

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC FULL
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,172	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	444	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.73	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	79.45	-20.59	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.37	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.9	61.1	59.7	53.7	62.1	62.8
Medium Trucks:	57.1	55.2	47.4	56.6	62.7	62.8
Heavy Trucks:	64.1	62.2	54.4	63.6	69.8	69.8
Vehicle Noise:	66.3	65.1	61.0	64.7	71.1	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	326	702
CNEL:	71	154	331	714

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,937	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	2,472	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	2.49	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-14.75	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-18.70	1.92	-1.20	*-5.61*	0.000	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	69.8	68.4	62.4	70.9	71.5
Medium Trucks:	63.7	61.9	54.4	63.1	69.3	69.3
Heavy Trucks:	65.0	63.1	59.7	64.3	70.5	70.6
Vehicle Noise:	71.7	71.1	69.1	68.1	75.0	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	80	173	372	802
CNEL:	84	181	389	839

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,390	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	1,881	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.30	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-15.93	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-19.89	1.92	-1.20	*-5.61*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	68.6	67.3	61.2	69.7	70.3
Medium Trucks:	62.5	60.7	53.2	61.9	68.1	68.2
Heavy Trucks:	63.8	61.9	58.5	63.1	69.3	69.4
Vehicle Noise:	70.5	70.0	67.9	66.9	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	310	669
CNEL:	70	151	325	699

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4

Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,707	vehicles
Peak Hour Percentage:	6.19%	
Peak Hour Volume:	2,272	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	37.0	feet
Centerline Dist. to Observer:	37.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	2.12	1.88	-1.20	*-4.56*	0.000	0.000
Medium Trucks:	77.72	-15.11	1.93	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-19.07	1.92	-1.20	*-5.61*	0.000	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	69.4	68.1	62.1	70.5	71.1
Medium Trucks:	63.3	61.5	54.0	62.8	68.9	69.0
Heavy Trucks:	64.6	62.7	59.3	63.9	70.1	70.2
Vehicle Noise:	71.3	70.8	68.8	67.8	74.7	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	76	163	352	758
CNEL:	79	171	368	793

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,579 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	531 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.95	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-19.82	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.60	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	61.9	60.5	54.4	62.9	63.5
Medium Trucks:	57.8	55.9	48.2	57.4	63.5	63.6
Heavy Trucks:	64.9	63.0	55.2	64.4	70.5	70.6
Vehicle Noise:	67.1	65.9	61.8	65.5	71.9	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	367	791
CNEL:	80	173	373	805

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP RIRO
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,852 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,910 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.37	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.87	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.82	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	68.6	67.3	61.3	69.7	70.4
Medium Trucks:	62.6	60.8	53.3	62.0	68.2	68.2
Heavy Trucks:	63.9	61.9	58.5	63.2	69.4	69.5
Vehicle Noise:	70.6	70.0	68.0	67.0	73.9	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	145	313	675
CNEL:	71	152	328	706

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,579 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	531 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.95	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-19.82	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.60	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	61.9	60.5	54.4	62.9	63.5
Medium Trucks:	57.8	55.9	48.2	57.4	63.5	63.6
Heavy Trucks:	64.9	63.0	55.2	64.4	70.5	70.6
Vehicle Noise:	67.1	65.9	61.8	65.5	71.9	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	367	791
CNEL:	80	173	373	805

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP RIRO
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,400 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	2,501 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.54	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-14.70	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.65	1.92	-1.20	-5.61	0.000	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	69.8	68.5	62.5	70.9	71.5
Medium Trucks:	63.7	61.9	54.4	63.2	69.4	69.4
Heavy Trucks:	65.1	63.1	59.7	64.4	70.6	70.6
Vehicle Noise:	71.8	71.2	69.2	68.2	75.1	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	375	808
CNEL:	85	182	392	845

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP RIRO
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,885 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	2,283 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.15	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.09	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.05	1.92	-1.20	-5.61	0.000	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	69.4	68.1	62.1	70.5	71.1
Medium Trucks:	63.3	61.5	54.0	62.8	69.0	69.0
Heavy Trucks:	64.7	62.7	59.3	64.0	70.2	70.3
Vehicle Noise:	71.4	70.8	68.8	67.8	74.7	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	353	761
CNEL:	80	171	369	795

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP RIRO
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,952 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	554 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.76	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-19.63	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.41	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.9	62.1	60.7	54.6	63.1	63.7
Medium Trucks:	58.0	56.1	48.3	57.5	63.7	63.7
Heavy Trucks:	65.0	63.1	55.4	64.6	70.7	70.8
Vehicle Noise:	67.3	66.1	62.0	65.7	72.1	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	175	378	814
CNEL:	83	178	384	828

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP RIRO
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,651 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	535 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.91	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-19.78	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.56	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	61.9	60.5	54.5	62.9	63.6
Medium Trucks:	57.9	56.0	48.2	57.4	63.6	63.6
Heavy Trucks:	64.9	63.0	55.2	64.4	70.6	70.6
Vehicle Noise:	67.1	66.0	61.8	65.6	71.9	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	171	369	795
CNEL:	81	174	376	809

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP FULL
Road Name: Temescal Canyon Rd.
Road Segment: n/o Lawson Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,852 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,910 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.37	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.87	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.82	1.92	-1.20	-5.61	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	68.6	67.3	61.3	69.7	70.4
Medium Trucks:	62.6	60.8	53.3	62.0	68.2	68.2
Heavy Trucks:	63.9	61.9	58.5	63.2	69.4	69.5
Vehicle Noise:	70.6	70.0	68.0	67.0	73.9	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	145	313	675
CNEL:	71	152	328	706

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP FULL
Road Name: Temescal Canyon Rd.
Road Segment: n/o Trilogy Pkwy.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,401 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	2,501 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.54	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-14.70	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-18.65	1.92	-1.20	-5.61	0.000	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	69.8	68.5	62.5	70.9	71.5
Medium Trucks:	63.7	61.9	54.4	63.2	69.4	69.4
Heavy Trucks:	65.1	63.1	59.7	64.4	70.6	70.6
Vehicle Noise:	71.8	71.2	69.2	68.2	75.1	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	375	808
CNEL:	85	182	392	845

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP FULL
Road Name: Trilogy Pkwy.
Road Segment: w/o Dwy. 1
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,651 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	535 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.91	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-19.78	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.56	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.7	61.9	60.5	54.5	62.9	63.6
Medium Trucks:	57.9	56.0	48.2	57.4	63.6	63.6
Heavy Trucks:	64.9	63.0	55.2	64.4	70.6	70.6
Vehicle Noise:	67.1	66.0	61.8	65.6	71.9	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	80	171	369	795
CNEL:	81	174	376	809

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP FULL
Road Name: Temescal Canyon Rd.
Road Segment: s/o Dwy. 4
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,885 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	2,283 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	37.0 feet
Centerline Dist. to Observer:	37.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	36.851
Medium Trucks:	36.610
Heavy Trucks:	36.634

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.15	1.88	-1.20	-4.56	0.000	0.000
Medium Trucks:	77.72	-15.09	1.93	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-19.05	1.92	-1.20	-5.61	0.000	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	69.4	68.1	62.1	70.5	71.1
Medium Trucks:	63.3	61.5	54.0	62.8	69.0	69.0
Heavy Trucks:	64.7	62.7	59.3	64.0	70.2	70.3
Vehicle Noise:	71.4	70.8	68.8	67.8	74.7	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	353	761
CNEL:	80	171	369	795

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP FULL
Road Name: Trilogy Pkwy.
Road Segment: w/o Temescal Canyon Rd.
Project Name: Glen Ivy Senior Com.
Job Number: 13032

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,821 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	546 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-4.83	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	79.45	-19.69	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.48	-0.60	-1.20	-5.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	62.0	60.6	54.6	63.0	63.6
Medium Trucks:	58.0	56.1	48.3	57.5	63.6	63.7
Heavy Trucks:	65.0	63.1	55.3	64.5	70.7	70.7
Vehicle Noise:	67.2	66.0	61.9	65.6	72.0	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	374	806
CNEL:	82	177	380	820

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APPENDIX 8.1:

ON-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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

Scenario: First Floor With Wall
Road Name: Temescal Cyn. Rd.
Lot No: Memory Care

Project Name: Glen Ivy Senior Community
Job Number: 13032
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	75.0 feet
Centerline Dist. to Observer:	75.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	71.232
Medium Trucks:	71.108
Heavy Trucks:	71.120

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	0.59	-1.61	0.00	-4.73	0.000	0.000
Medium Trucks:	76.31	-14.28	-1.60	0.00	-4.88	0.000	0.000
Heavy Trucks:	81.16	-12.06	-1.60	0.00	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.3	66.4	65.1	59.1	67.5	68.1
Medium Trucks:	60.4	58.5	50.8	60.0	66.1	66.2
Heavy Trucks:	67.5	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	70.4	69.4	66.0	68.4	74.9	75.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.3	66.4	65.1	59.1	67.5	68.1
Medium Trucks:	60.4	58.5	50.8	60.0	66.1	66.2
Heavy Trucks:	67.5	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	70.4	69.4	66.0	68.4	74.9	75.0

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

Scenario: First Floor With Wall
Road Name: Trilogy Pkwy.
Lot No: Memory Care

Project Name: Glen Ivy Senior Community
Job Number: 13032
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	88.0 feet
Centerline Dist. to Observer:	88.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	84.812
Medium Trucks:	84.707
Heavy Trucks:	84.717

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	0.59	-2.36	0.00	-4.75	0.000	0.000
Medium Trucks:	76.31	-14.28	-2.36	0.00	-4.88	0.000	0.000
Heavy Trucks:	81.16	-12.06	-2.36	0.00	-5.20	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	65.7	64.4	58.3	66.8	67.4
Medium Trucks:	59.7	57.8	50.0	59.2	65.4	65.4
Heavy Trucks:	66.7	64.8	57.1	66.3	72.4	72.5
Vehicle Noise:	69.7	68.7	65.2	67.6	74.1	74.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	65.7	64.4	58.3	66.8	67.4
Medium Trucks:	59.7	57.8	50.0	59.2	65.4	65.4
Heavy Trucks:	66.7	64.8	57.1	66.3	72.4	72.5
Vehicle Noise:	69.7	68.7	65.2	67.6	74.1	74.2

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

Scenario: First Floor With Wall
Road Name: Temescal Cyn. Rd.
Lot No: Assisted Living

Project Name: Glen Ivy Senior Community
Job Number: 13032
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	270.0 feet
Centerline Dist. to Observer:	270.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	268.978
Medium Trucks:	268.945
Heavy Trucks:	268.948

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	0.59	-7.38	0.00	-4.85	0.000	0.000
Medium Trucks:	76.31	-14.28	-7.38	0.00	-4.89	0.000	0.000
Heavy Trucks:	81.16	-12.06	-7.38	0.00	-4.99	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	60.6	59.3	53.3	61.7	62.4
Medium Trucks:	54.7	52.8	45.0	54.2	60.3	60.4
Heavy Trucks:	61.7	59.8	52.0	61.3	67.4	67.4
Vehicle Noise:	64.7	63.6	60.2	62.6	69.1	69.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	60.6	59.3	53.3	61.7	62.4
Medium Trucks:	54.7	52.8	45.0	54.2	60.3	60.4
Heavy Trucks:	61.7	59.8	52.0	61.3	67.4	67.4
Vehicle Noise:	64.7	63.6	60.2	62.6	69.1	69.2

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

Scenario: First Floor With Wall
Road Name: Trilogy Pkwy.
Lot No: Independent Living

Project Name: Glen Ivy Senior Community
Job Number: 13032
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	154.0 feet
Centerline Dist. to Observer:	154.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	152.201
Medium Trucks:	152.142
Heavy Trucks:	152.148

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	0.59	-4.90	0.00	-4.81	0.000	0.000
Medium Trucks:	76.31	-14.28	-4.90	0.00	-4.89	0.000	0.000
Heavy Trucks:	81.16	-12.06	-4.90	0.00	-5.07	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	63.1	61.8	55.8	64.2	64.8
Medium Trucks:	57.1	55.2	47.5	56.7	62.8	62.9
Heavy Trucks:	64.2	62.3	54.5	63.7	69.9	69.9
Vehicle Noise:	67.1	66.1	62.7	65.1	71.6	71.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	63.1	61.8	55.8	64.2	64.8
Medium Trucks:	57.1	55.2	47.5	56.7	62.8	62.9
Heavy Trucks:	64.2	62.3	54.5	63.7	69.9	69.9
Vehicle Noise:	67.1	66.1	62.7	65.1	71.6	71.7

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

Scenario: Second Floor With Wall
Road Name: Temescal Cyn. Rd.
Lot No: Memory Care

Project Name: Glen Ivy Senior Community
Job Number: 13032
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	75.0 feet
Centerline Dist. to Observer:	75.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	72.422
Medium Trucks:	72.014
Heavy Trucks:	71.309

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	0.59	-1.68	0.00	-12.43	0.000	0.000
Medium Trucks:	76.31	-14.28	-1.65	0.00	-12.84	0.000	0.000
Heavy Trucks:	81.16	-12.06	-1.61	0.00	-13.88	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.3	66.3	65.0	59.0	67.4	68.1
Medium Trucks:	60.4	58.5	50.7	59.9	66.1	66.1
Heavy Trucks:	67.5	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	70.4	69.4	65.9	68.3	74.8	75.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.3	66.3	65.0	59.0	67.4	68.1
Medium Trucks:	60.4	58.5	50.7	59.9	66.1	66.1
Heavy Trucks:	67.5	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	70.4	69.4	65.9	68.3	74.8	75.0

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

Scenario: Second Floor With Wall
Road Name: Trilogy Pkwy.
Lot No: Memory Care

Project Name: Glen Ivy Senior Community
Job Number: 13032
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	88.0 feet
Centerline Dist. to Observer:	88.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	85.814
Medium Trucks:	85.469
Heavy Trucks:	84.876

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	0.59	-2.41	0.00	-12.61	0.000	0.000
Medium Trucks:	76.31	-14.28	-2.40	0.00	-12.97	0.000	0.000
Heavy Trucks:	81.16	-12.06	-2.37	0.00	-13.85	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	65.6	64.3	58.3	66.7	67.3
Medium Trucks:	59.6	57.7	50.0	59.2	65.3	65.4
Heavy Trucks:	66.7	64.8	57.1	66.3	72.4	72.5
Vehicle Noise:	69.6	68.6	65.2	67.6	74.1	74.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	65.6	64.3	58.3	66.7	67.3
Medium Trucks:	59.6	57.7	50.0	59.2	65.3	65.4
Heavy Trucks:	66.7	64.8	57.1	66.3	72.4	72.5
Vehicle Noise:	69.6	68.6	65.2	67.6	74.1	74.2

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

Scenario: Second Floor With Wall
Road Name: Temescal Cyn. Rd.
Lot No: Assisted Living

Project Name: Glen Ivy Senior Community
Job Number: 13032
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	270.0 feet
Centerline Dist. to Observer:	270.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	269.295
Medium Trucks:	269.186
Heavy Trucks:	268.998

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	0.59	-7.38	0.00	-13.34	0.000	0.000
Medium Trucks:	76.31	-14.28	-7.38	0.00	-13.46	0.000	0.000
Heavy Trucks:	81.16	-12.06	-7.38	0.00	-13.75	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	60.6	59.3	53.3	61.7	62.4
Medium Trucks:	54.7	52.8	45.0	54.2	60.3	60.4
Heavy Trucks:	61.7	59.8	52.0	61.3	67.4	67.4
Vehicle Noise:	64.7	63.6	60.2	62.6	69.1	69.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.6	60.6	59.3	53.3	61.7	62.4
Medium Trucks:	54.7	52.8	45.0	54.2	60.3	60.4
Heavy Trucks:	61.7	59.8	52.0	61.3	67.4	67.4
Vehicle Noise:	64.7	63.6	60.2	62.6	69.1	69.2

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

Scenario: Second Floor With Wall
Road Name: Trilogy Pkwy.
Lot No: Independent Living

Project Name: Glen Ivy Senior Community
Job Number: 13032
Analyst: B. Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,690 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	154.0 feet
Centerline Dist. to Observer:	154.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	152.761
Medium Trucks:	152.568
Heavy Trucks:	152.236

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	67.36	0.59	-4.92	0.00	-13.08	0.000	0.000
Medium Trucks:	76.31	-14.28	-4.91	0.00	-13.28	0.000	0.000
Heavy Trucks:	81.16	-12.06	-4.90	0.00	-13.79	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	63.1	61.8	55.8	64.2	64.8
Medium Trucks:	57.1	55.2	47.4	56.7	62.8	62.8
Heavy Trucks:	64.2	62.3	54.5	63.7	69.9	69.9
Vehicle Noise:	67.1	66.1	62.7	65.1	71.5	71.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	63.1	61.8	55.8	64.2	64.8
Medium Trucks:	57.1	55.2	47.4	56.7	62.8	62.8
Heavy Trucks:	64.2	62.3	54.5	63.7	69.9	69.9
Vehicle Noise:	67.1	66.1	62.7	65.1	71.5	71.7

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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13032 - Glen Ivy Senior Community

CadnaA Noise Prediction Model: 13032-02_Construction.cna
Date: 13.12.20
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	61.9	61.9	68.6	80.0	0.0	0.0				5.00	a	6183958.72	2224543.08	5.00
RECEIVERS		R2	66.7	66.7	73.3	80.0	0.0	0.0				5.00	a	6186255.60	2224231.45	5.00
RECEIVERS		R3	72.4	72.4	79.0	80.0	0.0	0.0				5.00	a	6185409.24	2223921.12	5.00
RECEIVERS		R3	72.4	72.4	79.1	80.0	0.0	0.0				5.00	a	6184993.32	2224168.60	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
SITEBOUNDARY		CONSTRUCTION	121.4	121.4	121.4	75.3	75.3	75.3	Lw''	75.3					8

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a		6184962.44	2224564.03	8.00	0.00
				6185194.69	2224614.68	8.00	0.00
				6185295.12	2224641.67	8.00	0.00
				6185445.89	2224691.16	8.00	0.00
				6185627.61	2224752.21	8.00	0.00
				6185656.35	2224738.36	8.00	0.00
				6185862.21	2224185.24	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6185336.94	2223989.40	8.00	0.00
			6185037.38	2224251.65	8.00	0.00

Barrier(s)

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

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height	Coordinates			
						Begin	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)