Appendix I

Noise Study

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CIELO VISTA

NOISE STUDY

COUNTY OF ORANGE, CALIFORNIA

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CIELO VISTA
NOISE STUDY (REVISED)
COUNTY OF ORANGE, CALIFORNIA

1.0 EXECUTIVE SUMMARY

This revised noise study has been completed to determine the potential noise impacts associated with the development of the proposed Cielo Vista ("Project"). The Project proposes to develop up to 112 single family detached residential dwelling units on approximately 84 acres. The single-family dwellings and associated infrastructure would be developed on approximately 47.64 acres (57%) of the site. Residential land use within the two Planning Areas would occur at a gross density of 1.4 dwelling units per acre. The minimum area of the residential lots would be 7,200 square feet and the average lot size would be approximately 32,811 square feet. Residences would be single-family front loaded homes and with a mix of configurations and designs. The project is within the City of Yorba Linda Sphere of Influence (SOI).

This noise study has been prepared to satisfy the County of Orange noise criteria and briefly details the proposed project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for traffic noise analysis, evaluates the future off-site exterior noise environment, and reviews the potential construction related noise impacts.

1.1 OFF-SITE TRAFFIC NOISE IMPACTS

Traffic generated by the Project will influence the traffic noise levels in surrounding areas. To quantify the traffic noise impacts on the surrounding areas, the changes in traffic noise levels on 32 roadway segments surrounding the Project site were estimated based on the change in the average daily traffic volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts provided in the *Cielo Vista Impact Analysis* prepared by Urban Crossroads, Inc. in February 2013. Consistent with the traffic impact analysis report, this noise study identifies the off-site without and with project traffic noise levels associated with the Existing, Opening Year (2015), Opening Year (2015) Access Alternative via Aspen Way, Horizon Year (2035), and Horizon Year (2035) Access Alternative via Aspen Way conditions.

To assess the noise level impacts associated with the Project, noise level contour boundaries were developed for each of the ten project analysis conditions. In order for a transportation related noise impact to be considered a significant impact, the project traffic must create a noise level increase of 3.0 dBA or greater and exceed the County of Orange 65 dBA CNEL exterior noise level standard. This analysis shows that the development of the Project will not exceed the 65 dBA CNEL exterior noise level standard and increase the noise levels by up to 2.3 dBA CNEL for future long-range year horizon year 2035 conditions and, therefore, will not generate a substantial permanent increase in transportation related ambient noise levels.

1.2 ON-SITE TRAFFIC NOISE IMPACTS

It is expected that the primary source of noise impacts to the project site will be traffic noise from neighboring roads such as Aspen Way and Via Del Agua. The project will also experience some background traffic noise impacts from the project's internal roads, however due to the distance, topography and low traffic volume/speed, traffic noise from these roads will not make a significant contribution to the noise environment.

Since the Project is not located immediately adjacent to any collector, secondary, major or arterial roadway, the expected exterior noise levels will not approach or exceed the County of Orange 65 dBA CNEL exterior noise criteria. At a distance of 100 feet, the noise levels from the nearest streets (Aspen Way, Via Del Agua) are expected to range from 51.1 to 56.7 dBA CNEL. The County of Orange General Plan Policy 6.5 indicates that all outdoor living areas associated with new residential uses shall be attenuated to less than 65 dBA CNEL. The Project is consistent with this policy. There are no known noise generators impacting the Project that would result in outdoor noise levels exceeding 65 dBA CNEL.

Though the proposed project site does not contain noise sensitive exterior areas requiring noise mitigation (e.g. noise barriers), the interior noise level impacts must be reduced below the County of Orange 45 dBA CNEL interior noise level standard. Standard building construction will reduce the exterior noise levels by 12 dBA CNEL with the windows open. With exterior noise level of less than 56.7 dBA CNEL, standard building construction and a windows open condition will satisfy the County of Orange interior noise standard of 45 dBA CNEL.

1.3 CONSTRUCTION NOISE ANALYSIS

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment, including trucks, power tools, concrete mixers and portable generators can reach high levels. Noise levels generated by heavy construction equipment can range from approximately 70 dBA to noise levels in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 78 dBA measured at 50 feet from the noise source to the receptor would be reduced to 72 dBA at 100 feet from the source to the receptor, and would be further reduced to 66 dBA at 200 feet from the source to the receptor.

The short-term construction noise levels for each stage of construction indicates that at a distance of 50 feet, the project construction noise levels are expected to range from 74.0 to 87.1 dBA Leq. The analysis shows that the highest construction noise level impacts will occur during the site grading activities. Though construction noise is temporary, intermittent and of short duration, and will not present any long-term impacts, the following project design features should be implemented to minimize the potential construction equipment noise level impact to the nearby noise sensitive residential land uses.

- During all project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during all project construction.

- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment. Haul routes shall not pass sensitive land uses or residential dwellings.

1.4 SUMMARY OF FINDINGS

- The Project will not create a significant off-site traffic noise level impact and, therefore, will not generate a substantial permanent increase in transportation related ambient noise levels.

- The Project site does not contain noise sensitive exterior areas requiring noise mitigation (e.g. noise barriers). There are no known noise generators impacting the Project that would result in

- Construction noise is temporary, intermittent and of short duration, and will not present any long-term noise impacts.

2.0 INTRODUCTION

This revised noise study has been completed to determine the potential noise impacts associated with the development of the proposed Cielo Vista.

2.1 PURPOSE OF REPORT

This noise study briefly describes the proposed project, provides information regarding noise fundamentals, describes the local noise guidelines, provides the study methods and procedures for transportation noise analysis, and evaluates the future off-site and on-site exterior noise environment. Included in this study is an analysis of the potential noise impacts during construction activities. This study has been prepared to satisfy the County of Orange noise criteria.

2.2 SITE LOCATION

The proposed development is located in the County of Orange north of Via Del Agua and east of San Antonio Way. Exhibit 2-A illustrates the location of the project site within the County of Orange. Primary access to the project site will be provided from Via del Agua, located to the south, and would provide primary access for approximately 95 single family residential dwelling units. Aspen Way extends approximately 1,200 feet west of the project site connecting to San Antonio Road, which intersects with Yorba Linda Boulevard, and would provide access to approximately 17 single family residential dwelling units. The southerly access point for the project would be from Via del Agua, a local road, located to the south of the project site which connects with Yorba Linda Boulevard. As part of the approval of existing adjacent residential development, right of way was dedicated to allow for construction of a future street connecting the project site with Via Del Agua.

2.3 EXISTING ON-SITE AND SURROUNDING LAND USE

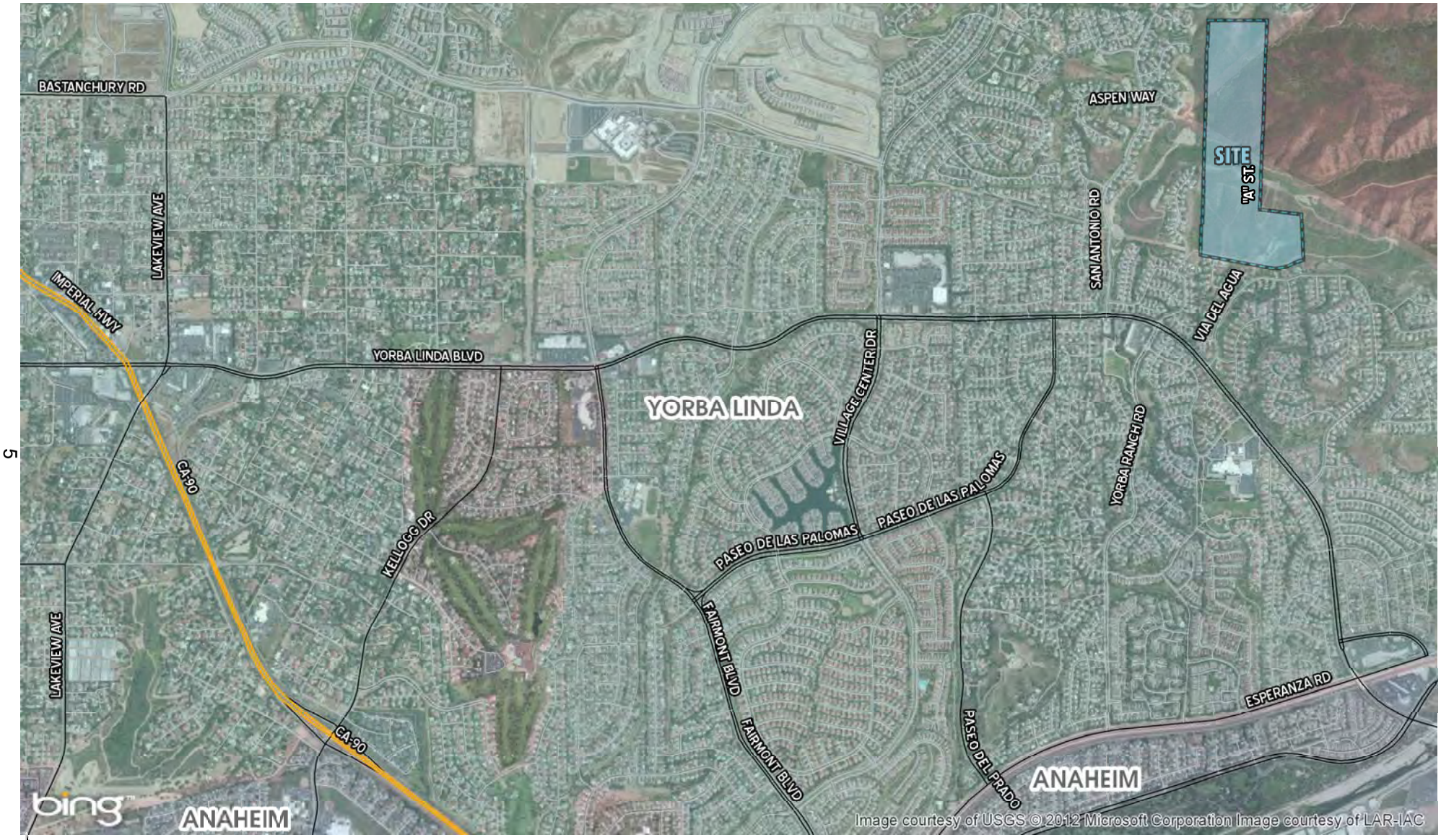
The land uses adjacent to the proposed site include existing single-family residential homes located to south and to the west, with vacant mountainous land to the east. Exhibit 2-B shows the proposed Cielo Vista site plan.

2.4 PROPOSED PROJECT

The proposed Project will develop up to 112 single family detached residential dwelling units on approximately 84 acres. The single-family dwellings and associated infrastructure would be developed on approximately 47.64 acres (57%) of the site. Residential land use within the two Planning Areas would occur at a gross density of 1.4 dwelling units per acre. The minimum area of the residential lots would be 7,200 square feet and the average lot size would be approximately 32,811 square feet. Residences would be single-family front loaded homes and with a mix of configurations and designs.

EXHIBIT 2-A

LOCATION MAP



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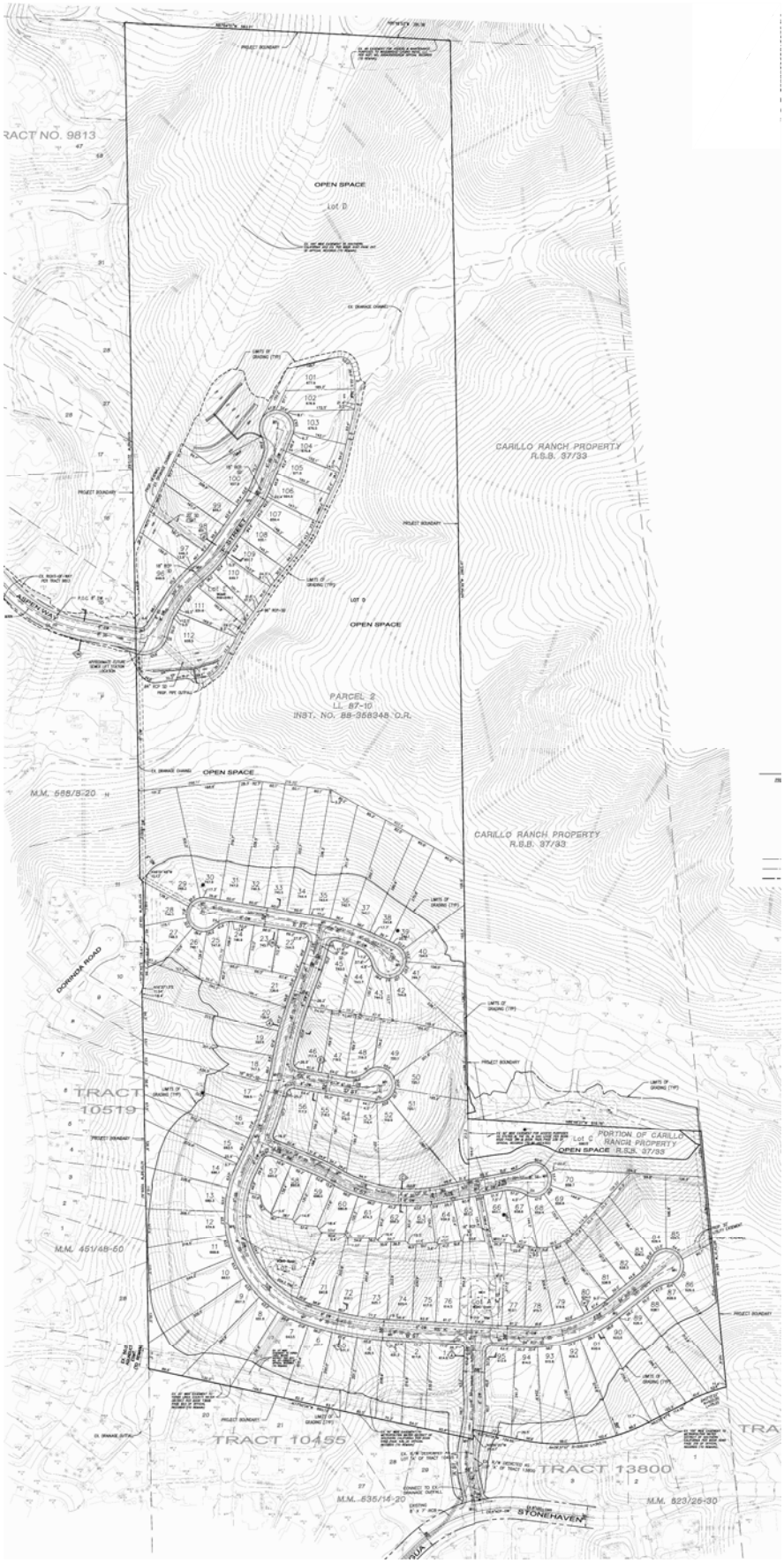
Cielo Vista Noise Study
County of Orange, CA (JN - 07148:locmap.mxd)

URBAN CROSSROADS

EXHIBIT 2-B

SITE PLAN



3.0 NOISE FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 3-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

3.1 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. 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, which can cause serious discomfort.

3.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (Leq). 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 (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. In addition, the hourly Leq is the noise metric used to collect short-term noise level measurement samples and to estimate the 24-hour Community Noise Equivalent Levels (CNEL).

The CNEL is the weighted average of the intensity of a sound with corrections for time of day and averaged over 24 hours. CNEL does not represent the actual sound level heard at any particular time, but rather represents the total sound exposure. The time of day corrections require the addition of 5 decibels to dBA Leq sound levels in the evening from 7 p.m. to 10 p.m., and the addition of 10 decibels to dBA Leq sound levels at night between 10 p.m. and 7 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound is perceived to be louder.

EXHIBIT 3-A

TYPICAL NOISE LEVELS AND THEIR SUBJECTIVE LOUDNESS AND EFFECTS

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: NOISE TECHNICAL SUPPLEMENT BY CALTRANS

3.3 TRAFFIC NOISE PREDICTION

The level of traffic noise depends on three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and a greater number of trucks. A doubling of the traffic volume (assuming that the speed and truck mix do not change) results in a noise level increase of 3 dBA. The truck mix on a given roadway may also have an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires.

3.4 NOISE CONTROL

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

3.5 GROUND ABSORPTION

To account for the ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft site and hard site conditions. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. A drop-off rate of 4.5 dBA per doubling of distance is typically observed over soft ground with landscaping, as compared with a 3.0 dBA drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. Based on our experience, soft site conditions better reflect the predicted noise levels. In addition, Caltrans' research has shown that the use of soft site conditions is more appropriate for the application of the FHWA traffic noise prediction model used in this analysis.

3.6 COMMUNITY RESPONSE TO NOISE

Approximately ten (10) percent of the population has a very low tolerance for noise, and will object to any noise not of their own making. Consequently, even in the quietest environment, some complaints will occur. Another 25 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.

Despite this variability in behavior on an individual level, the population as a whole can be expected to exhibit the following responses to changes in noise levels. An increase or decrease of 1.0 dBA cannot be perceived except in carefully controlled laboratory experiments. A 3.0 dBA increase may be

perceptible outside of the laboratory. An increase of 5.0 dBA is often necessary before any noticeable change in community response (i.e., complaints) would be expected.

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon each individual'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 of the receptor;
- Noise receptor's perception that they are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Receptor's belief that the noise source can be controlled.

Recent studies have shown that changes in long-term noise levels are noticeable, and are responded to by people. For example, about ten (10) percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one (1) dBA is associated with approximately two (2) percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people begin complaining. Group or legal actions to stop the noise should be expected to begin at traffic noise levels near 70 dBA and aircraft noise levels near 65 dBA.

3.7 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 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.

4.0 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 fairly 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.

4.1 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 according to guidelines adopted by the Governor's Office of Planning and Research. The purpose of the Noise Element is to "limit the exposure of the community to excessive noise levels". In addition, the (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts. Under CEQA, a project has a potentially significant impact if the Project is determined to result in or cause:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
- A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project?
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.2 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 the purpose of 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 located 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 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.

4.3 COUNTY OF ORANGE TRANSPORTATION NOISE STANDARDS

Orange County General Plan Noise sensitive land uses are defined as those specific land uses that have associated indoor and/or outdoor human activities that may be subject to stress and/or significant interference from noise produced by community sound sources. Such human activity typically occurs daily for continuous periods of 24 hours or is of such a nature that noise is significantly disruptive to activities that occur for shorter periods. Specifically, noise sensitive land uses include: residents of all types, hospitals, rest homes, convalescent hospitals, places of worship, and schools.

The County of Orange Noise Element specifies the maximum allowable unmitigated exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. The Noise Element has identified policies to control the potential noise level impacts for noise sensitive land uses that include: residents of all types, hospitals, rest homes, convalescent hospitals, places of worship, and schools. Policy 6.3 requires that all new residential units have an interior noise level in living areas that is not greater than 45 dBA CNEL. In addition, Policy 6.5 requires that all outdoor living areas associated with new residential uses shall be attenuated to less than 65 dBA CNEL. The County of Orange Noise Element is included in Appendix 4.1.

4.4 COUNTY OF ORANGE STATIONARY SOURCE NOISE STANDARDS

The County of Orange Noise Control Ordinance included the municipal code (Section 4-6-1 to Section 4-6-16) establishes the maximum permissible noise level that may intrude into a neighbor's property. The Noise Control Ordinance (originally adopted in 1973) establishes noise level standards for various land use categories affected by stationary noise sources. For residential properties, the exterior noise level shall not exceed 55 dBA Leq during daytime hours (7:00 AM to 10:00 PM) and shall not exceed 50 dBA Leq during the nighttime hours (10:00 PM to 7:00 AM) for more than 30 minutes in any hour. For events with shorter duration, these noise levels are adjusted upwards accordingly. The County of Orange Noise Control Ordinance is included in Appendix 4.2.

4.5 COUNTY OF ORANGE CONSTRUCTION NOISE STANDARDS

Section 4-6-7(e) of the County's Noise Control Ordinance indicates that noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place

between the hours of 8:00 PM to 7:00 AM on weekdays, including Saturday, or at any time on Sunday or Federal Holiday are exempt.

4.6 SIGNIFICANCE CRITERIA

The following significance criteria are based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels and the location of noise-sensitive receptors in order to determine if a noise increase represents a significant adverse environmental effect. The Federal Highway Administration and Caltrans both identify changes in noise levels of greater than 3 dBA as "barely perceptible," while changes of 5 dBA are considered "readily perceptible." In a community situation, the noise exposure is extended over a long time period, and changes in noise levels occur over a period of years. For the purpose of this analysis, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dBA, and 3 dBA appears to be appropriate for most people. Noise impacts shall be considered significant if any of the following occur as a result of the proposed development:

- If, as a direct result of the proposed development, noise levels for any existing or planned development will exceed the County of Orange 65 dBA CNEL exterior noise level standard for new residential uses.
- If, as a direct result of the proposed development, noise levels which already exceed the levels considered compatible for that use are increased by 3 dBA or more.

5.0 METHODS AND PROCEDURES

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

5.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The projected roadway noise impacts from vehicular traffic were projected using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model - FHWA-RD-77-108 (the "FHWA Model"). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). 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.

Table 5-1 presents the FHWA Traffic Noise Prediction Model roadway parameters used in this analysis. The roadway classifications and volumes for the roadways adjacent to the project site were determined based on the County of Orange Roadway General Plan Circulation Element roadway classifications.

Table 5-2 presents the hourly 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 Model.

5.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The average daily traffic volumes used for the off-site traffic noise prediction model are shown on in Table 5-3, and were taken from *Cielo Vista Traffic Impact Analysis* prepared by Urban Crossroads, Inc. in February 2013. Table 5-3 provides the Average Daily Traffic Volumes used in the noise analysis for Existing, Opening Year (2015), Opening Year (2015) Access Alternative via Aspen Way, Horizon Year (2035), and Horizon Year (2035) Access Alternative via Aspen Way conditions..

The off-site traffic noise prediction model inputs are used to calculate the reference CNEL dBA noise levels at a distance of 100 feet from the centerline for the 32 off-site study area roadway segments. Noise level contours represent the distance to noise levels of a constant value and are measured from the center of the roadway. In addition, noise level contours do not take into account the effect of any existing noise barriers, intervening buildings or topography.

Table 5-1

Off-Site Roadway Parameters

Roadway	Segment	Roadway Classification	Lanes	Vehicle Speed (MPH)
Lakeview Ave	North of Yorba Linda BL.	Primary	4	45
Lakeview Ave	South of Yorba Linda BL.	Primary	4	45
CA 90	North of Yorba Linda BL.	Local	2	40
CA 90	South of Yorba Linda BL.	Local	2	40
Kellogg Drive	South of Yorba Linda BL.	Secondary	2	45
Fairmont BL.	North of Yorba Linda BL.	Primary	4	45
Fairmont BL.	South of Yorba Linda Bl.	Primary	4	45
Village Center Drive	North of Yorba Linda BL.	Secondary	2	45
Village Center Drive	South of Yorba Linda BL.	Secondary	2	45
Paseo De Las Palomas	South of Yorba Linda Bl.	Primary	4	45
San Antonio Road	North of Aspen Way	Local	2	40
San Antonio Road	South of Aspen Way	Local	2	40
San Antonio Road	North of Yorba Linda BL.	Local	2	40
Yorba Ranch	North of Yorba Linda Bl.	Primary	4	45
Yorba Ranch	South of Yorba Linda Bl.	Primary	4	45
Via Del Agua	North "A" Street	Local	2	40
Via Del Agua	South of "A" Street	Local	2	40
Via Del Agua	North of Yorba Linda BL.	Local	2	40
Aspen Way	East of San Antonio Road	Local	2	40
Yorba Linda BL.	West of CA 90	Major	6	45
Yorba Linda BL.	Between CA 90 and Lakeview Ave	Major	6	45
Yorba Linda BL.	East of Lakeview Ave	Major	6	45
Yorba Linda BL.	West of Kellogg Drive	Major	6	45
Yorba Linda BL.	East of Kellogg Drive	Major	6	45
Yorba Linda BL.	East of Fairmont BL.	Primary	4	45
Yorba Linda BL.	West of Village Center Drive	Primary	4	45
Yorba Linda BL.	East of Village Center Drive	Primary	4	45
Yorba Linda BL.	West of Paseo De Las Palomas	Primary	4	45
Yorba Linda BL.	East of Paseo De Las Palomas	Primary	4	45
Yorba Linda BL.	West of Yorba Ranch Road	Primary	4	45
Yorba Linda BL.	East of Yorba Ranch Road	Primary	4	45
Yorba Linda BL.	East of Via Del Agua	Primary	4	45

Table 5-2

Hourly Traffic Flow Distribution [1]

Motor-Vehicle Type	Daytime (7 am to 7 pm)	Evening (7 pm to 10 pm)	Night (10 pm to 7 am)	Total % Traffic Flow
County of Orange				
Automobiles	77.5%	12.9%	9.6%	97.42%
Medium Trucks	84.8%	4.9%	10.3%	1.84%
Heavy Trucks	86.5%	2.7%	10.8%	0.74%

[1] Typical County of Orange vehicle mix.

Table 5-3 (1 of 2)

Average Daily Traffic Volumes

Roadway	Segment	Average Daily Traffic (1,000's)[1]									
		Existing		Year 2015		Year 2015 Alt[2]		Year 2035		Year 2035 Alt[2]	
		No Project	With Project	No Project	With Project	No Project	With Project	No Project	With Project	No Project	With Project
Lakeview Ave	North of Yorba Linda BL.	0.1	2.7	0.1	0.1	6.2	6.4	3.1	3.3	6.7	6.9
Lakeview Ave	South of Yorba Linda BL.	0.1	3.3	0.1	0.1	6.8	7.0	5.0	5.2	8.6	8.8
CA 90	North of Yorba Linda BL.	0.4	0.6	0.4	0.4	0.6	0.6	0.7	0.7	0.7	0.4
CA 90	South of Yorba Linda BL.	0.3	3.3	3.5	3.5	3.5	3.5	4.2	4.2	4.2	4.2
Kellogg Drive	South of Yorba Linda BL.	0.1	0.8	3.2	3.2	0.9	0.9	3.5	3.5	0.1	0.1
Fairmont BL.	North of Yorba Linda BL.	0.1	1.8	3.2	4.1	0.9	1.8	3.7	4.6	1.3	2.2
Fairmont BL.	South of Yorba Linda Bl.	1.6	2.5	4.0	4.9	1.6	2.5	4.6	5.5	2.2	0.1
Village Center Drive	North of Yorba Linda BL.	0.2	0.5	0.2	0.2	4.0	4.1	0.4	0.6	4.0	0.2
Village Center Drive	South of Yorba Linda BL.	0.1	21.2	22.4	22.5	22.4	22.5	24.4	24.5	24.4	24.5
Paseo De Las Palomas	South of Yorba Linda Bl.	31.6	31.7	34.3	34.5	34.2	34.5	37.1	37.3	37.1	37.3
San Antonio Road	North of Aspen Way	31.8	32.0	34.8	35.0	34.8	35.0	37.3	37.6	37.3	37.6
San Antonio Road	South of Aspen Way	0.0	26.3	28.9	29.1	28.9	29.1	30.7	31.0	30.7	31.0
San Antonio Road	North of Yorba Linda BL.	31.1	31.4	34.9	35.2	34.9	35.2	37.3	37.6	37.3	37.6
Yorba Ranch	North of Yorba Linda Bl.	21.7	22.1	24.1	24.5	24.1	24.5	25.0	25.4	25.0	25.4
Yorba Ranch	South of Yorba Linda Bl.	19.2	19.6	21.6	22.1	21.6	22.1	22.3	22.7	22.3	22.7
Via Del Agua	North "A" Street	24.0	24.6	27.5	28.1	27.5	28.1	28.3	28.8	28.3	28.8
Via Del Agua	South of "A" Street	25.5	26.1	29.0	29.6	29.0	29.6	30.0	30.5	30.0	30.5
Via Del Agua	North of Yorba Linda BL.	27.6	28.2	31.5	32.1	31.5	32.1	32.4	33.0	32.4	33.0
Aspen Way	East of San Antonio Road	0.0	28.7	32.0	32.6	31.2	31.9	37.2	37.9	36.5	37.2
Yorba Linda BL.	West of CA 90	26.8	27.5	30.8	31.5	29.8	30.5	35.9	36.6	34.9	35.6
Yorba Linda BL.	Between CA 90 and Lakeview Ave	26.3	26.7	28.0	28.4	29.3	29.7	33.1	33.5	34.3	34.7
Yorba Linda BL.	East of Lakeview Ave	0.3	10.9	0.3	0.3	11.5	11.5	16.2	16.2	16.2	16.2
Yorba Linda BL.	West of Kellogg Drive	0.3	13.7	14.8	14.9	14.8	14.9	18.3	18.4	18.3	18.4

Table 5-3 (2 of 2)

Average Daily Traffic Volumes

Roadway	Segment	Average Daily Traffic (1,000's)[1]									
		Existing		Year 2015		Year 2015 Alt[2]		Year 2035		Year 2035 Alt[2]	
		No Project	With Project	No Project	With Project	No Project	With Project	No Project	With Project	No Project	With Project
Yorba Linda BL.	East of Kellogg Drive	38.8	39.0	42.1	42.2	42.1	42.2	46.0	46.1	46.0	0.3
Yorba Linda BL.	East of Fairmont BL.	0.2	32.8	34.9	34.9	34.9	34.9	38.4	38.4	38.4	38.4
Yorba Linda BL.	West of Village Center Drive	0.2	8.2	9.2	9.3	9.2	9.3	10.0	10.0	10.0	10.0
Yorba Linda BL.	East of Village Center Drive	10.4	10.4	12.5	12.5	12.5	12.5	15.1	15.1	15.1	15.1
Yorba Linda BL.	West of Paseo De Las Palomas	0.3	9.9	10.6	10.6	10.6	10.6	11.3	11.4	11.3	11.4
Yorba Linda BL.	East of Paseo De Las Palomas	15.2	15.2	16.2	16.3	16.2	16.3	17.8	17.8	17.8	17.8
Yorba Linda BL.	West of Yorba Ranch Road	9.7	9.8	10.3	10.4	10.3	10.4	11.0	11.1	11.0	11.1
Yorba Linda BL.	East of Yorba Ranch Road	0.3	4.2	4.5	4.6	4.5	4.6	4.6	4.7	4.6	4.7
Yorba Linda BL.	East of Via Del Agua	3.1	3.3	3.2	3.4	6.8	7.0	5.0	5.5	8.6	8.8

[1] Traffic volumes according to the Cielo Vista Traffic Impact Analysis by Urban Crossroads, Inc. in February 2013.

[2] Access Alternative Via Aspen Way.

6.0 OFF-SITE TRAFFIC NOISE ANALYSIS

The traffic associated with future operations of the propose Project could potentially cause off-site noise impacts to surrounding off-site noise-sensitive uses. To assess the off-site traffic-related noise level impacts associated with the Project, the CNEL levels at a distance of 100 feet from the traffic study area roadway segments were developed for Existing, Opening Year (2015), Opening Year (2015) Access Alternative via Aspen Way, Horizon Year (2035), and Horizon Year (2035) Access Alternative via Aspen Way conditions..

6.1 OFF-SITE TRAFFIC NOISE CONTOURS

To quantify the Project's traffic noise impacts on the surrounding off-site areas, the changes in traffic noise levels on 32 roadway segments surrounding the proposed project site were estimated based on the changes in the average daily traffic volumes. The off-site noise contours were used to assess the Project's incremental off-site traffic-related noise impacts at land uses adjacent to roadways conveying project traffic. Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 55, 60, 65 and 70 dBA noise levels.

The noise contours do not take into account the effect of any existing noise barriers or topography that may affect ambient noise levels. In addition, since the noise contours reflect modeling of vehicular noise along area roadways, they appropriately do not reflect noise contribution from the surrounding activities within the project study area. Tables 6-1 and 6-2 present the existing without and with project conditions. Tables 6-3 and 6-4 present the without and with project noise level contours for 2015 conditions. Tables 6-5 and 6-6 present the without and with project noise level contours for 2015 conditions access alternative via Aspen Way. Tables 6-7 and 6-8 present the without and with project noise level contours for 2035 conditions. Tables 6-9 and 6-10 present the without and with project noise level contours for 2035 conditions access alternative via Aspen Way. The off-site traffic noise analysis worksheets are included in Appendix 6.1.

6.2 OFF-SITE PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Based on the community noise assessment criteria, a significant off-site traffic noise impact would occur if the Project were to create a noise level increase in the area adjacent to the roadway segment of greater than 3.0 dBA or greater and exceed the County of Orange 65 dBA CNEL exterior noise level standard.

6.2.1 EXISTING CONDITIONS

As shown on Table 6-11, for Existing (2012) conditions, the Project will increase the off-site traffic noise levels from 0.0 to 2.2 dBA CNEL on 31 of the 32 off-site roadway segments. For existing with project conditions the roadway segment Via Del Agua south of "A" street is expected to experience a noise level

Table 6-1

Existing (2012) Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	62.6	RW	69	148	319
Lakeview Ave	South of Yorba Linda BL.	63.5	RW	80	172	371
CA 90	North of Yorba Linda BL.	66.6	59	127	275	592
CA 90	South of Yorba Linda BL.	65.9	53	114	246	529
Kellogg Drive	South of Yorba Linda BL.	61.1	RW	55	119	257
Fairmont BL.	North of Yorba Linda BL.	62.3	RW	67	143	309
Fairmont BL.	South of Yorba Linda Bl.	62.1	RW	64	138	297
Village Center Drive	North of Yorba Linda BL.	63.9	RW	84	181	391
Village Center Drive	South of Yorba Linda BL.	61.9	RW	62	134	290
Paseo De Las Palomas	South of Yorba Linda Bl.	58.3	RW	RW	77	166
San Antonio Road	North of Aspen Way	55.6	RW	RW	51	110
San Antonio Road	South of Aspen Way	54.7	RW	RW	RW	95
San Antonio Road	North of Yorba Linda BL.	55.6	RW	RW	51	110
Yorba Ranch	North of Yorba Linda Bl.	50.0	RW	RW	RW	RW
Yorba Ranch	South of Yorba Linda Bl.	57.4	RW	RW	67	144
Via Del Agua	North "A" Street	49.7	RW	RW	RW	RW
Via Del Agua	South of "A" Street	49.7	RW	RW	RW	RW
Via Del Agua	North of Yorba Linda BL.	52.7	RW	RW	RW	71
Aspen Way	East of San Antonio Road	45.5	RW	RW	RW	RW
Yorba Linda BL.	West of CA 90	65.7	52	111	239	516
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.4	68	145	313	675
Yorba Linda BL.	East of Lakeview Ave	67.5	68	146	315	678
Yorba Linda BL.	West of Kellogg Drive	66.6	59	128	275	593
Yorba Linda BL.	East of Kellogg Drive	67.4	67	144	310	668
Yorba Linda BL.	East of Fairmont BL.	65.5	50	109	234	505
Yorba Linda BL.	West of Village Center Drive	65.0	RW	100	216	465
Yorba Linda BL.	East of Village Center Drive	66.0	54	116	250	540
Yorba Linda BL.	West of Paseo De Las Palomas	66.2	56	121	261	562
Yorba Linda BL.	East of Paseo De Las Palomas	66.6	59	128	275	592
Yorba Linda BL.	West of Yorba Ranch Road	66.7	60	129	278	599
Yorba Linda BL.	East of Yorba Ranch Road	66.5	58	125	270	581
Yorba Linda BL.	East of Via Del Agua	66.4	57	124	266	574

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-2

Existing (2012) With Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	62.6	RW	69	148	319
Lakeview Ave	South of Yorba Linda BL.	63.5	RW	80	172	371
CA 90	North of Yorba Linda BL.	66.6	59	128	276	594
CA 90	South of Yorba Linda BL.	65.9	53	114	246	529
Kellogg Drive	South of Yorba Linda BL.	61.2	RW	56	120	259
Fairmont BL.	North of Yorba Linda BL.	62.3	RW	67	143	309
Fairmont BL.	South of Yorba Linda Bl.	62.1	RW	64	139	299
Village Center Drive	North of Yorba Linda BL.	63.9	RW	84	181	391
Village Center Drive	South of Yorba Linda BL.	62.0	RW	63	135	292
Paseo De Las Palomas	South of Yorba Linda Bl.	58.4	RW	RW	78	169
San Antonio Road	North of Aspen Way	55.9	RW	RW	53	114
San Antonio Road	South of Aspen Way	55.0	RW	RW	RW	100
San Antonio Road	North of Yorba Linda BL.	55.9	RW	RW	53	114
Yorba Ranch	North of Yorba Linda Bl.	50.0	RW	RW	RW	RW
Yorba Ranch	South of Yorba Linda Bl.	57.4	RW	RW	67	144
Via Del Agua	North "A" Street	49.7	RW	RW	RW	RW
Via Del Agua	South of "A" Street	53.2	RW	RW	RW	76
Via Del Agua	North of Yorba Linda BL.	54.7	RW	RW	RW	95
Aspen Way	East of San Antonio Road	47.7	RW	RW	RW	RW
Yorba Linda BL.	West of CA 90	65.7	52	111	240	517
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.5	68	146	314	677
Yorba Linda BL.	East of Lakeview Ave	67.5	68	147	316	681
Yorba Linda BL.	West of Kellogg Drive	66.6	60	129	277	597
Yorba Linda BL.	East of Kellogg Drive	67.4	67	145	312	672
Yorba Linda BL.	East of Fairmont BL.	65.6	51	110	237	511
Yorba Linda BL.	West of Village Center Drive	65.1	RW	102	219	471
Yorba Linda BL.	East of Village Center Drive	66.1	55	118	255	549
Yorba Linda BL.	West of Paseo De Las Palomas	66.3	57	123	265	571
Yorba Linda BL.	East of Paseo De Las Palomas	66.7	60	129	279	601
Yorba Linda BL.	West of Yorba Ranch Road	66.8	61	131	282	608
Yorba Linda BL.	East of Yorba Ranch Road	66.6	59	127	274	591
Yorba Linda BL.	East of Via Del Agua	66.4	58	125	269	579

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-3

Year 2015 Without Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	62.8	RW	71	153	330
Lakeview Ave	South of Yorba Linda BL.	63.9	RW	84	181	391
CA 90	North of Yorba Linda BL.	66.9	62	135	290	625
CA 90	South of Yorba Linda BL.	66.1	55	119	256	551
Kellogg Drive	South of Yorba Linda BL.	61.7	RW	60	130	280
Fairmont BL.	North of Yorba Linda BL.	63.1	RW	75	162	349
Fairmont BL.	South of Yorba Linda Bl.	62.4	RW	67	145	313
Village Center Drive	North of Yorba Linda BL.	64.2	RW	88	189	408
Village Center Drive	South of Yorba Linda BL.	62.2	RW	65	140	301
Paseo De Las Palomas	South of Yorba Linda Bl.	58.7	RW	RW	82	177
San Antonio Road	North of Aspen Way	55.7	RW	RW	52	112
San Antonio Road	South of Aspen Way	54.8	RW	RW	RW	98
San Antonio Road	North of Yorba Linda BL.	55.7	RW	RW	52	112
Yorba Ranch	North of Yorba Linda Bl.	50.0	RW	RW	RW	RW
Yorba Ranch	South of Yorba Linda Bl.	57.6	RW	RW	69	150
Via Del Agua	North "A" Street	55.7	RW	RW	52	112
Via Del Agua	South of "A" Street	55.7	RW	RW	52	112
Via Del Agua	North of Yorba Linda BL.	56.7	RW	RW	60	130
Aspen Way	East of San Antonio Road	45.5	RW	RW	RW	RW
Yorba Linda BL.	West of CA 90	65.9	54	116	249	537
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.8	71	154	331	713
Yorba Linda BL.	East of Lakeview Ave	67.9	72	155	334	720
Yorba Linda BL.	West of Kellogg Drive	67.1	64	137	295	636
Yorba Linda BL.	East of Kellogg Drive	67.9	72	155	335	721
Yorba Linda BL.	East of Fairmont BL.	66.0	54	117	251	541
Yorba Linda BL.	West of Village Center Drive	65.5	50	108	233	503
Yorba Linda BL.	East of Village Center Drive	66.6	59	127	274	591
Yorba Linda BL.	West of Paseo De Las Palomas	66.8	61	132	284	612
Yorba Linda BL.	East of Paseo De Las Palomas	67.2	65	139	300	647
Yorba Linda BL.	West of Yorba Ranch Road	67.2	65	141	303	654
Yorba Linda BL.	East of Yorba Ranch Road	67.1	64	137	296	637
Yorba Linda BL.	East of Via Del Agua	66.7	60	129	278	598

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-4

Year 2015 With Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	62.8	RW	71	153	330
Lakeview Ave	South of Yorba Linda BL.	63.9	RW	85	182	393
CA 90	North of Yorba Linda BL.	66.9	63	135	290	626
CA 90	South of Yorba Linda BL.	66.1	55	119	256	551
Kellogg Drive	South of Yorba Linda BL.	61.7	RW	61	131	282
Fairmont BL.	North of Yorba Linda BL.	63.1	RW	75	162	349
Fairmont BL.	South of Yorba Linda Bl.	62.4	RW	67	145	313
Village Center Drive	North of Yorba Linda BL.	64.2	RW	88	190	409
Village Center Drive	South of Yorba Linda BL.	62.2	RW	65	141	303
Paseo De Las Palomas	South of Yorba Linda Bl.	58.8	RW	RW	83	179
San Antonio Road	North of Aspen Way	56.0	RW	RW	54	117
San Antonio Road	South of Aspen Way	55.0	RW	RW	RW	100
San Antonio Road	North of Yorba Linda BL.	56.0	RW	RW	54	117
Yorba Ranch	North of Yorba Linda Bl.	50.0	RW	RW	RW	RW
Yorba Ranch	South of Yorba Linda Bl.	57.6	RW	RW	69	150
Via Del Agua	North "A" Street	55.7	RW	RW	52	112
Via Del Agua	South of "A" Street	56.8	RW	RW	61	132
Via Del Agua	North of Yorba Linda BL.	57.6	RW	RW	69	149
Aspen Way	East of San Antonio Road	47.7	RW	RW	RW	RW
Yorba Linda BL.	West of CA 90	66.0	54	116	250	538
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.8	72	154	332	716
Yorba Linda BL.	East of Lakeview Ave	67.9	72	156	336	723
Yorba Linda BL.	West of Kellogg Drive	67.1	64	138	297	639
Yorba Linda BL.	East of Kellogg Drive	67.9	73	156	337	726
Yorba Linda BL.	East of Fairmont BL.	66.1	55	118	254	547
Yorba Linda BL.	West of Village Center Drive	65.6	51	110	237	511
Yorba Linda BL.	East of Village Center Drive	66.7	60	129	278	599
Yorba Linda BL.	West of Paseo De Las Palomas	66.9	62	134	288	621
Yorba Linda BL.	East of Paseo De Las Palomas	67.2	66	141	304	655
Yorba Linda BL.	West of Yorba Ranch Road	67.3	66	143	307	662
Yorba Linda BL.	East of Yorba Ranch Road	67.2	65	139	300	647
Yorba Linda BL.	East of Via Del Agua	66.7	60	130	280	604

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-5

Year 2015 Without Project Conditions Noise Contours
(Access Alternative Via Aspen Way)

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	62.8	RW	71	153	330
Lakeview Ave	South of Yorba Linda BL.	63.9	RW	84	181	391
CA 90	North of Yorba Linda BL.	66.9	62	135	290	625
CA 90	South of Yorba Linda BL.	66.1	55	119	256	551
Kellogg Drive	South of Yorba Linda BL.	61.7	RW	60	130	280
Fairmont BL.	North of Yorba Linda BL.	63.1	RW	75	162	349
Fairmont BL.	South of Yorba Linda Bl.	62.4	RW	67	145	313
Village Center Drive	North of Yorba Linda BL.	64.2	RW	88	189	408
Village Center Drive	South of Yorba Linda BL.	62.2	RW	65	140	301
Paseo De Las Palomas	South of Yorba Linda Bl.	58.7	RW	RW	82	177
San Antonio Road	North of Aspen Way	59.0	RW	RW	86	185
San Antonio Road	South of Aspen Way	58.6	RW	RW	81	174
San Antonio Road	North of Yorba Linda BL.	59.0	RW	RW	86	185
Yorba Ranch	North of Yorba Linda Bl.	50.0	RW	RW	RW	RW
Yorba Ranch	South of Yorba Linda Bl.	57.6	RW	RW	69	150
Via Del Agua	North "A" Street	50.2	RW	RW	RW	RW
Via Del Agua	South of "A" Street	50.2	RW	RW	RW	RW
Via Del Agua	North of Yorba Linda BL.	52.7	RW	RW	RW	71
Aspen Way	East of San Antonio Road	56.7	RW	RW	60	130
Yorba Linda BL.	West of CA 90	65.9	54	116	249	537
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.8	71	153	330	712
Yorba Linda BL.	East of Lakeview Ave	67.9	72	155	334	720
Yorba Linda BL.	West of Kellogg Drive	67.1	64	137	295	636
Yorba Linda BL.	East of Kellogg Drive	67.9	72	155	335	721
Yorba Linda BL.	East of Fairmont BL.	66.0	54	117	251	541
Yorba Linda BL.	West of Village Center Drive	65.5	50	108	233	503
Yorba Linda BL.	East of Village Center Drive	66.6	59	127	274	591
Yorba Linda BL.	West of Paseo De Las Palomas	66.8	61	132	284	612
Yorba Linda BL.	East of Paseo De Las Palomas	67.2	65	139	300	647
Yorba Linda BL.	West of Yorba Ranch Road	67.1	64	138	298	643
Yorba Linda BL.	East of Yorba Ranch Road	66.9	62	134	289	623
Yorba Linda BL.	East of Via Del Agua	66.8	62	133	286	616

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-6

Year 2015 With Project Conditions Noise Contours
(Access Alternative Via Aspen Way)

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	62.8	RW	71	153	330
Lakeview Ave	South of Yorba Linda BL.	63.9	RW	85	182	393
CA 90	North of Yorba Linda BL.	66.9	63	135	290	626
CA 90	South of Yorba Linda BL.	66.1	55	119	256	551
Kellogg Drive	South of Yorba Linda BL.	61.7	RW	61	131	282
Fairmont BL.	North of Yorba Linda BL.	63.1	RW	75	162	349
Fairmont BL.	South of Yorba Linda Bl.	62.4	RW	67	145	313
Village Center Drive	North of Yorba Linda BL.	64.2	RW	88	190	409
Village Center Drive	South of Yorba Linda BL.	62.2	RW	65	141	303
Paseo De Las Palomas	South of Yorba Linda Bl.	58.8	RW	RW	83	179
San Antonio Road	North of Aspen Way	59.1	RW	RW	88	189
San Antonio Road	South of Aspen Way	58.8	RW	RW	83	178
San Antonio Road	North of Yorba Linda BL.	59.1	RW	RW	88	189
Yorba Ranch	North of Yorba Linda Bl.	50.0	RW	RW	RW	RW
Yorba Ranch	South of Yorba Linda Bl.	57.6	RW	RW	69	150
Via Del Agua	North "A" Street	50.2	RW	RW	RW	RW
Via Del Agua	South of "A" Street	53.2	RW	RW	RW	76
Via Del Agua	North of Yorba Linda BL.	54.7	RW	RW	RW	95
Aspen Way	East of San Antonio Road	56.8	RW	RW	61	132
Yorba Linda BL.	West of CA 90	66.0	54	116	250	538
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.8	72	154	332	716
Yorba Linda BL.	East of Lakeview Ave	67.9	72	156	336	723
Yorba Linda BL.	West of Kellogg Drive	67.1	64	138	297	639
Yorba Linda BL.	East of Kellogg Drive	67.9	73	156	337	726
Yorba Linda BL.	East of Fairmont BL.	66.1	55	118	254	547
Yorba Linda BL.	West of Village Center Drive	65.6	51	110	237	511
Yorba Linda BL.	East of Village Center Drive	66.7	60	129	278	599
Yorba Linda BL.	West of Paseo De Las Palomas	66.9	62	134	288	621
Yorba Linda BL.	East of Paseo De Las Palomas	67.2	66	141	304	655
Yorba Linda BL.	West of Yorba Ranch Road	67.2	65	141	303	652
Yorba Linda BL.	East of Yorba Ranch Road	67.0	63	136	294	633
Yorba Linda BL.	East of Via Del Agua	66.9	62	134	289	622

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-7

Year 2035 Without Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	64.3	RW	89	193	415
Lakeview Ave	South of Yorba Linda BL.	64.8	RW	97	209	450
CA 90	North of Yorba Linda BL.	67.3	66	143	308	663
CA 90	South of Yorba Linda BL.	66.5	59	127	273	588
Kellogg Drive	South of Yorba Linda BL.	62.1	RW	64	137	296
Fairmont BL.	North of Yorba Linda BL.	64.0	RW	85	184	396
Fairmont BL.	South of Yorba Linda Bl.	62.7	RW	70	152	327
Village Center Drive	North of Yorba Linda BL.	64.6	RW	94	201	434
Village Center Drive	South of Yorba Linda BL.	62.5	RW	68	146	315
Paseo De Las Palomas	South of Yorba Linda Bl.	58.8	RW	RW	83	179
San Antonio Road	North of Aspen Way	57.7	RW	RW	70	151
San Antonio Road	South of Aspen Way	55.6	RW	RW	51	110
San Antonio Road	North of Yorba Linda BL.	57.7	RW	RW	70	151
Yorba Ranch	North of Yorba Linda Bl.	50.6	RW	RW	RW	51
Yorba Ranch	South of Yorba Linda Bl.	58.4	RW	RW	78	169
Via Del Agua	North "A" Street	56.1	RW	RW	55	119
Via Del Agua	South of "A" Street	56.4	RW	RW	57	123
Via Del Agua	North of Yorba Linda BL.	57.3	RW	RW	66	143
Aspen Way	East of San Antonio Road	46.7	RW	RW	RW	RW
Yorba Linda BL.	West of CA 90	66.3	57	122	264	568
Yorba Linda BL.	Between CA 90 and Lakeview Ave	68.1	75	162	349	751
Yorba Linda BL.	East of Lakeview Ave	68.2	75	162	350	754
Yorba Linda BL.	West of Kellogg Drive	67.3	66	143	307	662
Yorba Linda BL.	East of Kellogg Drive	68.2	75	162	350	754
Yorba Linda BL.	East of Fairmont BL.	66.2	55	119	257	555
Yorba Linda BL.	West of Village Center Drive	65.7	51	111	239	514
Yorba Linda BL.	East of Village Center Drive	66.7	60	130	280	602
Yorba Linda BL.	West of Paseo De Las Palomas	67.0	63	135	291	626
Yorba Linda BL.	East of Paseo De Las Palomas	67.3	66	142	306	659
Yorba Linda BL.	West of Yorba Ranch Road	67.9	72	156	335	723
Yorba Linda BL.	East of Yorba Ranch Road	67.7	71	152	328	706
Yorba Linda BL.	East of Via Del Agua	67.4	67	144	310	669

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-8

Year 2035 With Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	64.3	RW	89	193	415
Lakeview Ave	South of Yorba Linda BL.	64.8	RW	97	210	452
CA 90	North of Yorba Linda BL.	67.3	66	143	308	664
CA 90	South of Yorba Linda BL.	66.5	59	127	273	588
Kellogg Drive	South of Yorba Linda BL.	62.1	RW	64	137	296
Fairmont BL.	North of Yorba Linda BL.	64.0	RW	85	184	396
Fairmont BL.	South of Yorba Linda Bl.	62.7	RW	71	152	329
Village Center Drive	North of Yorba Linda BL.	64.6	RW	94	201	434
Village Center Drive	South of Yorba Linda BL.	62.5	RW	68	147	317
Paseo De Las Palomas	South of Yorba Linda Bl.	58.9	RW	RW	84	182
San Antonio Road	North of Aspen Way	58.1	RW	RW	75	161
San Antonio Road	South of Aspen Way	55.9	RW	RW	53	114
San Antonio Road	North of Yorba Linda BL.	57.9	RW	RW	72	155
Yorba Ranch	North of Yorba Linda Bl.	50.6	RW	RW	RW	51
Yorba Ranch	South of Yorba Linda Bl.	58.4	RW	RW	78	169
Via Del Agua	North "A" Street	56.1	RW	RW	55	119
Via Del Agua	South of "A" Street	57.3	RW	RW	66	143
Via Del Agua	North of Yorba Linda BL.	58.1	RW	RW	75	161
Aspen Way	East of San Antonio Road	48.5	RW	RW	RW	RW
Yorba Linda BL.	West of CA 90	66.3	57	123	265	570
Yorba Linda BL.	Between CA 90 and Lakeview Ave	68.2	75	162	350	754
Yorba Linda BL.	East of Lakeview Ave	68.2	76	163	352	758
Yorba Linda BL.	West of Kellogg Drive	67.4	67	144	309	667
Yorba Linda BL.	East of Kellogg Drive	68.2	76	163	352	758
Yorba Linda BL.	East of Fairmont BL.	66.2	56	121	260	560
Yorba Linda BL.	West of Village Center Drive	65.7	52	112	241	520
Yorba Linda BL.	East of Village Center Drive	66.8	61	131	283	609
Yorba Linda BL.	West of Paseo De Las Palomas	67.0	63	136	294	633
Yorba Linda BL.	East of Paseo De Las Palomas	67.4	67	144	310	667
Yorba Linda BL.	West of Yorba Ranch Road	68.0	73	158	340	732
Yorba Linda BL.	East of Yorba Ranch Road	67.8	71	154	332	715
Yorba Linda BL.	East of Via Del Agua	67.4	67	145	313	674

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-9

Year 2035 Without Project Conditions Noise Contours
(Access Alternative Via Aspen Way)

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	64.3	RW	89	193	415
Lakeview Ave	South of Yorba Linda BL.	64.8	RW	97	209	450
CA 90	North of Yorba Linda BL.	67.3	66	143	308	663
CA 90	South of Yorba Linda BL.	66.5	59	127	273	588
Kellogg Drive	South of Yorba Linda BL.	62.1	RW	64	137	296
Fairmont BL.	North of Yorba Linda BL.	64.0	RW	85	184	396
Fairmont BL.	South of Yorba Linda Bl.	62.7	RW	70	152	327
Village Center Drive	North of Yorba Linda BL.	64.6	RW	94	201	434
Village Center Drive	South of Yorba Linda BL.	62.5	RW	68	146	315
Paseo De Las Palomas	South of Yorba Linda Bl.	58.8	RW	RW	83	179
San Antonio Road	North of Aspen Way	60.0	RW	RW	101	217
San Antonio Road	South of Aspen Way	59.0	RW	RW	85	183
San Antonio Road	North of Yorba Linda BL.	60.0	RW	RW	101	217
Yorba Ranch	North of Yorba Linda Bl.	50.6	RW	RW	RW	51
Yorba Ranch	South of Yorba Linda Bl.	58.4	RW	RW	78	169
Via Del Agua	North "A" Street	51.1	RW	RW	RW	55
Via Del Agua	South of "A" Street	51.8	RW	RW	RW	61
Via Del Agua	North of Yorba Linda BL.	54.1	RW	RW	RW	87
Aspen Way	East of San Antonio Road	56.7	RW	RW	60	130
Yorba Linda BL.	West of CA 90	66.3	57	122	264	568
Yorba Linda BL.	Between CA 90 and Lakeview Ave	68.1	75	162	349	751
Yorba Linda BL.	East of Lakeview Ave	68.2	75	162	350	754
Yorba Linda BL.	West of Kellogg Drive	67.3	66	143	307	662
Yorba Linda BL.	East of Kellogg Drive	68.2	75	162	350	754
Yorba Linda BL.	East of Fairmont BL.	66.2	55	119	257	555
Yorba Linda BL.	West of Village Center Drive	65.7	51	111	239	514
Yorba Linda BL.	East of Village Center Drive	66.7	60	130	280	602
Yorba Linda BL.	West of Paseo De Las Palomas	67.0	63	135	291	626
Yorba Linda BL.	East of Paseo De Las Palomas	67.3	66	142	306	659
Yorba Linda BL.	West of Yorba Ranch Road	67.8	71	154	331	714
Yorba Linda BL.	East of Yorba Ranch Road	67.6	69	149	322	693
Yorba Linda BL.	East of Via Del Agua	67.5	68	148	318	685

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-10

Year 2035 With Project Conditions Noise Contours
(Access Alternative Via Aspen Way)

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Lakeview Ave	North of Yorba Linda BL.	64.3	RW	89	193	415
Lakeview Ave	South of Yorba Linda BL.	64.8	RW	97	210	452
CA 90	North of Yorba Linda BL.	67.3	66	143	308	664
CA 90	South of Yorba Linda BL.	66.5	59	127	273	588
Kellogg Drive	South of Yorba Linda BL.	62.1	RW	64	137	296
Fairmont BL.	North of Yorba Linda BL.	64.0	RW	85	184	396
Fairmont BL.	South of Yorba Linda Bl.	62.7	RW	71	152	329
Village Center Drive	North of Yorba Linda BL.	64.6	RW	94	201	434
Village Center Drive	South of Yorba Linda BL.	62.5	RW	68	147	317
Paseo De Las Palomas	South of Yorba Linda Bl.	58.9	RW	RW	84	182
San Antonio Road	North of Aspen Way	60.1	RW	RW	102	220
San Antonio Road	South of Aspen Way	59.1	RW	RW	87	187
San Antonio Road	North of Yorba Linda BL.	60.1	RW	RW	102	220
Yorba Ranch	North of Yorba Linda Bl.	50.6	RW	RW	RW	51
Yorba Ranch	South of Yorba Linda Bl.	58.4	RW	RW	78	169
Via Del Agua	North "A" Street	51.1	RW	RW	RW	55
Via Del Agua	South of "A" Street	54.1	RW	RW	RW	87
Via Del Agua	North of Yorba Linda BL.	55.6	RW	RW	51	110
Aspen Way	East of San Antonio Road	56.9	RW	RW	62	134
Yorba Linda BL.	West of CA 90	66.3	57	123	265	570
Yorba Linda BL.	Between CA 90 and Lakeview Ave	68.2	75	162	350	754
Yorba Linda BL.	East of Lakeview Ave	68.2	76	163	352	758
Yorba Linda BL.	West of Kellogg Drive	67.4	67	144	309	667
Yorba Linda BL.	East of Kellogg Drive	68.2	76	163	352	758
Yorba Linda BL.	East of Fairmont BL.	66.2	56	121	260	560
Yorba Linda BL.	West of Village Center Drive	65.7	52	112	241	520
Yorba Linda BL.	East of Village Center Drive	66.8	61	131	283	609
Yorba Linda BL.	West of Paseo De Las Palomas	67.0	63	136	294	633
Yorba Linda BL.	East of Paseo De Las Palomas	67.4	67	144	310	667
Yorba Linda BL.	West of Yorba Ranch Road	67.9	72	156	335	723
Yorba Linda BL.	East of Yorba Ranch Road	67.7	70	151	326	702
Yorba Linda BL.	East of Via Del Agua	67.6	69	149	320	690

[1] "RW" = Location of the respective noise contour falls within the right-of-way of the road

Table 6-11

Existing Off-Site Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet (dBA)			Potential Significant Impact?[1]
		No Project	With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	62.6	62.6	0.0	No
Lakeview Ave	South of Yorba Linda BL.	63.5	63.5	0.0	No
CA 90	North of Yorba Linda BL.	66.6	66.6	0.0	No
CA 90	South of Yorba Linda BL.	65.9	65.9	0.0	No
Kellogg Drive	South of Yorba Linda BL.	61.1	61.2	0.1	No
Fairmont BL.	North of Yorba Linda BL.	62.3	62.3	0.0	No
Fairmont BL.	South of Yorba Linda Bl.	62.1	62.1	0.0	No
Village Center Drive	North of Yorba Linda BL.	63.9	63.9	0.0	No
Village Center Drive	South of Yorba Linda BL.	61.9	62.0	0.0	No
Paseo De Las Palomas	South of Yorba Linda Bl.	58.3	58.4	0.1	No
San Antonio Road	North of Aspen Way	55.6	55.9	0.3	No
San Antonio Road	South of Aspen Way	54.7	55.0	0.3	No
San Antonio Road	North of Yorba Linda BL.	55.6	55.9	0.3	No
Yorba Ranch	North of Yorba Linda Bl.	50.0	50.0	0.0	No
Yorba Ranch	South of Yorba Linda Bl.	57.4	57.4	0.0	No
Via Del Agua	North "A" Street	49.7	49.7	0.0	No
Via Del Agua	South of "A" Street	49.7	53.2	3.5	No
Via Del Agua	North of Yorba Linda BL.	52.7	54.7	1.9	No
Aspen Way	East of San Antonio Road	45.5	47.7	2.2	No
Yorba Linda BL.	West of CA 90	65.7	65.7	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.4	67.5	0.0	No
Yorba Linda BL.	East of Lakeview Ave	67.5	67.5	0.0	No
Yorba Linda BL.	West of Kellogg Drive	66.6	66.6	0.0	No
Yorba Linda BL.	East of Kellogg Drive	67.4	67.4	0.0	No
Yorba Linda BL.	East of Fairmont BL.	65.5	65.6	0.1	No
Yorba Linda BL.	West of Village Center Drive	65.0	65.1	0.1	No
Yorba Linda BL.	East of Village Center Drive	66.0	66.1	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	66.2	66.3	0.1	No
Yorba Linda BL.	East of Paseo De Las Palomas	66.6	66.7	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	66.7	66.8	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	66.5	66.6	0.1	No
Yorba Linda BL.	East of Via Del Agua	66.4	66.4	0.1	No

[1] A significant impact occurs when the noise level exceeds 65 dBA CNEL and the project generates a noise level increase of greater than 3.0 dBA.

impact of greater than 3 dBA. While this noise level increase may be considered perceptible, the actual exterior noise levels are well below 65 dBA CNEL and therefore, are not considered significant.

6.2.2 OPENING YEAR 2015 CONDITIONS

As shown on Table 6-12, for Year 2015 conditions, the Project will increase the off-site traffic noise levels from 0.0 to 2.2 dBA CNEL on the 32 off-site roadway segments.

6.2.3 OPENING YEAR 2015 (ACCESS ALTERNATIVE VIA ASPEN WAY) CONDITIONS

As shown on Table 6-13, Opening Year 2015 (Access Alternative Via Aspen Way), the Project will increase the off-site traffic noise levels from 0.0 to 1.9 dBA CNEL on 31 of the 32 off-site roadway segments. For Opening Year 2015 (Access Alternative Via Aspen Way) with project conditions the roadway segment Via Del Agua south of "A" street is expected to experience a noise level impact of 3 dBA. While this noise level increase may be considered perceptible, the actual exterior noise levels are well below 65 dBA CNEL and therefore, are not considered significant.

6.2.4 HORIZON YEAR 2035 CUMULATIVE CONDITIONS

As shown on Table 6-14, for Year 2035 conditions, the Project will increase the off-site traffic noise levels from 0.0 to 1.8 dBA CNEL on the 32 off-site roadway segments.

6.2.3 HORIZON YEAR 2035 CUMULATIVE (ACCESS ALTERNATIVE VIA ASPEN WAY) CONDITIONS

As shown on Table 6-15, Year 2035 (Access Alternative Via Aspen Way), the Project will increase the off-site traffic noise levels from 0.0 to 2.3 dBA CNEL on the 32 off-site roadway segments.

6.3 OFF-SITE TRAFFIC NOISE IMPACT SUMMARY

Based on the traffic noise analysis, the Project's traffic noise impacts on the surrounding communities will be less than significant. This analysis shows that the Project will NOT create a substantial permanent increase in traffic-related noise levels or expose persons to noise levels in excess of the exterior noise level standards established in the General Plan Noise Element, and therefore, no mitigation is required.

Table 6-12

Year 2015 Off-Site Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet (dBA)			Potential Significant Impact?[1]
		No Project	With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	62.8	62.8	0.0	No
Lakeview Ave	South of Yorba Linda BL.	63.9	63.9	0.0	No
CA 90	North of Yorba Linda BL.	66.9	66.9	0.0	No
CA 90	South of Yorba Linda BL.	66.1	66.1	0.0	No
Kellogg Drive	South of Yorba Linda BL.	61.7	61.7	0.0	No
Fairmont BL.	North of Yorba Linda BL.	63.1	63.1	0.0	No
Fairmont BL.	South of Yorba Linda Bl.	62.4	62.4	0.0	No
Village Center Drive	North of Yorba Linda BL.	64.2	64.2	0.0	No
Village Center Drive	South of Yorba Linda BL.	62.2	62.2	0.0	No
Paseo De Las Palomas	South of Yorba Linda Bl.	58.7	58.8	0.1	No
San Antonio Road	North of Aspen Way	55.7	56.0	0.3	No
San Antonio Road	South of Aspen Way	54.8	55.0	0.2	No
San Antonio Road	North of Yorba Linda BL.	55.7	56.0	0.3	No
Yorba Ranch	North of Yorba Linda Bl.	50.0	50.0	0.0	No
Yorba Ranch	South of Yorba Linda Bl.	57.6	57.6	0.0	No
Via Del Agua	North "A" Street	55.7	55.7	0.0	No
Via Del Agua	South of "A" Street	55.7	56.8	1.1	No
Via Del Agua	North of Yorba Linda BL.	56.7	57.6	0.9	No
Aspen Way	East of San Antonio Road	45.5	47.7	2.2	No
Yorba Linda BL.	West of CA 90	65.9	66.0	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.8	67.8	0.0	No
Yorba Linda BL.	East of Lakeview Ave	67.9	67.9	0.0	No
Yorba Linda BL.	West of Kellogg Drive	67.1	67.1	0.0	No
Yorba Linda BL.	East of Kellogg Drive	67.9	67.9	0.0	No
Yorba Linda BL.	East of Fairmont BL.	66.0	66.1	0.1	No
Yorba Linda BL.	West of Village Center Drive	65.5	65.6	0.1	No
Yorba Linda BL.	East of Village Center Drive	66.6	66.7	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	66.8	66.9	0.1	No
Yorba Linda BL.	East of Paseo De Las Palomas	67.2	67.2	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	67.2	67.3	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	67.1	67.2	0.1	No
Yorba Linda BL.	East of Via Del Agua	66.7	66.7	0.1	No

[1] A significant impact occurs when the noise level exceeds 65 dBA CNEL and the project generates a noise level increase of greater than 3.0 dBA.

Table 6-13

Year 2015 Off-Site Project Related Traffic Noise Impacts (Access Alternative Via Aspen Way)

Roadway	Segment	CNEL at 100 Feet (dBA)			Potential Significant Impact?[1]
		No Project	With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	62.8	62.8	0.0	No
Lakeview Ave	South of Yorba Linda BL.	63.9	63.9	0.0	No
CA 90	North of Yorba Linda BL.	66.9	66.9	0.0	No
CA 90	South of Yorba Linda BL.	66.1	66.1	0.0	No
Kellogg Drive	South of Yorba Linda BL.	61.7	61.7	0.0	No
Fairmont BL.	North of Yorba Linda BL.	63.1	63.1	0.0	No
Fairmont BL.	South of Yorba Linda Bl.	62.4	62.4	0.0	No
Village Center Drive	North of Yorba Linda BL.	64.2	64.2	0.0	No
Village Center Drive	South of Yorba Linda BL.	62.2	62.2	0.0	No
Paseo De Las Palomas	South of Yorba Linda Bl.	58.7	58.8	0.1	No
San Antonio Road	North of Aspen Way	59.0	59.1	0.1	No
San Antonio Road	South of Aspen Way	58.6	58.8	0.1	No
San Antonio Road	North of Yorba Linda BL.	59.0	59.1	0.1	No
Yorba Ranch	North of Yorba Linda Bl.	50.0	50.0	0.0	No
Yorba Ranch	South of Yorba Linda Bl.	57.6	57.6	0.0	No
Via Del Agua	North "A" Street	50.2	50.2	0.0	No
Via Del Agua	South of "A" Street	50.2	53.2	3.0	No
Via Del Agua	North of Yorba Linda BL.	52.7	54.7	1.9	No
Aspen Way	East of San Antonio Road	56.7	56.8	0.1	No
Yorba Linda BL.	West of CA 90	65.9	66.0	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	67.8	67.8	0.0	No
Yorba Linda BL.	East of Lakeview Ave	67.9	67.9	0.0	No
Yorba Linda BL.	West of Kellogg Drive	67.1	67.1	0.0	No
Yorba Linda BL.	East of Kellogg Drive	67.9	67.9	0.0	No
Yorba Linda BL.	East of Fairmont BL.	66.0	66.1	0.1	No
Yorba Linda BL.	West of Village Center Drive	65.5	65.6	0.1	No
Yorba Linda BL.	East of Village Center Drive	66.6	66.7	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	66.8	66.9	0.1	No
Yorba Linda BL.	East of Paseo De Las Palomas	67.2	67.2	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	67.1	67.2	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	66.9	67.0	0.1	No
Yorba Linda BL.	East of Via Del Agua	66.8	66.9	0.1	No

[1] A significant impact occurs when the noise level exceeds 65 dBA CNEL and the project generates a noise level increase of greater than 3.0 dBA.

Table 6-14

Year 2035 Off-Site Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet (dBA)			Potential Significant Impact?[1]
		No Project	With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	64.3	64.3	0.0	No
Lakeview Ave	South of Yorba Linda BL.	64.8	64.8	0.0	No
CA 90	North of Yorba Linda BL.	67.3	67.3	0.0	No
CA 90	South of Yorba Linda BL.	66.5	66.5	0.0	No
Kellogg Drive	South of Yorba Linda BL.	62.1	62.1	0.0	No
Fairmont BL.	North of Yorba Linda BL.	64.0	64.0	0.0	No
Fairmont BL.	South of Yorba Linda Bl.	62.7	62.7	0.0	No
Village Center Drive	North of Yorba Linda BL.	64.6	64.6	0.0	No
Village Center Drive	South of Yorba Linda BL.	62.5	62.5	0.0	No
Paseo De Las Palomas	South of Yorba Linda Bl.	58.8	58.9	0.1	No
San Antonio Road	North of Aspen Way	57.7	58.1	0.4	No
San Antonio Road	South of Aspen Way	55.6	55.9	0.3	No
San Antonio Road	North of Yorba Linda BL.	57.7	57.9	0.2	No
Yorba Ranch	North of Yorba Linda Bl.	50.6	50.6	0.0	No
Yorba Ranch	South of Yorba Linda Bl.	58.4	58.4	0.0	No
Via Del Agua	North "A" Street	56.1	56.1	0.0	No
Via Del Agua	South of "A" Street	56.4	57.3	0.9	No
Via Del Agua	North of Yorba Linda BL.	57.3	58.1	0.8	No
Aspen Way	East of San Antonio Road	46.7	48.5	1.8	No
Yorba Linda BL.	West of CA 90	66.3	66.3	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	68.1	68.2	0.0	No
Yorba Linda BL.	East of Lakeview Ave	68.2	68.2	0.0	No
Yorba Linda BL.	West of Kellogg Drive	67.3	67.4	0.0	No
Yorba Linda BL.	East of Kellogg Drive	68.2	68.2	0.0	No
Yorba Linda BL.	East of Fairmont BL.	66.2	66.2	0.1	No
Yorba Linda BL.	West of Village Center Drive	65.7	65.7	0.1	No
Yorba Linda BL.	East of Village Center Drive	66.7	66.8	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	67.0	67.0	0.1	No
Yorba Linda BL.	East of Paseo De Las Palomas	67.3	67.4	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	67.9	68.0	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	67.7	67.8	0.1	No
Yorba Linda BL.	East of Via Del Agua	67.4	67.4	0.1	No

[1] A significant impact occurs when the noise level exceeds 65 dBA CNEL and the project generates a noise level increase of greater than 3.0 dBA.

Table 6-15

Year 2035 Off-Site Project Related Traffic Noise Impacts (Access Alternative Via Aspen Way)

Roadway	Segment	CNEL at 100 Feet (dBA)			Potential Significant Impact?[1]
		No Project	With Project	Project Addition	
Lakeview Ave	North of Yorba Linda BL.	64.3	64.3	0.0	No
Lakeview Ave	South of Yorba Linda BL.	64.8	64.8	0.0	No
CA 90	North of Yorba Linda BL.	67.3	67.3	0.0	No
CA 90	South of Yorba Linda BL.	66.5	66.5	0.0	No
Kellogg Drive	South of Yorba Linda BL.	62.1	62.1	0.0	No
Fairmont BL.	North of Yorba Linda BL.	64.0	64.0	0.0	No
Fairmont BL.	South of Yorba Linda Bl.	62.7	62.7	0.0	No
Village Center Drive	North of Yorba Linda BL.	64.6	64.6	0.0	No
Village Center Drive	South of Yorba Linda BL.	62.5	62.5	0.0	No
Paseo De Las Palomas	South of Yorba Linda Bl.	58.8	58.9	0.1	No
San Antonio Road	North of Aspen Way	60.0	60.1	0.1	No
San Antonio Road	South of Aspen Way	59.0	59.1	0.1	No
San Antonio Road	North of Yorba Linda BL.	60.0	60.1	0.1	No
Yorba Ranch	North of Yorba Linda Bl.	50.6	50.6	0.0	No
Yorba Ranch	South of Yorba Linda Bl.	58.4	58.4	0.0	No
Via Del Agua	North "A" Street	51.1	51.1	0.0	No
Via Del Agua	South of "A" Street	51.8	54.1	2.3	No
Via Del Agua	North of Yorba Linda BL.	54.1	55.6	1.5	No
Aspen Way	East of San Antonio Road	56.7	56.9	0.2	No
Yorba Linda BL.	West of CA 90	66.3	66.3	0.0	No
Yorba Linda BL.	Between CA 90 and Lakeview Ave	68.1	68.2	0.0	No
Yorba Linda BL.	East of Lakeview Ave	68.2	68.2	0.0	No
Yorba Linda BL.	West of Kellogg Drive	67.3	67.4	0.0	No
Yorba Linda BL.	East of Kellogg Drive	68.2	68.2	0.0	No
Yorba Linda BL.	East of Fairmont BL.	66.2	66.2	0.1	No
Yorba Linda BL.	West of Village Center Drive	65.7	65.7	0.1	No
Yorba Linda BL.	East of Village Center Drive	66.7	66.8	0.1	No
Yorba Linda BL.	West of Paseo De Las Palomas	67.0	67.0	0.1	No
Yorba Linda BL.	East of Paseo De Las Palomas	67.3	67.4	0.1	No
Yorba Linda BL.	West of Yorba Ranch Road	67.8	67.9	0.1	No
Yorba Linda BL.	East of Yorba Ranch Road	67.6	67.7	0.1	No
Yorba Linda BL.	East of Via Del Agua	67.5	67.6	0.1	No

[1] A significant impact occurs when the noise level exceeds 65 dBA CNEL and the project generates a noise level increase of greater than 3.0 dBA.

7.0 ON-SITE TRAFFIC NOISE ANALYSIS

It is expected that the primary source of noise impacts to the project site will be traffic noise from neighboring roads such as Aspen Way and Via Del Agua. However, it is important to recognize that the Project is not located directly adjacent to these neighboring roads, and the proposed homes within the Project site will benefit from the noise attenuation provided by the intervening residential homes that the separate the project from these roads. The project will also experience some background traffic noise impacts from the project's internal roads, however due to the distance, topography and low traffic volume/speed, traffic noise from these roads will not make a significant contribution to the noise environment.

Since the Project is not located immediately adjacent to any collector, secondary, major or arterial roadway, the expected exterior noise levels will not approach or exceed the County of Orange 65 dBA CNEL exterior noise criteria. While the lots within Cielo Vista are generally located at distances of greater 100 feet, the expected exterior noise levels have been calculated using a conservative reference distance of 100 feet. At a distance of 100 feet, the unmitigated exterior noise levels from the nearest streets (Aspen Way, Via Del Agua) are expected to range from 51.1 to 56.7 dBA CNEL. The County of Orange General Plan Policy 6.5 indicates that all outdoor living areas associated with new residential uses shall be attenuated to less than 65 dBA CNEL. The Project is consistent with this policy. There are no known noise generators impacting the Project that would result in outdoor noise levels exceeding 65 dBA CNEL. Therefore, no exterior noise mitigation is required.

Though the proposed project site does not contain noise sensitive exterior areas requiring noise mitigation (e.g. noise barriers), the interior noise level impacts must be reduced below the County of Orange 45 dBA CNEL interior noise level standard. Standard building construction will reduce the exterior noise levels by 12 dBA CNEL with the windows open. With exterior noise level of less than 56.7 dBA CNEL, standard building construction and a windows open condition will satisfy the County of Orange interior noise standard of 45 dBA CNEL.

8.0 CONSTRUCTION NOISE IMPACTS

This section analyzes potential noise and vibration impacts resulting from the short-term off-site construction related impacts associated with the development of the Project.

8.1 COUNTY OF ORANGE CONSTRUCTION NOISE STANDARDS

As described earlier in Section 4.5, the County's Noise Ordinance limits construction activities to the hours between 7:00 AM and 8:00 PM on weekdays and Saturdays. Construction is not permitted on Sundays or any federal holidays. The County of Orange does not specify exterior noise level limits for construction related noise impacts.

8.2 CONSTRUCTION ACTIVITIES

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment, including trucks, power tools, concrete mixers and portable generators can reach high levels. Site Preparation is expected to occur from January 2014 through March 2014, Grading activities are expected to occur from March 2014 through June 2014, Building Construction is expected to occur from June 2014 through June 2015, Paving is expected to occur from June 2015 through August 2015, Architecture Coating is expected to occur from August 2015 through November 2015.

8.3 CONSTRUCTION NOISE LEVELS

In January 2006, the Federal Highway Administration (FHWA) published a national database of construction equipment reference noise emission levels. The database, as shown in Appendix 8.1, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

Noise levels generated by heavy construction equipment can range from approximately 70 dBA to noise levels in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 78 dBA measured at 50 feet from the noise source to the receptor would be reduced to 72 dBA at 100 feet from the source to the receptor, and would be further reduced to 66 dBA at 200 feet from the source to the receptor.

The construction noise levels including the number and mix of construction equipment by construction phase are consistent with the data used to support the construction emissions in the *Cielo Vista Air Quality Impact Analysis*. The short-term construction noise levels for each stage of construction are summarized

on Tables 8-1 to 8-5. The construction noise analysis indicates that at a distance of 50 feet, the project construction noise levels are expected to range from 74.0 to 87.1 dBA Leq. The analysis shows that the highest construction noise level impacts will occur during the site grading activities.

8.4 CONSTRUCTION NOISE ABATEMENT MEASURES

To minimize the potential short-term construction noise impacts, the Project should incorporate design features intended to reduce noise impacts from construction activities adjacent to any developed/occupied noise-sensitive land uses. The project design features include the following construction noise abatement measures:

- During all project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during all project construction.

- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment. Haul routes shall not pass sensitive land uses or residential dwellings.

8.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity.

According to the Transportation and Construction-Induced Vibration Guidance Manual prepared for Caltrans, ground-borne vibration from construction activities and equipment such as such as D-8 and D-9 Caterpillars bulldozers, earthmovers and haul trucks at distances of 10 feet do not create vibration amplitudes that causes structural damage to nearby structures. Since the proposed project is not expected to employ any pile driving or rock blasting equipment and with the nearest receivers located over 50 feet from the nearest point of construction activities, impacts from groundborne vibration are anticipated to be less-than-significant.

Table 8-1

Site Preparation Construction Noise Levels[1]

Equipment Type	Quantity	Usage Factor[2]	Hours Of Operation[3]	Reference Noise Level @ 50 Feet (Lmax dBA)	Cumulative Level @ 50 Feet (Leq dBA)
Scrapers	1	40%	3.2	84.0	80.0
Graders	1	40%	3.2	85.0	81.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					83.6

[1] Source: FHWA's Roadway Construction Noise Model, January 2006.

[2] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

[3] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

Table 8-2

Grading Construction Noise Levels[1]

Equipment Type	Quantity	Usage Factor[2]	Hours Of Operation[3]	Reference Noise Level @ 50 Feet (Lmax dBA)	Cumulative Level @ 50 Feet (Leq dBA)
Scrapers	2	40%	3.2	84.0	83.0
Graders	1	40%	3.2	85.0	81.0
Rubber Tired Dozers	1	40%	3.2	79.0	75.0
Excavators	2	40%	3.2	81.0	80.0
Tractors/Loaders/Backhoes	2	40%	3.2	78.0	77.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					87.1

[1] Source: FHWA's Roadway Construction Noise Model, January 2006.

[2] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

[3] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

Table 8-3

Building Construction Noise Levels[1]

Equipment Type	Quantity	Usage Factor[2]	Hours Of Operation[3]	Reference Noise Level @ 50 Feet (Lmax dBA)	Cumulative Level @ 50 Feet (Leq dBA)
Tractors/Loaders/Backhoes	3	40%	3.2	78.0	78.8
Forklifts	3	20%	1.6	75.0	72.8
Cranes	1	16%	1.3	81.0	73.0
Generator Sets	1	50%	4.0	81.0	78.0
Welders	1	40%	3.2	74.0	70.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					82.7

[1] Source: FHWA's Roadway Construction Noise Model, January 2006.

[2] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

[3] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

Table 8-4

Paving Construction Noise Levels[1]

Equipment Type	Quantity	Usage Factor[2]	Hours Of Operation[3]	Reference Noise Level @ 50 Feet (Lmax dBA)	Cumulative Level @ 50 Feet (Leq dBA)
Pavers	2	50%	4.0	77.0	77.0
Paving Equipment	2	40%	3.2	76.0	75.0
Rollers	2	20%	1.6	80.0	76.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					80.9

[1] Source: FHWA's Roadway Construction Noise Model, January 2006.

[2] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

[3] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

Table 8-5

Architectural Coating Construction Noise Levels[1]

Equipment Type	Quantity	Usage Factor[2]	Hours Of Operation[3]	Reference Noise Level @ 50 Feet (Lmax dBA)	Cumulative Level @ 50 Feet (Leq dBA)
Air Compressors	1	40%	3.2	78.0	74.0
Cumulative Hourly Noise Levels 50 Feet (Leq dBA)					74.0

[1] Source: FHWA's Roadway Construction Noise Model, January 2006.

[2] Estimates the fraction of time each piece of equipment is operating at full power during a construction operation.

[3] Represents the actual hours of peak construction equipment activity out of a typical 8 hour workday.

In addition to the construction related activities, operational activities at the proposed project site will not include nor require equipment, facilities, or activities that would result in perceptible ground-borne vibration, thus creating no ground borne vibration impacts.

APPENDIX 4.1

County of Orange Noise Element

VIII. NOISE ELEMENT

OVERVIEW

The Noise Element, which is a mandatory component of the General Plan, contains information that relates to the noise environment in the unincorporated sections of Orange County. The Noise Element text is divided into the following sections:

- Overview
- Relationship to other Elements
- Relation to Federal, State and Local Agency Plans and Programs
- The Nature of Sound
- Existing Noise Environment
- Estimates of Affected Population
- Analysis of Future Conditions
- Objectives and Policies

Specifically, this Noise Elements responds to the requirements of Section 65302 (f) of the California Government Code. In so doing, the guidance provided by the State in "Guidelines for the Preparation and content of Noise Elements of the General Plan" (January 1976) has been adhered to.

The policies which relate to managing the County's noise environment are found in the Objectives and Policies section of this

Element. They reflect a series of decisions by elected officials based in part on studies that incorporate increasingly sophisticated measurements and analyses. In total, they provide a means of relating the broad goals and patterns depicted in the General Plan to the County's project-specific responsibilities.

Definitions for a number of key terms related to the measurement and evaluation of noise are contained in Appendix VIII-1 of the General Plan Appendices. The terms are arranged in alphabetical order in one location to allow for greater clarity and brevity in the Noise Element text itself.

The scope of the Element includes the unincorporated portions of the County of Orange. The purpose of the Noise Element is to provide a statement of public policy and a decision framework for the maintenance of a quiet environment. The Noise Element identifies the sources of noise, analyzes the extent of the noise intrusion, and estimates its potential impact upon the County. This identification process in turn provides the basis for goals, policies, and implementation programs designed to preserve, where possible, a quiet environment in the County of Orange.

The objectives achieved by the development of the Noise Element are:

- Identification in quantitative, numerical terms, of existing and projected noise levels, noise sources, and noise-sensitive land uses in the County.
- Direction for implementation programs which may be used to achieve and maintain a desirable noise environment.

RELATIONSHIP TO OTHER ELEMENTS

The broad, noise-related goal of the County of Orange is to:

> ***Protect the health, safety, and general welfare of County residents by reducing noise levels and establishing compatible land uses in noise-impacted areas.***

This goal promotes the amelioration of noise impacts by both reducing the noise produced by various sources and by guiding land uses so they are compatible with existing (or projected) long-term average noise levels.

While this goal has a high priority, it must be achieved while maintaining internal consistency among the other elements of the General Plan as required by state law. Therefore, the Noise Element does not replace nor supersede any of the other General Plan elements; instead, the Element addresses, amplifies, and supports other elements as they relate to noise issues. The Land Use and Noise Elements are strongly interrelated. The Noise Element identifies land uses which are considered sensitive to noise and contains guidelines for achieving compatibility between land use and community noise levels. This

information is intended to provide guidance in land use decisions including the general distribution, location, and intensity of land uses.

A significant relationship also exists between the Transportation and Noise Elements. Because transportation systems are a major source of noise, their location, capacity, and design often determine the extent of noise impacts on surrounding land uses. Once commitment is made on transportation systems, land uses should be examined to identify compatibility with predicted noise levels generated by that system. The Noise Element relates to the Transportation Element through proposed policies for design, location, and fiscal considerations in the construction of new facilities.

The Housing Element is indirectly affected by the Noise Element through the Land Use Element. Residences are identified as some of the most noise-sensitive uses. The Noise Element suggests location and design considerations for housing as well as attenuation measures to reduce interior noise levels. Land that is considered marginal for residential use because of existing or projected noise impacts may provide an opportunity for residential use through careful design. Such design considerations include measures to insure that interior and exterior noise levels are satisfactorily attenuated to meet County standards.

The Noise Element is also closely related to the Resources Element, since noise can adversely affect the enjoyment of quiet activities in open space. Conversely, open space can be employed to buffer noise-sensitive land uses through separation and extension landscaping.

RELATIONSHIP TO FEDERAL, STATE AND LOCAL AGENCY PLANS AND PROGRAMS

The purpose of this section is to provide a general overview as to the noise-related roles and responsibilities of different levels of government as they relate to environmental noise.

At the federal level, there are three separate agencies which have a significant impact on Orange County's noise environment. They are the Environmental Protection Agency (EPA), the Department of Defense and the Department of Transportation (DOT). In addition, the Department of Housing and Urban Development and the Federal Housing Administration establish standards for projects which receive their financial support.

The stated role for EPA has been to provide leadership in the national noise abatement effort. While not as extensive as it was during the 1970s, a key aspect of this effort has been sponsorship of scientific studies of the relationships between noise levels and human response. Another key role of EPA has been in assisting other federal agencies, states, and local jurisdictions in taking steps to ensure as healthy an environment as is

COMMON NOISE SOURCE LEVELS

40 dBA: quiet residential area

55-70 dBA: dishwasher

75-80 dBA: flush toilet

90 dBA: truck

110 dBA: busy video arcade

feasible.

The Department of Defense (DOD), in conjunction with the State of California National Guard Bureau, operates an air installation at Los Alamitos. Noise effects from operations at Los Alamitos are not significant on unincorporated areas, however.

The Department of Transportation is significant in that its operating agencies are involved in setting standards and safety regulations for civil aviation, railroads, transit facilities and vehicles, and those freeways that are a part of the Interstate System. These agencies are the Federal Aviation Administration, the Federal Railway Administration, the Urban Mass Transportation Administration, and the Federal Highway Administration.
The State of California is responsible for establishing regulations for noise control where not preempted by the federal government. The federal government has largely pre-empted control of noise from aircraft, railroads, and federal highways. The State regulates noise levels of motor vehicles, motorcycles, motor boats, and freeway noise as it affects classrooms, and has set noise insulation standards for multi-family dwellings, hotels, and motels. The State also has established noise impact boundaries around airports, and noise planning standards.

Of particular importance are the State requirement for the preparation of each local jurisdiction's noise element (California Government Code, Section 65302(f)), noise insulation standards (California Administrative Code, Title 25) and the noise standards related to airports and their environs (Title 21). The State, through CALTRANS and the California Transportation Commission, also exerts significant influence on the noise environment through the financing,

construction, and maintenance of the State highway system.

Local jurisdictions share the responsibility of maintaining the health and welfare of their residents. This responsibility is discharged largely through land use planning and control. The normal approach taken at the local level is a preventative one in which care is taken to avoid the development of neighboring uses that are inconsistent. Retroactive action to correct an inconsistent pattern is generally limited to voluntary programs in which land owners are encouraged to take steps to reduce the noise impact on their property.

The County of Orange has an additional role in that it is the owner/operator of John Wayne Airport. In this role, the County can influence the noise environment, although only insofar as its actions are in accord with federal and state regulations.

THE NATURE OF SOUND

For the purpose of this Noise Element, sound may be described as a disturbance in the pressure of the air. Sound waves propagate in a predictable manner from a source to a receiver or observer.

A person listening to a sound converts the minuscule pressure variations to signals that may be interpreted in various ways depending on the person's individual perception of the sound. Sounds are often described by qualitative terms such as annoying or pleasant, loud or soft, noisy or quiet, or high-frequency or low-frequency.

Qualitative judgments of a sound may generally be quantified by measurements of three primary quantities; amplitude, frequency, and temporal pattern or duration.

1) **Amplitude in decibels (dB):**[1]
The strength of a sound depends on the pressure exerted by the sound waves. The greater the pressure, the louder the sound.

2) **Frequency, or pitch, in Hertz (Hz):**
High frequency sounds are produced by rapidly vibrating objects and low frequency sounds by slowly vibrating objects.

3) **Temporal pattern or duration:**
The pattern and length of time associated within a sound.

A sound pressure level of zero decibels corresponds, approximately, to the faintest sound perceptible, on the average, by persons with excellent hearing.

Human judgments of the noisiness of a sound depend on the overall level of the sound, the distribution of sound pressure level with frequency and the duration of the sound (or series of sounds).

COMMON NOISE SOURCE LEVELS

130 dBA: percussion section at symphony

150 dBA: firecracker

180 dBA: rocket launching from pad

[1]NOTE: words or phrases that are defined in the General Plan Appendices, APPENDIX VIII-1, DEFINITIONS AND ACRONYMS, are underlined the first time they occur in this Chapter.

As a result of extensive laboratory experiments and experience in the United States and in other countries, it has been found that use of a frequency-weighted sound pressure level provides measurements that correlate well with judgments of the noisiness or annoyance of a sound. That frequency weighting is, by international agreement, called the A-frequency weighting or A-weighting. A-weighting reduces the amplitude of the low frequency components of a sound relative to the mid- and high-frequency components.

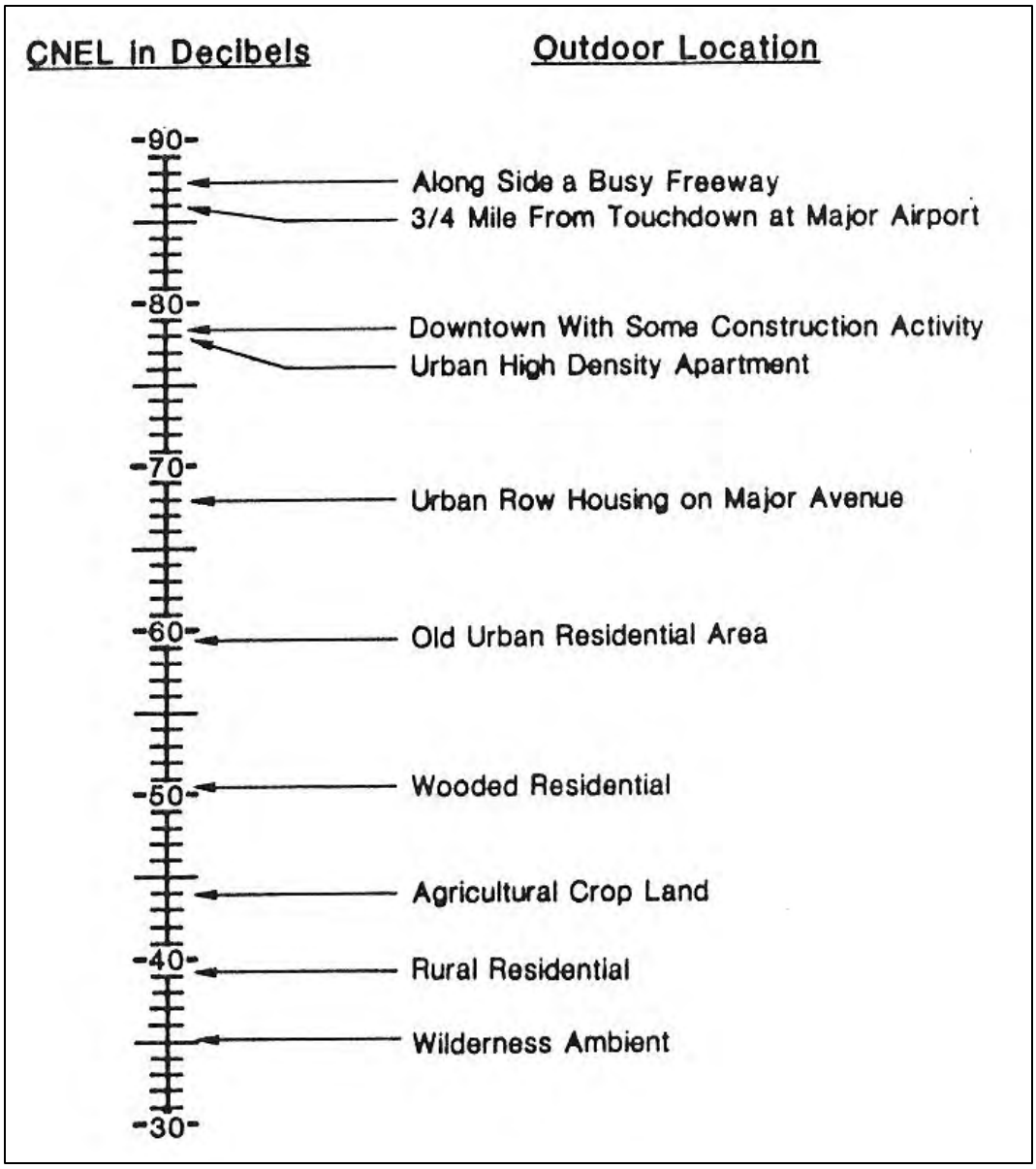
For the purpose of assuring compatibility between the long-term outdoor noise level and projected, or actual, land uses, the measures of noise level referred to in this Noise Element are either the A-weighted Community Noise Equivalent Level (CNEL), in decibels, or a time-average equivalent sound level, also in decibels.

Everyday sounds normally range from 30 decibels (very quiet) to 100 decibels (very loud). Figure VIII-1 shows Community Noise Equivalent Levels from a variety of noise sources. The values range from 35 decibels in the quiet of a wilderness to approximately 85 decibels in noisy environments.

The transmission of sound involves three components: source, transmission path, and receiver. These sound components are not independent, but are subject to interaction. For example, a person (source) will raise his voice if he is aware that his listener (receiver) is hard of hearing.

To reduce the noise level inside a dwelling from the effects of a high-noise source -

FIGURE VIII-1.



Examples of Outdoor Community Noise Equivalent Levels
Measured at Various Locations

Based on: U.S. Environmental Protection Agency, "Protective Noise Levels, Condensed Version of the EPA Levels Document,"1978, Figure 4.

traffic on a road, for example - either the source can be modified (by adding sound-absorbing material inside the engine compartment) or the transmission path can be adjusted by taking such measures as installing a wall or berm or providing structural modifications such as double-glazed windows and well-sealed doors in the dwelling.

The documented effects of excessive noise on people range from annoyance and inconvenience to temporary or permanent hearing loss. But, as the Environmental Protection Agency[2] notes, the problems associated with noise are much more widespread:

> Except for the serious problem of hearing loss, there is no human illness known to be directly caused by noise. But throughout dozens of studies, noise has been clearly identified as an important cause of physical and psychological stress, and stress has been directly linked with many of our most common health problems. Thus, noise can be associated with many of these disabilities and diseases, which include heart disease, high blood pressure, headaches, fatigue, and irritability.
>
> Noise is also suspected to interfere with children's learning and with normal development. Noise is reported to have triggered extremely hostile behavior among persons presumably suffering from emotional illness. It is suspected to lower our resistance, in some cases, to the onset of infection and disease.

In view of the limitation on our state of knowledge concerning noise and the variability of human response to noise, the inaction of community noise programs is a difficult process. The search for meaningful standards must distinguish between what is

[2]EPA, NOISE: A Health Problem, August 1978, page 23.

merely interesting information and what is truly useful knowledge for the protection of the community welfare.

A number of factors affect the measurement and control of noise sources. There are thousands of permanent stationary noise sources and several hundred thousand mobile noise sources within nearly any area.

Transmission characteristics of sound are directly affected by the size, shape, and density of the thousands of barriers, structures, and topographical features in the county. Complicating the transmission paths is the fact that localized meteorological conditions may distort the sound wave in unpredictable ways.

For these reasons, the Noise Element is concerned with the major predictable sound sources such as airplanes, highways, and railroads as well as certain stationary sources. Considerations of the distortions of sound by natural and man-made features were only generally considered in the evaluation and mapping of the noise impacted areas in the context of this Element.

It is for these reasons that elsewhere in this document "worst case" assumptions have been made. Thus, there are noise levels at which a detailed acoustical analysis on a project-specific basis is required. In general, this occurs if there is any question about the noise impacts associated with a development proposal. (See Noise Referral Zones section in this chapter.)

THE EXISTING NOISE ENVIRONMENT

Noise is generated by numerous sources which are found near places where people both live and work. Of particular concern are those sources generating noise levels above the prevailing background noise level.

The most common mobile noise sources in the County are transportation- related (automobiles, trucks, motorcycles, railroads, and aircraft). Motor vehicle noise is of concern because it is characterized by a high number of individual events, which often create a sustained noise level, and because of its proximity to areas sensitive to noise exposure. Rail and aircraft operations, though infrequent, may generate extremely high noise levels that can be disruptive to human activity. Aircraft noise appears to produce the greatest community anti-noise response, although the duration of the noise from a single airplane is much less, for example, than that from a freight train.

"Noise proves nothing. Often a hen who has merely laid on egg cackles as if she had laid an asteroid."
Mark Twain

In February 1985, the Board of Supervisors adopted the John Wayne Airport Master Plan (AMP) and the Santa Ana Heights Land Use Compatibility Program (LUCP).

The Airport Master Plan includes an ultimate limit of 73 average daily departures (ADDs) for most commercial jet operations. In preparing the LUCP, a projected 65-decibel CNEL noise contour reflecting expected future flight level and a reasonable mix of aircraft types was utilized.

This contour referred to as the Project Case and depicted in EIR 508 (prepared jointly for the AMP and LUCP), was approved by the Board of Supervisors as the implementation line for two noise compatibility programs: Purchase Assurance and Acoustical Insulation. It was also utilized in the preparation and Board adoption of a land use plan (Land Use Element and Community Profile amendments) for unincorporated areas of Santa Ana Heights.

This contour line remains fixed as to location until modified by a Noise Element Amendment. Consideration of a future revision to the Project Case Contour would probably occur subsequent to full implementation of Phase II of the JWA Master Plan.

Figure VIII-2 depicts the current noise contours which surround John Wayne Airport as well as the policy implementation line. Figure VIII-2 also represents the future levels of aircraft noise because of the assumption of 72,000 operations per year established as a part of the amendment in 1979. This map also depicts the Project Case Contour for John Wayne Airport as adopted by the Santa Ana Heights Land Use Compatibility Program and the John Wayne Airport Master Plan. Precise noise

contour maps are available from RDMD which depict these two areas with the map accuracy standards that are required for project-specific evaluations.

Information in the section that follows includes typical noise contours as projected for traffic on arterial highways. Figure VIII-3 shows typical cross-sections of arterial highways, which depict how noise levels vary with distance and speed. Figure VIII-4 is a generalized view of how noise from the assumed speed and volume of traffic might be affected by topography or by man-made features. The intent is to portray typical measures which may reduce the "worst case" noise impact area. (Note: Figures VIII-3 and VIII-4 have been prepared only for illustrative purposes. They are not intended to represent noise control policy.)

Figure VIII-5 depicts conditions that were expected in the year 2000. The contours are based on assumptions related to the speed and volume of traffic that is a worst case. Heavier traffic at a lower speed or lighter traffic at a higher speed would each result in a smaller area impacted (i.e., narrower

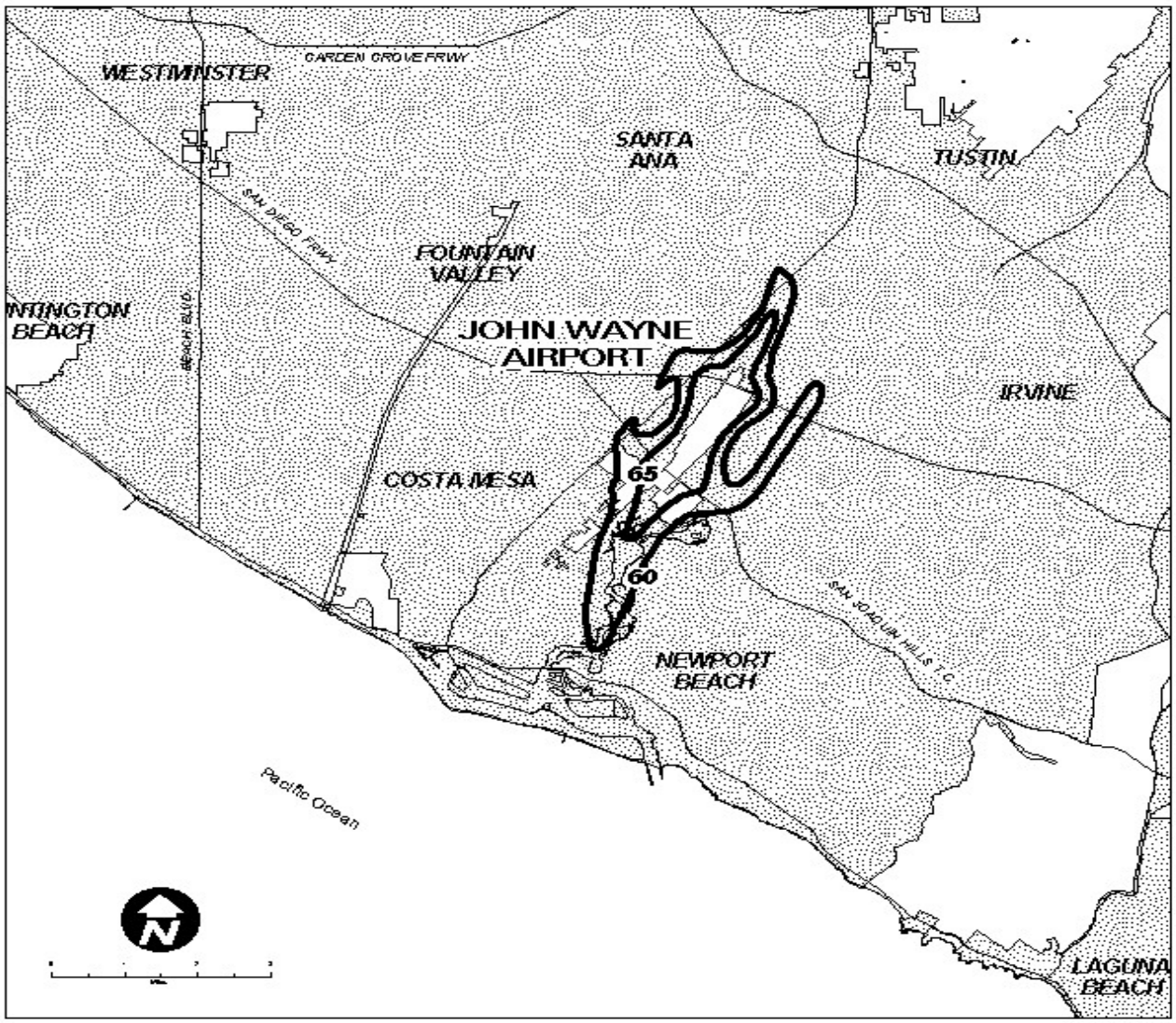
contours). Standard rights-of-way have also been assumed.

Under the assumptions, the 70-decibel CNEL contour for secondary and primary arterials falls within the right-of-way, if not within the roadway itself. These contours are not depicted on Figure VIII-5 for clarity of presentation. Their addition would not serve to depict residential areas so impacted and would only clutter the maps further.

The CNEL resulting from the noise produced by many sources is not depicted. Thus, there are separate maps for each major source. Also, only an approximation has been made in the vicinity of intersections. Community noise in such areas is a complex phenomenon and can be evaluated only by detailed measurements and analysis of the noise at a specific location of interest.

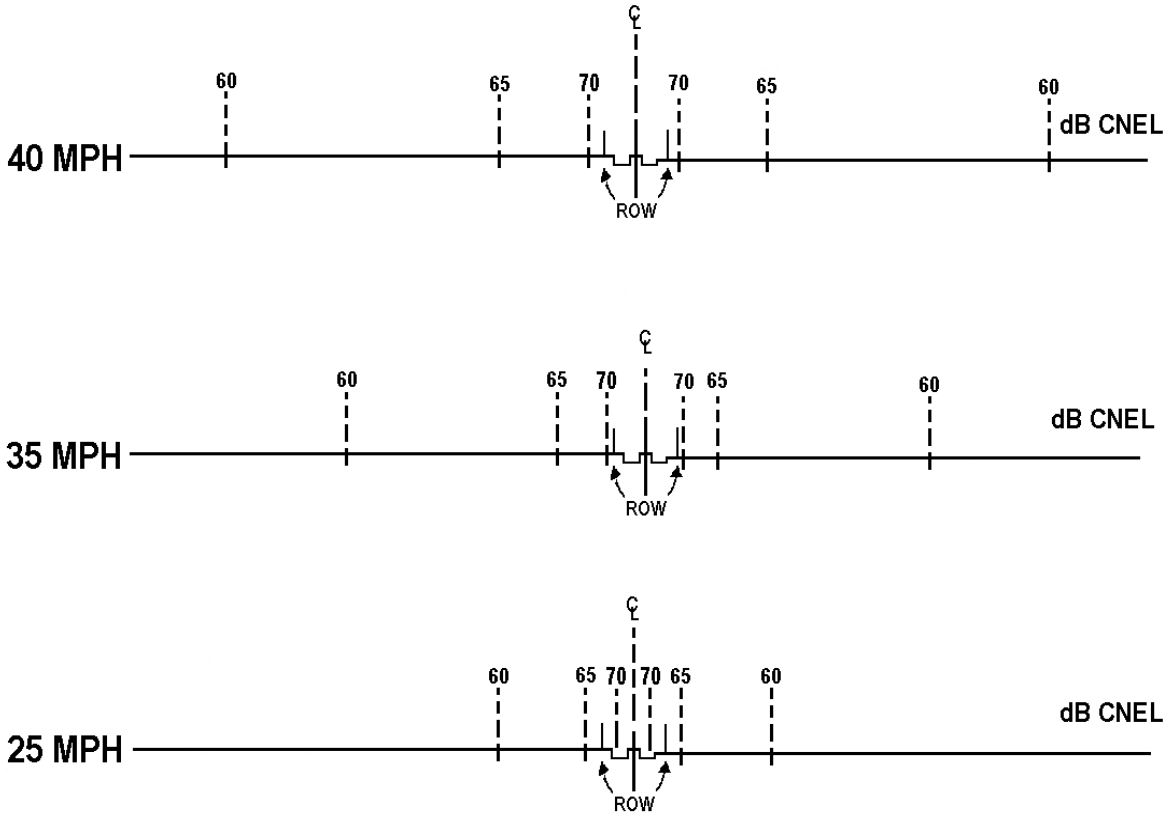
Figure VIII-6 depicts noise contours for through railroad facilities in the unincorporated parts of the County. The contours are based on only a modest increase in the level of railroad operations. At the General Plan level of detail, there is

Figure VIII-2



GENERALIZED NOISE EQUIVALENT LEVEL CONTOURS
From Air Facilities

Figure VIII-3



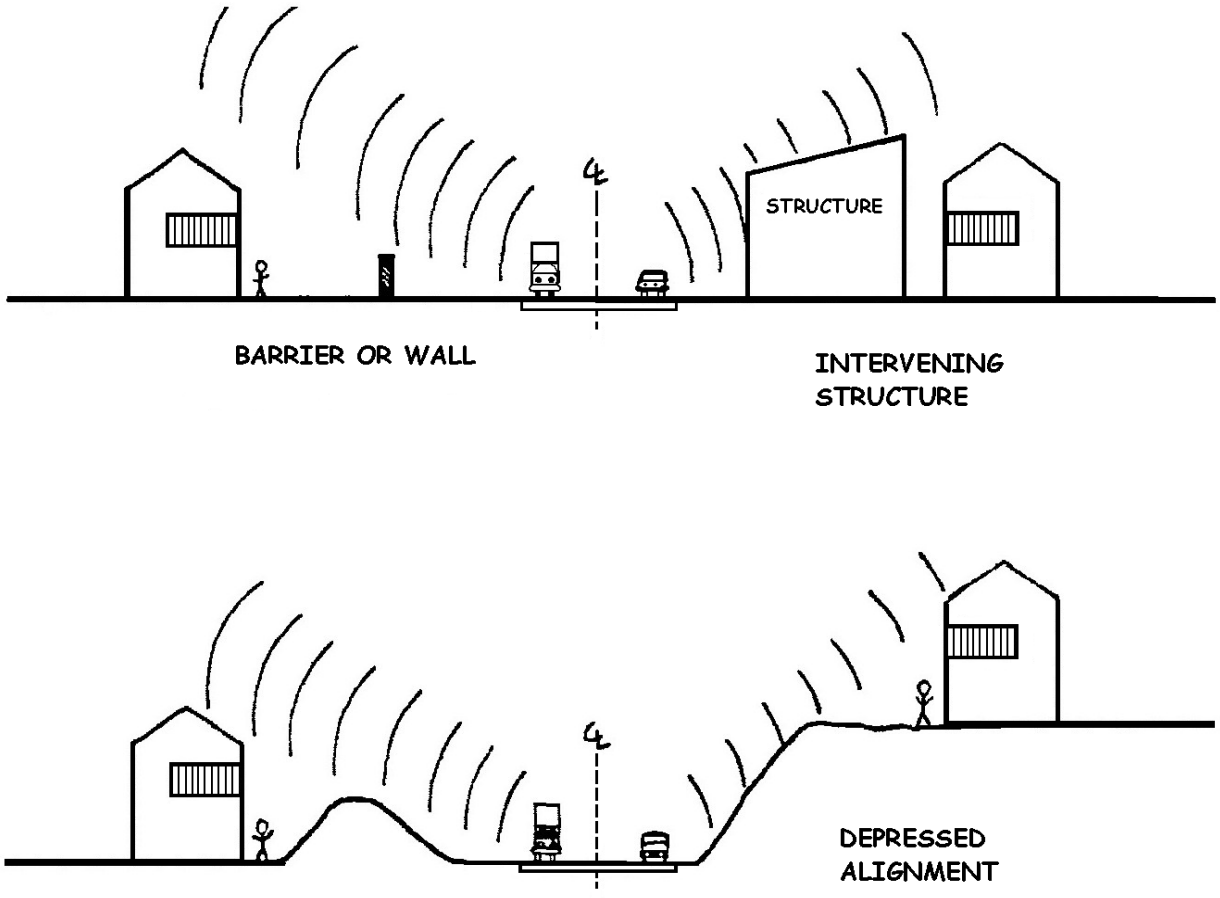
PRIMARY ARTERIAL HIGHWAY
30,000 Average Daily Traffic

NOTES: Calculations based on hard site, flat terrain, 180' angle of view, standard County truck/auto mix, 0-2% roadway gradient, roadway at level of service C, and no contributions from other noise sources.

℄: Center Line ROW : Right-of-Way Line

EFFECT OF SPEED ON COMMUNITY NOISE EQUIVALENT LEVELS

Figure VIII-4



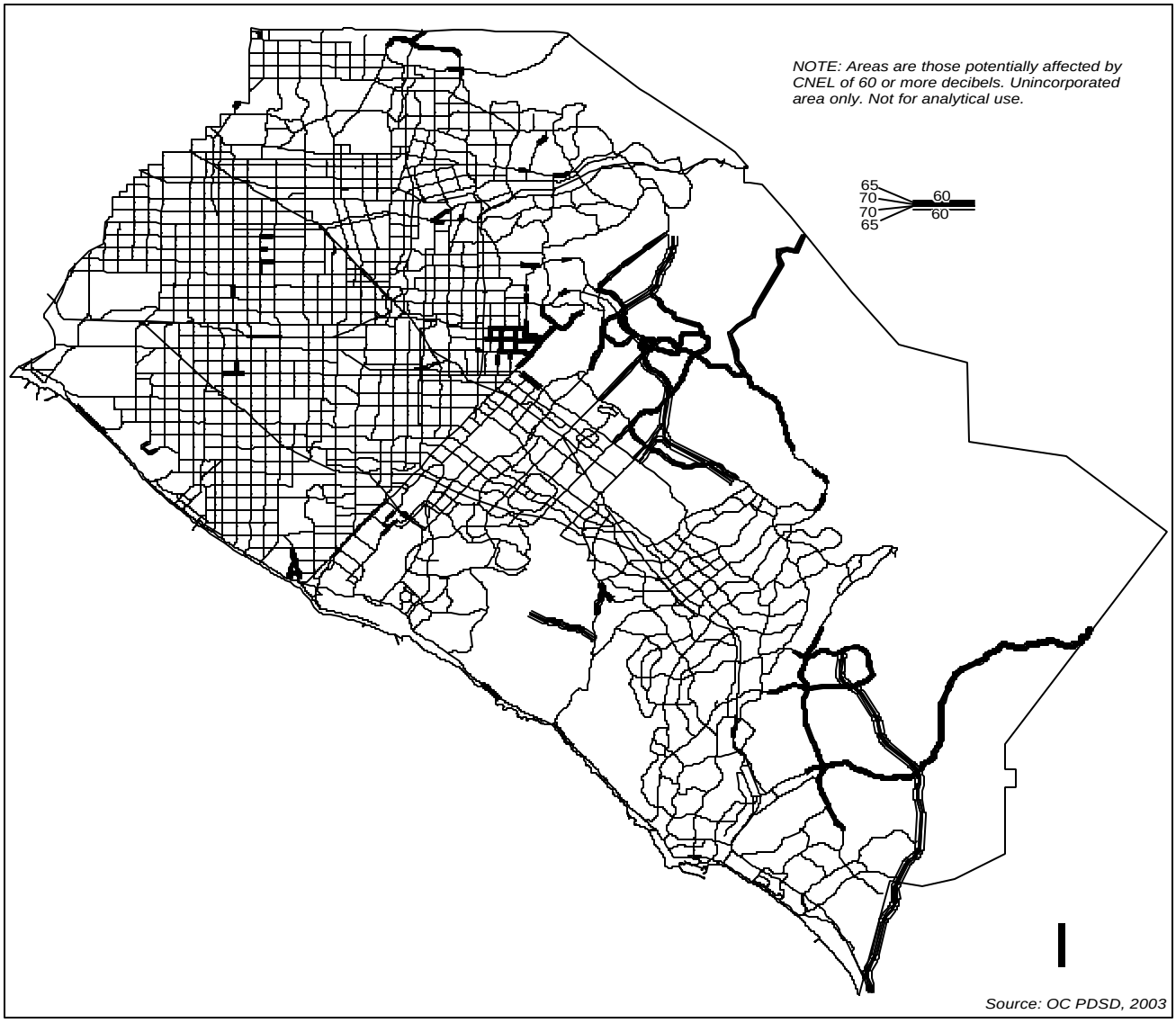
TYPICAL NOISE MITIGATION MEASURES

no real difference in the location of the contours for the years 2000 and 2025. The contours plotted represent levels of activity for the year 2000. Thus, 1980 lines would be slightly inside those shown on Figure VIII-6. The location of the contours for the year 2025 would require recalculation if there were a significant shift in rail activity. A new high-speed rail facility between Los Angeles and San Diego is not one of the assumptions underlying the Noise Element.

Other noise sources in a community include industry, construction, and people and are often referred to as "fixed" sources. Industrial noise generated by processing and operations is usually of long duration at relatively low frequencies. Construction noise sources (diesel engines, air compressors, electric motors, etc.) generate noise for extended periods of time with intermittent high noise levels.

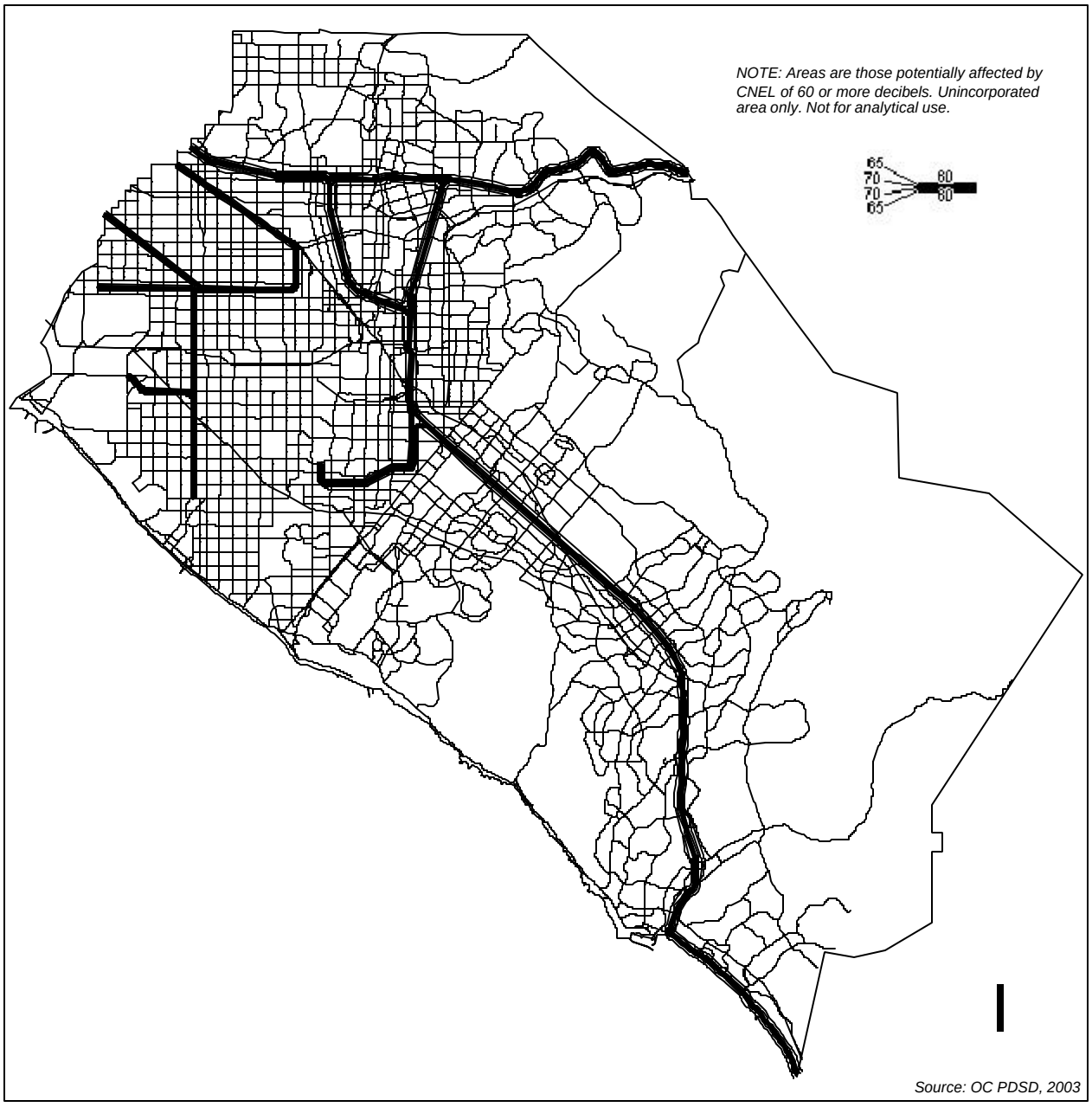
Population noise represents the noise generated by human activity in the community. Sources include air conditioners, lawn mowers, radio/stereo/television, sports arenas, schools, and other entertainment and commercial activities. In general, the control of noise from these sources is addressed in the County Noise Ordinance which is administered by the County's Health Care Agency.

Figure VIII-5



GENERALIZED COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS
From Arterial Highways

Figure VIII-6



GENERALIZED COMMUNITY NOISE EQUIVALENT LEVEL CONTOURS
From Through Railroads

ESTIMATES OF AFFECTED POPULATION

Table VIII-1 contains the estimates (existing and future) of population residing in the potential noise-impacted areas. It must be stressed that these estimates are based on unmitigated situations, so that the number of people actually affected will be less dependent on mitigation measures employed.

This table is based on data from the 2000 census of Population and Housing data and from OCP- 2000 projections of dwelling units, used in conjunction with the figures previously described. Standard factors for the population per household were applied to derive the population estimates. Once again, it must be stressed that this represents a "worst case" situation.

ANALYSIS OF FUTURE CONDITIONS

By the year 2025, the horizon year of this Element, there will be more people in Orange County, more economic activity, and more traffic of all types. Increased development will lead to more transportation facilities. Overall, the County will exhibit higher population densities. All of these factors will lead to situations in which a greater number of people will reside in areas potentially subject to higher noise impacts.

For the unincorporated area of Orange County, a relatively high percentage of this development will have occurred subsequent to the adoption of land use-noise compatibility policies and standards (the Noise Element was originally adopted in 1975). As a result, more of the dwellings, offices, and other inhabited structures will have been built in accordance with the policies and standards that are contained in this Noise Element.

An estimate of the potential population residing in noise impacted areas was prepared and presented in Chapter II, Background for Planning. That estimate represents the maximum number of people likely to live in those areas. The usefulness of the estimate is for comparative, rather than absolute evaluations. The actual number of affected residents will be less (and probably significantly less), although there will be some Orange County residents who will reside in areas that are noisier than is desired. Some of the factors that may influence how many people actually will live in noisy areas are discussed in the paragraphs that follow.

TABLE VIII-1.

POPULATION POTENTIALLY AFFECTED BY COMMUNITY NOISE EQUIVALENT LEVELS

(In Thousands)

	70 decibels and higher		65 decibels and higher[1]		60 decibels and higher[2]	
SOURCE	2000	2025	2000	2025	2000	2025
Roads	4	19	18	100	51	258
Rail	*	*	3	3	4	4
Air	4	5	9	27	42	140
Composite[3]	5	20	25	120	80	37

* Less than one thousand people

Notes: (1) Includes those potentially impacted by more than 70 decibels.

(2) Includes those potentially impacted by more than 65 decibels.

(3) Composite value is not a total in that certain areas are impacted by more than one source.

Some planning constraints exist. Local jurisdictions have control over only some factors which influence the level of noise in an area. Noise compatible land use planning and the discretionary review of project applications are probably the best noise prevention and control tools available to the County. However, these mechanisms are of limited effectiveness in dealing with those instances in which a pre-existing noise-land use incompatibility exists. Unless a development proposal involving a discretionary approval is made, there are no mechanisms to ensure that corrective action will be taken.

The structure of the County's economy could change significantly. While this is a remote possibility within the time horizon of the Noise Element, such shifts are conceivable. If so, there could be new sources of community noise. Similar changes could occur in the temporal work patterns associated with the local economy. If more multiple work shifts were to occur, then the proportion of traffic occurring during the evening (7 - 10 p.m.) or night (10 p.m. - 7 a.m.) time periods may increase.

While these changes would probably have a beneficial effect on peak period traffic congestion, they could increase Community Noise Equivalent Levels due to the additional weight given to noise that occurs during the evening and nighttime periods.

Technological changes are a possibility as they relate to transportation facilities. Reductions in the noise from automobiles and trucks are certainly possible. Quieter tires or quieter engines could each lead to a significant reduction in the areas affected by noise from arterial highways. Neither of these topics is subject to local control nor are the effects of local influence very great.

As a result, the assumption made in this document is that the noise levels associated with the current vehicle fleet are the appropriate ones to use. When conclusive evidence is available that supports different assumptions, then they will be incorporated in a subsequent amendment to this Element.

A similar set of uncertainties exists as it relates to noise characteristics of future generations of aircraft, both civilian and military. Once again, the assumptions utilized here will be changed when the characteristics and utilization rates of such new aircraft are known.

Another technological change that may have an impact on the future noise environment is the role of telecommunications in the lifestyle of county residents. If there should be a significant substitution of communications for transportation, then the traffic volumes and the level of noise from arterial highways might be less than forecasted. Careful attention to and observation of changing traffic patterns will be required prior to adjusting the community noise estimates.

A final technological factor is the absolute accuracy of the estimates of future noise environments. Analytical models used to

develop estimates will be improved as new evidence becomes available. The accuracy of the data base will be improved by the acquisition of new data through various national and international efforts. When improved analytical models are available, it may be appropriate to recalculate the noise contours contained in this document.

There are fiscal constraints which affect the future noise environment as well. Attenuation measures all have a cost associated with them. Those that are to be paid for by public agencies (such as acoustical barriers along freeways or arterial highways) must compete for scarce resources with other public needs. Cost considerations are particularly critical for retroactive improvements.

Noise Referral Zones

The noise contours depicted on the maps in the Existing Noise Environment section of this Element reflect transportation noise sources (i.e., arterial highways, rail lines and airports) which are, and are expected to remain, major sources of noise in unincorporated areas of Orange County.

The contours shown on the maps indicate noise-affected areas which constitute Noise Referral Zones for purposes of this Element. Such a zone is defined as that area with a total noise environment of 60 decibels Community Noise Equivalent Level (CNEL) or more. It is the level at which either State or Federal laws and standards related to land use become important and, in some cases, supersede local laws and regulations.

Any development proposed which may be impacted by a CNEL from each noise source of 60 or more decibels will be evaluated on a project specific basis. The contour figures in the Existing Noise Environment section of this Element for railroads and arterial highways depict a "worst case" situation. As used here, "worst case" means the maximum area that might be impacted, given that:

a) No sound absorbing or attenuating effects of topography or man-made features have been considered; and

b) The contours reflect operation of the facilities at their design level (which may be greater than the current level of traffic and may be less than that generated if the facility were upgraded after adoption of this Element).

The intent of the Noise Referral Zone is to act as a triggering mechanism or flag for development proposals in areas potentially adversely affected by high noise levels. If a development proposal falls within a Noise Referral Zone, it will be subject to evaluation and review to determine whether the project is indeed within an area where the CNEL is 60 or more decibels. It is during this initial evaluation of a project that the effect of existing development, topographic features, or other such noise attenuation measures is considered, although at a very general level of detail.

Acoustical analysis reports shall be prepared in any instance where there is the possibility

COMMON NOISE SOURCE LEVELS

70 dBA: television

80-90 dBA: blender

100 dBA: wood-working class

130 dBA: jack-hammer

157 dBA: balloon pop

of unacceptable noise impacts. Thus, unless it can be shown with certainty that the project is outside the area that has a CNEL of 60 or more decibels, an acoustical analysis report will be required.

OBJECTIVES AND POLICIES

This section contains the key objectives and assumptions that have guided the development of the Noise Element. They are either explained fully or are referenced with information as to where a full explanation can be found and a unifying characteristic of all assumptions is that they are consistent with those used in other elements of the General Plan.

Objectives, Assumptions, and Definitions

A key objective of this Noise Element is to ensure that each County resident's quality of life is not affected adversely by high noise levels. Thus mitigation of noise is of paramount importance.

Noise affects all land uses. Residential uses are the most noise sensitive because of structural design, 24-hour per day duration of use and because such uses typically need, and are designed to incorporate outdoor living areas. Other noise sensitive uses include schools, hospitals, and places of worship. While mitigation of the effects of excessive noise in enclosed or interior areas are feasible (if expensive), it becomes more difficult for outdoor areas (particularly for aircraft noise sources).

In general, any development that results in a situation where there is an unacceptable level of noise in any living area (interior or exterior), must be mitigated or the project or use revised to avoid the conflict.

Aircraft noise as it affects outdoor living areas[3] is particularly critical because it is generally impracticable to provide sufficient noise control to achieve an acceptable noise environment.

Noise sensitive land uses are defined as those specific land uses that have associated indoor and/or outdoor human activities that may be subject to stress and/or significant interference from noise produced by community sound sources.

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[4]**"Outdoor living area" is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).**

Such human activity typically occurs daily for continuous periods of 24 hours or is of such a nature that noise is significantly disruptive to activities that occur for shorter periods. Specifically, noise sensitive land uses include: residences of all types, hospitals, rest homes, convalescent hospitals, places of worship, and schools.

Development in this context refers to the initial development of land from an unimproved state to the redevelopment of land in which one use is replaced by another or to a significant intensification in an existing use (e.g., replacing a single family dwelling unit with a four-plex). These types of development are the ones on which the County takes discretionary action. Table VIII-2 depicts major uses in terms of noise sensitivity.

For the purpose of complying with the Table VIII-2 criteria, the noise from all sources will be combined and rated in terms of Community Noise Equivalent Level (CNEL). For multiple noise sources, all sources can either be mathematically combined or the CNEL rating can be calculated in the following manner.

A primary, or loudest, noise source will be identified. All other sources will then be considered secondary noise sources. Secondary noise sources that are at least 10 decibels less than the primary source can be considered to have an acoustically insignificant effect on the noise level rating and therefore will not need to be included in the CNEL calculations. If the primary source requires abatement to comply with Table VIII-2 requirements, then the abated CNEL rating for the primary source will be used to determine the significance of any secondary source. For example, if the primary source is 75dB CNEL and requires abatement to 65dB CNEL, then any secondary source of 55dB CNEL or less can be considered acoustically insignificant. Therefore, a secondary source of 60dB CNEL would require abatement to a 55dB CNEL rating thereby making that acoustically insignificant.

Residential land use is the most sensitive because of the nature of activities which occur over a 24-hour period as well as the generally accepted need for, and design incorporating, outdoor living areas. An upper CNEL limit of 65 decibels was chosen above which noise is extremely annoying. Previous policy decisions by the Board of Supervisors have endorsed the 65-decibel CNEL as the critical sound-level criterion in guiding planning decisions for sensitive land uses.

"Of all noises, I think music is the least disagreeable."

Samuel Johnson

TABLE VIII-2.

COMPATIBILITY MATRIX FOR
LAND USE AND COMMUNITY NOISE EQUIVALENT LEVELS
(CNEL)

TYPE OF USE	65+ decibels CNEL	60 to 65 decibels CNEL
Residential	3a, b, e	2a, e
Commercial	2c	2c
Employment	2c	2c
Open Space		
Local	2c	2c
Community	2c	2c
Regional	2c	2c
Educational Facilities		
Schools (K through 12)	2c, d, e	2c, d, e
Preschool, college, other	2c, d, e	2c, d, e
Places of Worship	2c, d, e	2c, d, e
Hospitals		
General	2a, c, d, e	2a, c, d, e
Convalescent	2a, c, d, e	2a, c, d, e
Group Quarters	1a, b, c, e	2a, c, e
Hotel / Motels	2a, c	2a, c
Accessory Uses		
Executive Apartments	1a, b, e	2a, e
Caretakers	1a, b, c, e	2a, c, e

Note: See Table VIII-3 for definitions of the entries in this table.

TABLE VIII-3.

EXPLANATION AND DEFINITIONS ON TABLE VIII-2

ACTION REQUIRED TO ENSURE COMPATIBILITY
BETWEEN LAND USE AND NOISE FROM EXTERNAL SOURCES

1 = Allowed if interior and exterior community noise levels can be mitigated.
2 = Allowed if interior levels can be mitigated.
3 = New residential uses are prohibited in areas within the 65-decibel CNEL contour from any airport of air station; allowed in other areas if interior and exterior community noise levels can be mitigated. The prohibition against new residential development excludes limited "infill" development within an established neighborhood.

STANDARDS REQUIRED FOR COMPATIBILITY OF LAND USE AND NOISE

a = Interior Standard: CNEL of less than 45 decibels (habitable rooms only).
b = Exterior Standard: CNEL of less than 65 decibels in outdoor living areas.
c = Interior Standard: Leq (h)=45 to 65 decibels interior noise level, depending on interior use.
d = Exterior Standard: Leq (h) of less than 65 decibels in outdoor living areas.
e = Interior Standard: As approved by the Board of Supervisors for sound events of short duration such as aircraft flyovers or individual passing railroad trains.

KEY DEFINITIONS

Habitable Room – Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

Interior – Spaces that are covered and largely enclosed by walls.

Leq (h) – The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be Leq (12) where the equivalent sound level is the average over a specified 12-hour period (such as 7:00 a.m. to 7:00 p.m.). Typically, time period "h" is defined to match the hours of operation of a given type of use.

Outdoor Living Area – Outdoor living area is a term used by the County of Orange to define spaces that are associated with residential land uses typically used for passive private recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas, and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

As a result of the Board of Supervisors' adoption of the Santa Ana Heights Land Use Compatibility Plan (LUCP), a projected 65-decibel CNEL noise contour was adopted for John Wayne Airport reflecting expected future flight levels and a reasonable mix of aircraft types. The policy implementation lines can only be changed as part of a Noise Element Amendment.

The County also has a regular program of monitoring noise in the vicinity of John Wayne Airport. The noise-monitoring program is used to provide supporting data to confirm applicability of the fixed policy implementation lines. The locations of other CNEL contours are plotted for both of these facilities, as well. The 60-decibel CNEL contour is the boundary of the noise referral zone. The other contours are not as important for land use planning purposes since key development policies are not based upon them.

All new residential uses, schools, places of worship, and convalescent hospitals are generally incompatible within the 65-decibel CNEL contour for any other airport or air station or for any other source of noise. These uses normally require outdoor living areas for functional or therapeutic purposes or, in the case of nearly all residential projects, to afford the full life style that is the goal of the County's General Plan. For these reasons, the ability to mitigate the effects of noise on these outdoor living areas is of paramount importance. Since it is generally impracticable to mitigate aircraft-induced noise in outdoor living areas, such uses are incompatible.

Noise sensitive uses which have no outdoor living areas may be compatible. These uses shall be considered compatible if and only if all standards contained in this Element are met.

Non-noise sensitive uses are compatible so long as interior noise levels meet the policies and standards established by this Noise Element.

Policies

Tables VIII-2 and VIII-3 were derived from the policies that are contained in narrative form in this chapter, from state requirements and standards and from other policies of the Board of Supervisors that relate to noise environments. The tables are meant to convey, in objective terms, the compatibility of, and standards for, the integration of land use planning and either calculated or measured noise environments.

Three general types of noise-impact and noise-mitigation situations can be identified and related to the noise environment.

First are those situations where a new use is being proposed that is impacted by an existing noise source. "New" in this context refers both to the initial development of land from an unimproved state and to the redevelopment of land in which one use is replaced by another. This is the most

common situation and is typified by a residential tract adjacent to, and impacted by, noise from an arterial highway.

Mitigation of project noise through project design in this situation is clearly a preventative approach to assure compatibility of land use with long-term outdoor noise.

A second situation occurs when an existing use is impacted by a new or expanded source of noise. This situation is typified by general planning of a new transportation facility close enough to existing uses to have noise impacts on them or the expansion of such a facility beyond currently planned levels. Again, noise mitigation through project design is a preventative approach in that noise/land use incompatibilities are avoided. This situation is one in which the project proponent is obliged to mitigate the impacts of the new source of noise.

For the first two situations, the applicable standards are depicted on Tables VIII-2 and VIII-3. In the first situation, any project that is approved must meet the standards specified through appropriate noise mitigation measures, or the project must be modified to ensure consistency with the Noise Element.
In the second situation, there must be a similar application of noise mitigation or other steps taken by the project proponent to avoid the inconsistency. In either case, the acceptable levels of noise in affected areas are as specified on Tables VIII-2 and VIII-3.

The third situation is one in which land uses and noise sources were established prior to adoption of noise policies and standards and are thus rendered incompatible "after fact." (The Noise Element's initial adoption was in 1975.) This situation is one in which existing uses are located within noise impact areas from existing sources. In most instances, these inconsistencies predate both the current knowledge of, and concern for, the deleterious effects of noise and the resulting statutes (e.g., the California Environmental Quality Act and planning laws related to local general plans). In the third situation, remedial action would be required to obtain consistency with the Noise Element's standards identified on Tables VIII-2 and VIII-3. Such action would lead to retroactive compatibility. While County policy stresses the desirability of such steps; they are voluntary on the part of individual property owners or project proponents.

- ***Major Noise Element Policies***

The policies listed below help guide the implementation of the Noise Element. They provide the link between the noise related goals of the General Plan and the programs that have been designed to accomplish the goals.

1. INTERGOVERNMENTAL COOPERATION

To cooperate with other County agencies and levels of government to bring about a comprehensive and

coordinated effort to reduce noise levels.

1.1 To recommend needed changes in Federal and State legislation which will be effective in reducing noise and can be efficiently administered.

1.2 To cooperate in efforts to develop mechanisms to assure coordination of all governmental jurisdictions in the field of noise control.

These policies involve cooperative efforts with other jurisdictions in order to achieve greater compatibility between noise and land uses. They acknowledge the regional aspects of many noise-related issues. They are implemented primarily through existing cooperative mechanisms such as Southern California Association of Governments and the County Supervisors Association of California.

2. PUBLIC INFORMATION AND NOTIFICATION

To disseminate public information regarding noise and programs to reduce noise levels and their impacts.

2.1 To provide information to the public regarding the health effects of high noise levels and means of mitigating such levels.

2.2 To provide information regarding Noise Referral Zones and noise attenuation measures to developers and the public.

2.3 To cooperate with industry to develop public information programs on noise abatement.

2.4 To require that prospective purchasers or end users of property be notified of overflight, sight and sound of routine aircraft operations by all effective means including:

a) Requiring new residential subdivisions which are located within the 60-decibel CNEL noise contour or are subject to overflight, sight and sound of aircraft operating from John Wayne Airport to have such information included in the State of California Final Subdivision Public Report.

b) Requiring that Declaration and Notification of Aircraft Noise and Environmental Impacts be recorded and available to prospective purchasers or end users of property located within the 60-decibel CNEL noise contour for any airport or air station or is subject to routine aircraft overflight.

c) Requiring an Aviation Easement across property that is within the 60-decibel CNEL noise contours for any airport or Los Alamitos air station or is subject to routine aircraft overflight.

d) Requiring the posting of noise impact notification signs in all sales offices associated with new residential development that is located within the 65-decibel CNEL contour from any airport or air station.

e) Any other appropriate means as specifically directed by the Board of Supervisors.

These policies are implemented at various stages of the development review process. The intent of this section is to utilize the most efficient means of providing appropriate noticing. Thus, some of these steps occur at the tract map stage; others at the building permit stage.

3. TRANSPORTATION SYSTEM NOISE CONTROL

To encourage the control of noise from transportation systems as the most efficient and effective means of reducing noise at the source.

3.1 To enforce noise sections of the State Motor Vehicle Code.

3.2 To encourage the State to require adequate noise suppression devices (mufflers, etc.) for all motor vehicles operated within the County.

3.3 To restrict the use of trail bikes, mini-bikes and other off-road motor vehicles in areas of the County except where designated for that purpose.

3.4 To study commercial truck movements and operations in the County and establish truck routes away from noise-sensitive areas where feasible.

3.5 To encourage development of a mass multi-modal transit system with reduced noise emission characteristics.

3.6 To review the Federal Railroad Noise Standards of 1974 for possible adoption by Orange County.

3.7 To continue the current policy of encouraging the use of noise reducing modifications to jet engines and the use of quieter jet aircraft at John Wayne Airport.

3.8 To employ noise mitigation measures in the design of new arterials consistent with funding capability and to support efforts by the State Department of Transportation for remedial acoustical protection for existing highways where needed by the County.

Since the County has little direct control over vehicle noise-level standards, cooperative efforts with state and

federal offices are important. In those instances where the County is directly involved (usage in County parks, for example), these policies are implemented through ordinances and operating procedures.

4. NOISE MONITORING AND ABATEMENT

To monitor noise levels, and adopt and enforce noise abatement programs.

4.1 To enforce the County's Noise Ordinance to prohibit or mitigate harmful and unnecessary noise within the County.

4.2 To encourage Orange County cities to adopt the County's model noise ordinance.

4.3 To develop and enforce standards in addition to those presently included in the Noise Ordinance to regulate noise from construction and maintenance activities and commercial public and industrial 1 land uses.

4.4 To consider noise reduction as a factor in the purchase of County maintenance equipment and the use of such equipment by County contractors and permittees.

4.5 To require that noise from motors, appliances, air conditioners, and other consumer products does not disturb the occupants of surrounding properties.

4.6 To continue identification of noise-producing sources, such as helicopter operations, as part of subsequent amendments to the Noise Element.

These policies are implemented jointly by the County Health Care Agency and the Resources and Development Management Department through the Noise Ordinance, and by RDMD in its procurement process for new and replacement vehicles and equipment.

5. NOISE/LAND USE PLANNING

INTEGRATION

To fully integrate noise considerations in land use planning to prevent new noise/land use conflicts.

5.1 To utilize the criteria of acceptable noise levels for various types of land uses as depicted on Tables VIII-2 and VIII-3 in the review of development proposals.

5.2 To prohibit new residential land uses within the 65-decibel CNEL contour from any airport or air station.

5.3 To limit new non-residential noise-sensitive land uses that are within a 65-decibel CNEL area from any source. Noise sensitive land uses will be permitted if, and only if, appropriate mitigation measures are included such that the standards contained in this Element and in appropriate State and Federal Codes are met. Specifically, non-residential noise-sensitive land uses include: hospitals, rest homes, convalescent hospitals, places of worship, and schools.

5.4 To stress the importance of building and design techniques in future site planning for noise reduction.

5.5 To utilize the California Noise Standards for Airports in planning for areas surrounding military as well as civilian airports.

These policies are implemented at different stages in the review of projects on which the County takes discretionary action. Tables VIII-2 and VIII-3 succinctly depict the County policies related to land uses and acceptable noise levels. The tables are the primary tools which allow RDMD to ensure integrated planning for compatibility between land uses and outdoor noise.

6. NOISE SENSITIVE LAND USES

To identify and employ mitigation measures in order to reduce the impact of noise levels and attain the standards established by the Noise Element, for both interior areas and outdoor living areas for noise sensitive land uses.

6.1 To encourage all property owners within the identified Noise Referral Zones to acoustically insulate all living quarters. This will be optional to the property owner.

6.2 To continue enforcement of Chapter 35 of the Uniform Building Code, currently adopted edition, and the California Noise Insulation Standards (Title 25 California Administrative Code).

6.3 To require that all new residential units have an interior noise level in living areas that is not greater than 45 decibels CNEL with it being understood that standard construction practices reduce the noise level by 12 decibels CNEL with the windows open and 20

"Silence is exhilarating at first-as is noise-but there is sweetness to silence outlasting exhilaration.."

Edward Hoagland

decibels CNEL with the windows closed. Higher attenuation than listed above may be claimed if adequate field monitoring or acoustical studies are provided to and approved by the County.

6.4 To require that all new residential units have an interior noise level in habitable rooms that does not exceed acceptable levels as caused by aircraft fly-overs or as caused by individual passing railroad trains.

6.5 All outdoor living areas associated with new residential uses shall be attenuated to less than 65 decibels CNEL.

6.6 To urge the use of acoustical insulation programs for schools located in the county, and where subject to County approval, to insure that new buildings for school uses meet state and local acoustical standards.

6.7 To apply noise standards as defined in the Noise Element for noise-sensitive land uses.

These policies also are reflected in Tables VIII-2 and VIII-3. They are implemented in all phases of project review.

[5]An arterial highway, as long as it is shown on the Master Plan of Arterial Highways, may exist in its ultimate form, may exist in a partial configuration, or may only be planned. Designation of the arterial highway on the plan and the traffic and noise projections which accompany this designation are, in this context, the "existing noise source."

APPENDIX 4.2

County of Orange Noise Control Ordinance

ARTICLE 1. - GENERAL PROVISIONS [49]

[49] **Editor's note—** Ord. No. 2700, § 1, adopted Sept. 19, 1973, amended this Code by adding Div. 6, Art. 1, §§ 4-6-1—4-6-16 to read as herein set out.

Sec. 4-6-1. - Declaration of policy.
Sec. 4-6-2. - Definitions.
Sec. 4-6-3. - Noise level measurement criteria.
Sec. 4-6-4. - Designated noise zone.
Sec. 4-6-5. - Exterior noise standards.
Sec. 4-6-6. - Interior noise standards.
Sec. 4-6-7. - Special provisions.
Sec. 4-6-8. - Schools, hospitals and churches; special provisions.
Sec. 4-6-8.1. - Motor vehicle racing.
Sec. 4-6-9. - Air conditioning and refrigeration; special provisions.
Sec. 4-6-10. - Noise level measurement.
Sec. 4-6-11. - Manner of enforcement.
Secs. 4-6-12—4-6-14. - Reserved.
Sec. 4-6-15. - Violations; misdemeanors.
Sec. 4-6-16. - Reserved.

Sec. 4-6-1. - Declaration of policy.

In order to control unnecessary, excessive and annoying sounds emanating from unincorporated areas of the County, it is hereby declared to be the policy of the County to prohibit such sounds generated from all sources as specified in this article.

It is determined that certain sound levels are detrimental to the public health, welfare and safety, and contrary to public interest.

(Ord. No. 2700, § 1, 9-19-73)

Sec. 4-6-2. - Definitions.

The following words, phrases and terms as used in this article shall have the meaning as indicated below:

Ambient noise level shall mean the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

Cumulative period shall mean an additive period of time composed of individual time segments which may be continuous or interrupted.

Decibel (dB) shall mean a unit which denotes the ratio between two (2) quantities which are proportional to power: the number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

Dwelling unit shall mean a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

Emergency machinery, vehicle or work shall mean any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

Fixed noise source shall mean a stationary device which creates sounds while fixed or motionless, including but not limited to industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

Grading shall mean any excavating or filling of earth material, or any combination thereof, conducted at a site to prepare said site for construction or other improvements thereon.

Impact noise shall mean the noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

Mobile noise source shall mean any noise source other than a fixed noise source.

Noise level shall mean the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) micronewtons per square meter. The unit of measurement shall be designated as dB(A).

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

Residential property shall mean a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

Simple tone noise shall mean a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

Sound level meter shall mean an instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

Sound pressure level of a sound, in decibels, shall mean twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-3. - Noise level measurement criteria.

Any noise level measurements made pursuant to the provisions of this article shall be performed using a sound level meter as defined in section 4-6-2.

(Ord. No. 2700, § 1, 9-19-73)

Sec. 4-6-4. - Designated noise zone.

The entire territory of Orange County, including incorporated and unincorporated territory, is hereby designated as "Noise Zone 1."

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-5. - Exterior noise standards.

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

NOISE STANDARDS

Noise

Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	50 dB(A)	10:00 p.m.— 7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level,

when measured on any other residential property, either incorporated or unincorporated, to exceed:

(1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or

(2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

(3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

(4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or

(5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-6. - Interior noise standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

INTERIOR NOISE STANDARDS

Noise

Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	45 dB(A)	10:00 p.m.— 7:00 a.m.

In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A).

(b) It shall be unlawful for any person at any location within the unincorporated area of the County to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured within any other dwelling unit on any residential property, either incorporated or unincorporated, to exceed:

(1) The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The interior noise standard plus five (5) db(A) for a cumulative period of more than one (1) minute in any hour; or

(3) The interior noise standard plus ten (10) db(A) for any period of time.

(c) In the event the ambient noise level exceeds either of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category the maximum allowable noise level under said category shall be increased in reflect the maximum ambient noise level.

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-7. - Special provisions.

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

(a) Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college.

(b) Outdoor gatherings, public dances and shows, provided shall events are conducted pursuant to a license issued by the County of Orange pursuant to Title 5 of the Codified Ordinances of the County of Orange.

(c) Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity.

(d) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

(e) Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 p.m. and 7:00

a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday.

(f) All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.

(g) Mobile noise sources associated with agricultural operations, provided such operations do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or any time on Sunday or a Federal holiday.

(h) Mobile noise sources associated with agricultural pest control through pesticide application, provided that the application is made in accordance with restricted material permits issued by or regulations enforced by the Agricultural commissioner.

(i) Noise sources associated with the maintenance of real property, provided said activities take place between 7:00 a.m. and 8:00 p.m. on any day except Sunday or a Federal holiday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday or a Federal holiday.

(j) Any activity to the extent regulation thereof has been preempted by State or Federal law.

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-8. - Schools, hospitals and churches; special provisions.

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise limits as specified in section 4-6-5 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three (3) separate locations within one-tenth of a mile of the institution indicating the presence of a school, church or hospital.

(Ord. No. 2700, § 1, 9-19-73)

Sec. 4-6-8.1. - Motor vehicle racing.

It shall be unlawful to conduct motor vehicle racing, testing, timing or similar noise-producing activities at raceways, speedways, off-road vehicle courses, drag strips or other similar places, including, but not limited to, the operation of midget race cars, drag cars, motorcycles, off-road vehicles, and specialty automobiles, between the hours of 11:30 p.m. and 8:00 a.m.

(Ord. No. 3093, § 1, 10-24-78)

Sec. 4-6-9. - Air conditioning and refrigeration; special provisions.

During the five-year period following the effective date of this article, the noise standards

enumerated in sections 4-6-5 and 4-6-6 shall be increased eight (8) db(A) where the alleged offensive noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of this article.

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73)

Sec. 4-6-10. - Noise level measurement.

The location selected for measuring exterior noise levels shall be at any point on the affected property. Interior noise measurements shall be made within the affected dwelling unit. The measurement shall be made at a point at least four (4) feet from the wall, ceiling, or floor nearest the alleged offensive noise source and may be made with the windows of the affected unit open.

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2870, § 1, 10-1-75)

Sec. 4-6-11. - Manner of enforcement.

The Orange County Sheriff, the County Health Officer, the County Building Official and their duly authorized representatives are directed to enforce the provisions of this article. The Orange County Sheriff, the County Health Officer, the County Building Official and their duly authorized representatives are authorized, pursuant to Penal Code Section 836.5, to arrest any person without a warrant when they have reasonable cause to believe that such person has committed a misdemeanor in their presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this article while such person is engaged in the performance of his duty.

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73; Ord. No. 3961, § 1, 4-2-96)

Secs. 4-6-12—4-6-14. - Reserved.

Editor's note— Ord. No. 04-008, § 2, adopted June 8, 2004, repealed sections 4-6-12—4-6-14 in their entirety. Former sections 4-6-12—4-6-14 pertained to the variance procedure; noise variance board; and appeals, respectively, and derived from Ord. No. 2700, § 1, adopted Sept. 19, 1973; Ord. No. 2715, § 1, adopted Nov. 13, 1973; Ord. No. 2870, § 1, adopted Oct. 1, 1975.

Sec. 4-6-15. - Violations; misdemeanors.

Any person violating any of the provisions of this article shall be deemed guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this article shall not be construed as permitting conduct not prescribed herein and shall not affect the enforceability of any other applicable provisions of law.

(Ord. No. 2700, § 1, 9-19-73; Ord. No. 2715, § 1, 11-13-73)

Sec. 4-6-16. - Reserved.

Editor's note— Ord. No. 98-16, § 1, adopted December 8, 1998, amended the Code by repealing § 4-6-16 in its entirety. Former § 4-6-16 pertained to delay in implementation, and derived from Ord. No. 2700, adopted September 19, 1973; and Ord. No. 2715, adopted November 13, 1973.

APPENDIX 6.1

Off-Site Traffic Noise Analysis Worksheets

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Lakeview Ave | Job Number: 7148
Road Segment: North of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,090	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.58	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-18.82	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-22.77	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.3	59.4	57.6	51.6	60.2	60.8
Medium Trucks:	55.0	53.5	47.2	45.6	54.1	54.3
Heavy Trucks:	55.9	54.5	45.4	46.7	55.0	55.2
Vehicle Noise:	63.1	61.4	58.2	53.6	62.1	62.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	64	138	297
CNEL:	32	69	148	319

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Lakeview Ave | Job Number: 7148
Road Segment: South of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,370	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.58	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-17.82	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-21.78	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.3	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	56.0	54.5	48.2	46.6	55.1	55.3
Heavy Trucks:	56.9	55.5	46.4	47.7	56.0	56.2
Vehicle Noise:	64.1	62.4	59.2	54.5	63.1	63.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	35	75	161	346
CNEL:	37	80	172	371

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: CA 90 | Job Number: 7148
Road Segment: North of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,880	vehicles
Vehicle Speed:	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.45	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-12.79	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-16.75	-4.61	-1.20	-5.16	0.000	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	63.3	61.5	55.4	64.1	64.7
Medium Trucks:	59.1	57.6	51.2	49.7	58.2	58.4
Heavy Trucks:	60.4	59.0	50.0	51.2	59.6	59.7
Vehicle Noise:	67.2	65.4	62.2	57.6	66.1	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	256	553
CNEL:	59	127	275	592

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: CA 90 | Job Number: 7148
Road Segment: South of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,280	vehicles
Vehicle Speed:	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.72	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-13.52	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-17.47	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	62.5	60.8	54.7	63.3	63.9
Medium Trucks:	58.4	56.9	50.5	49.0	57.4	57.7
Heavy Trucks:	59.7	58.3	49.3	50.5	58.9	59.0
Vehicle Noise:	66.4	64.7	61.4	56.9	65.4	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	106	229	494
CNEL:	53	114	246	529

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Kellogg Drive | Job Number: 7148
Road Segment: South of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	810 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.87	-4.51	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-20.10	-4.51	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-24.06	-4.51	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.9	58.0	56.2	50.2	58.8	59.4
Medium Trucks:	53.6	52.1	45.8	44.2	52.7	52.9
Heavy Trucks:	54.5	53.1	44.0	45.3	53.6	53.8
Vehicle Noise:	61.7	60.0	56.8	52.1	60.7	61.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	24	52	111	239
CNEL:	26	55	119	257

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Fairmont BL. | Job Number: 7148
Road Segment: North of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,040 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.78	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-19.02	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-22.97	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.1	59.2	57.4	51.4	60.0	60.6
Medium Trucks:	54.8	53.3	47.0	45.4	53.9	54.1
Heavy Trucks:	55.7	54.3	45.2	46.5	54.8	55.0
Vehicle Noise:	62.9	61.2	58.0	53.3	61.9	62.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	29	62	134	288
CNEL:	31	67	143	309

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Fairmont BL. | Job Number: 7148
Road Segment: South of Yorba Linda Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	980 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-2.04	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-19.28	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-23.23	-4.39	-1.20	-5.16	0.000	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	58.9	57.2	51.1	59.7	60.3
Medium Trucks:	54.6	53.1	46.7	45.2	53.6	53.9
Heavy Trucks:	55.4	54.0	45.0	46.2	54.6	54.7
Vehicle Noise:	62.7	60.9	57.8	53.1	61.6	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	28	60	129	277
CNEL:	30	64	138	297

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Village Center Drive | Job Number: 7148
Road Segment: North of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,520 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.13	-4.51	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-17.37	-4.51	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-21.33	-4.51	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.7	58.9	52.9	61.5	62.1
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.6
Heavy Trucks:	57.2	55.8	46.8	48.0	56.4	56.5
Vehicle Noise:	64.4	62.7	59.6	54.9	63.4	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	36	78	169	364
CNEL:	39	84	181	391

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012)
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	970	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.08	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.32	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.28	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.7	58.8	57.0	50.9	59.6	60.2
Medium Trucks:	54.4	52.9	46.5	45.0	53.5	53.7
Heavy Trucks:	55.3	53.8	44.8	46.1	54.4	54.5
Vehicle Noise:	62.5	60.8	57.6	52.9	61.5	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	27	58	125	270
CNEL:	29	62	134	290

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012)
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	410	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.82	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-23.06	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-27.02	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.0	55.1	53.4	47.3	55.9	56.6
Medium Trucks:	50.8	49.3	42.9	41.4	49.8	50.1
Heavy Trucks:	51.6	50.2	41.2	42.4	50.8	50.9
Vehicle Noise:	58.9	57.1	54.0	49.3	57.8	58.3

Centerline Distance to Noise Contour (in feet)

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

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012)
Road Name: San Antonio Road
Road Segment: North of Aspen Way

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	310	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.53	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.76	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.72	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.2	52.3	50.5	44.5	53.1	53.7
Medium Trucks:	48.1	46.6	40.3	38.7	47.2	47.4
Heavy Trucks:	49.5	48.0	39.0	40.3	48.6	48.7
Vehicle Noise:	56.2	54.5	51.2	46.6	55.2	55.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	22	48	102
CNEL:	11	24	51	110

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012)
Road Name: San Antonio Road
Road Segment: South of Aspen Way

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	250	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-7.46	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-24.70	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-28.65	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.2	51.3	49.6	43.5	52.1	52.7
Medium Trucks:	47.2	45.7	39.3	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.1	39.3	47.7	47.8
Vehicle Noise:	55.2	53.5	50.2	45.7	54.2	54.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	41	89
CNEL:	10	20	44	95

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: San Antonio Road | Job Number: 7148
Road Segment: North of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	310 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.53	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.76	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.72	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.2	52.3	50.5	44.5	53.1	53.7
Medium Trucks:	48.1	46.6	40.3	38.7	47.2	47.4
Heavy Trucks:	49.5	48.0	39.0	40.3	48.6	48.7
Vehicle Noise:	56.2	54.5	51.2	46.6	55.2	55.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	22	48	102
CNEL:	11	24	51	110

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Ranch | Job Number: 7148
Road Segment: North of Yorba Linda Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	60 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-14.17	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-31.41	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-35.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.7	46.8	45.0	39.0	47.6	48.2
Medium Trucks:	42.5	40.9	34.6	33.0	41.5	41.7
Heavy Trucks:	43.3	41.9	32.8	34.1	42.4	42.6
Vehicle Noise:	50.5	48.8	45.6	41.0	49.5	50.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	20	43
CNEL:	5	10	21	46

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Ranch | Job Number: 7148
Road Segment: South of Yorba Linda Bl.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	330 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-6.77	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-24.00	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-27.96	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.1	54.2	52.4	46.4	55.0	55.6
Medium Trucks:	49.9	48.3	42.0	40.4	48.9	49.1
Heavy Trucks:	50.7	49.3	40.2	41.5	49.8	50.0
Vehicle Noise:	57.9	56.2	53.0	48.4	56.9	57.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	29	62	134
CNEL:	14	31	67	144

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Via Del Agua | Job Number: 7148
Road Segment: North "A" Street

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	80 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-12.41	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-29.65	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-33.60	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.3	46.4	44.6	38.6	47.2	47.8
Medium Trucks:	42.3	40.8	34.4	32.8	41.3	41.5
Heavy Trucks:	43.6	42.2	33.1	34.4	42.7	42.9
Vehicle Noise:	50.3	48.6	45.3	40.7	49.3	49.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	19	42
CNEL:	4	10	21	44

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Via Del Agua | Job Number: 7148
Road Segment: South of "A" Street

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	80 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-12.41	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-29.65	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-33.60	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.3	46.4	44.6	38.6	47.2	47.8
Medium Trucks:	42.3	40.8	34.4	32.8	41.3	41.5
Heavy Trucks:	43.6	42.2	33.1	34.4	42.7	42.9
Vehicle Noise:	50.3	48.6	45.3	40.7	49.3	49.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	19	42
CNEL:	4	10	21	44

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Via Del Agua | Job Number: 7148
Road Segment: North of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	160 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.40	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-26.64	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-30.59	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.3	49.4	47.6	41.6	50.2	50.8
Medium Trucks:	45.3	43.8	37.4	35.9	44.3	44.6
Heavy Trucks:	46.6	45.2	36.1	37.4	45.7	45.9
Vehicle Noise:	53.3	51.6	48.3	43.8	52.3	52.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	14	31	66
CNEL:	7	15	33	71

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Aspen Way | Job Number: 7148
Road Segment: East of San Antonio Road

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	30 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.67	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-33.91	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-37.86	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.0	42.1	40.4	34.3	42.9	43.5
Medium Trucks:	38.0	36.5	30.1	28.6	37.0	37.3
Heavy Trucks:	39.3	37.9	28.9	30.1	38.5	38.6
Vehicle Noise:	46.0	44.3	41.0	36.5	45.0	45.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2	5	10	22
CNEL:	2	5	11	23

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of CA 90

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,110 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.29	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.95	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.90	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	62.5	60.8	54.7	63.3	63.9
Medium Trucks:	58.2	56.7	50.3	48.8	57.2	57.5
Heavy Trucks:	59.0	57.6	48.6	49.8	58.2	58.3
Vehicle Noise:	66.3	64.5	61.4	56.7	65.2	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	223	481
CNEL:	52	111	239	516

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) *Project Name:* Cielo Vista
Road Name: Yorba Linda BL. *Job Number:* 7148
Road Segment: Between CA 90 and Lakeview Ave

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,160	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.05	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.19	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.15	-4.13	-1.20	*-5.16*	0.000	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	64.3	62.5	56.5	65.1	65.7
Medium Trucks:	59.9	58.4	52.1	50.5	59.0	59.2
Heavy Trucks:	60.8	59.4	50.3	51.6	59.9	60.0
Vehicle Noise:	68.0	66.3	63.1	58.4	67.0	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	63	136	292	629
CNEL:	68	145	313	675

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) *Project Name:* Cielo Vista
Road Name: Yorba Linda BL. *Job Number:* 7148
Road Segment: East of Lakeview Ave

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,180	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.07	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.17	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.12	-4.13	-1.20	*-5.16*	0.000	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	64.3	62.5	56.5	65.1	65.7
Medium Trucks:	60.0	58.5	52.1	50.5	59.0	59.2
Heavy Trucks:	60.8	59.4	50.3	51.6	59.9	60.1
Vehicle Noise:	68.0	66.3	63.1	58.5	67.0	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	63	136	293	632
CNEL:	68	146	315	678

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) *Project Name:* Cielo Vista
Road Name: Yorba Linda BL. *Job Number:* 7148
Road Segment: West of Kellogg Drive

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,600	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.20	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.04	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.00	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	63.4	61.7	55.6	64.2	64.8
Medium Trucks:	59.1	57.6	51.2	49.7	58.1	58.4
Heavy Trucks:	59.9	58.5	49.5	50.7	59.1	59.2
Vehicle Noise:	67.2	65.4	62.3	57.6	66.1	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	119	257	553
CNEL:	59	128	275	593

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) *Project Name:* Cielo Vista
Road Name: Yorba Linda BL. *Job Number:* 7148
Road Segment: East of Kellogg Drive

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,110	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.98	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.26	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.22	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.2	62.4	56.4	65.0	65.6
Medium Trucks:	59.9	58.4	52.0	50.4	58.9	59.1
Heavy Trucks:	60.7	59.3	50.2	51.5	59.9	60.0
Vehicle Noise:	67.9	66.2	63.1	58.4	66.9	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	134	289	623
CNEL:	67	144	310	668

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Fairmont BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,170 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.41	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.82	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.78	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.3	62.4	60.6	54.6	63.2	63.8
Medium Trucks:	58.0	56.5	50.2	48.6	57.1	57.3
Heavy Trucks:	58.9	57.5	48.4	49.7	58.0	58.2
Vehicle Noise:	66.1	64.4	61.2	56.5	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	47	101	218	470
CNEL:	50	109	234	505

Sunday, March 03, 2013

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of Village Center Drive

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,920 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.88	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-16.36	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-20.31	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.7	61.8	60.1	54.0	62.7	63.3
Medium Trucks:	57.5	56.0	49.6	48.1	56.5	56.8
Heavy Trucks:	58.3	56.9	47.9	49.1	57.5	57.6
Vehicle Noise:	65.6	63.8	60.7	56.0	64.6	65.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	43	93	201	434
CNEL:	47	100	216	465

Sunday, March 03, 2013

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Village Center Drive

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,400 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.85	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.39	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.34	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.7	62.8	61.1	55.0	63.6	64.2
Medium Trucks:	58.5	57.0	50.6	49.1	57.5	57.8
Heavy Trucks:	59.3	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	66.6	64.8	61.7	57.0	65.5	66.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	233	503
CNEL:	54	116	250	540

Sunday, March 03, 2013

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of Paseo De Las Palomas

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,550 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.11	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.12	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.08	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.0	63.1	61.3	55.3	63.9	64.5
Medium Trucks:	58.7	57.2	50.9	49.3	57.8	58.0
Heavy Trucks:	59.6	58.2	49.1	50.4	58.7	58.9
Vehicle Noise:	66.8	65.1	61.9	57.2	65.8	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	113	243	524
CNEL:	56	121	261	562

Sunday, March 03, 2013

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Paseo De Las Palomas

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,760 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.46	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.78	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.74	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.4	61.7	55.6	64.2	64.8
Medium Trucks:	59.1	57.6	51.2	49.7	58.1	58.4
Heavy Trucks:	59.9	58.5	49.5	50.7	59.1	59.2
Vehicle Noise:	67.2	65.4	62.3	57.6	66.1	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	256	552
CNEL:	59	128	275	592

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of Yorba Ranch Road

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,810 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.54	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.70	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.66	-4.39	-1.20	-5.16	0.000	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	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	59.2	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	67.2	65.5	62.3	57.7	66.2	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	259	559
CNEL:	60	129	278	599

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Yorba Ranch Road

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,680 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.33	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.91	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.86	-4.39	-1.20	-5.16	0.000	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	63.3	61.5	55.5	64.1	64.7
Medium Trucks:	59.0	57.4	51.1	49.5	58.0	58.2
Heavy Trucks:	59.8	58.4	49.3	50.6	58.9	59.1
Vehicle Noise:	67.0	65.3	62.1	57.5	66.0	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	117	251	541
CNEL:	58	125	270	581

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2012) | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Via Del Agua

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,630 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.25	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.99	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.95	-4.39	-1.20	-5.16	0.000	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	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	58.9	57.4	51.0	49.5	57.9	58.1
Heavy Trucks:	59.7	58.3	49.3	50.5	58.9	59.0
Vehicle Noise:	66.9	65.2	62.1	57.4	65.9	66.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	115	248	535
CNEL:	57	124	266	574

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,090	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.58	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.82	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.77	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.3	59.4	57.6	51.6	60.2	60.8
Medium Trucks:	55.0	53.5	47.2	45.6	54.1	54.3
Heavy Trucks:	55.9	54.5	45.4	46.7	55.0	55.2
Vehicle Noise:	63.1	61.4	58.2	53.6	62.1	62.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	64	138	297
CNEL:	32	69	148	319

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,370	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.58	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.82	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.78	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.3	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	56.0	54.5	48.2	46.6	55.1	55.3
Heavy Trucks:	56.9	55.5	46.4	47.7	56.0	56.2
Vehicle Noise:	64.1	62.4	59.2	54.5	63.1	63.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	75	161	346
CNEL:	37	80	172	371

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,900	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	4.47	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-12.77	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-16.72	-4.61	-1.20	*-5.16*	0.000	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	63.3	61.5	55.5	64.1	64.7
Medium Trucks:	59.1	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	60.5	59.0	50.0	51.3	59.6	59.7
Vehicle Noise:	67.2	65.4	62.2	57.6	66.2	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	119	257	554
CNEL:	59	128	276	594

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,280	vehicles
Vehicle Speed:	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	3.72	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-13.52	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-17.47	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.8	54.7	63.3	63.9
Medium Trucks:	58.4	56.9	50.5	49.0	57.4	57.7
Heavy Trucks:	59.7	58.3	49.3	50.5	58.9	59.0
Vehicle Noise:	66.4	64.7	61.4	56.9	65.4	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	49	106	229	494
CNEL:	53	114	246	529

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	820 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.81	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-20.05	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-24.01	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.9	58.0	56.3	50.2	58.8	59.4
Medium Trucks:	53.7	52.2	45.8	44.3	52.7	53.0
Heavy Trucks:	54.5	53.1	44.1	45.3	53.7	53.8
Vehicle Noise:	61.8	60.0	56.9	52.2	60.7	61.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	52	112	241
CNEL:	26	56	120	259

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,040 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.78	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.02	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.97	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.1	59.2	57.4	51.4	60.0	60.6
Medium Trucks:	54.8	53.3	47.0	45.4	53.9	54.1
Heavy Trucks:	55.7	54.3	45.2	46.5	54.8	55.0
Vehicle Noise:	62.9	61.2	58.0	53.3	61.9	62.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	62	134	288
CNEL:	31	67	143	309

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	990 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.99	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.23	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.19	-4.39	-1.20	*-5.16*	0.000	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	59.0	57.2	51.2	59.8	60.4
Medium Trucks:	54.6	53.1	46.8	45.2	53.7	53.9
Heavy Trucks:	55.5	54.0	45.0	46.3	54.6	54.7
Vehicle Noise:	62.7	61.0	57.8	53.1	61.7	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	60	129	279
CNEL:	30	64	139	299

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,520 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.13	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.37	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.33	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.6	60.7	58.9	52.9	61.5	62.1
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.6
Heavy Trucks:	57.2	55.8	46.8	48.0	56.4	56.5
Vehicle Noise:	64.4	62.7	59.6	54.9	63.4	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	78	169	364
CNEL:	39	84	181	391

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	980	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.04	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.28	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.23	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.7	58.8	57.0	51.0	59.6	60.2
Medium Trucks:	54.5	53.0	46.6	45.0	53.5	53.7
Heavy Trucks:	55.3	53.9	44.8	46.1	54.5	54.6
Vehicle Noise:	62.5	60.8	57.7	53.0	61.5	62.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	27	59	126	272
CNEL:	29	63	135	292

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	420	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.72	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.96	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.91	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.1	55.2	53.5	47.4	56.1	56.7
Medium Trucks:	50.9	49.4	43.0	41.5	49.9	50.2
Heavy Trucks:	51.7	50.3	41.3	42.5	50.9	51.0
Vehicle Noise:	59.0	57.2	54.1	49.4	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	34	73	157
CNEL:	17	36	78	169

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	330	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.25	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.49	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.45	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.4	52.5	50.8	44.7	53.3	54.0
Medium Trucks:	48.4	46.9	40.5	39.0	47.5	47.7
Heavy Trucks:	49.7	48.3	39.3	40.5	48.9	49.0
Vehicle Noise:	56.5	54.7	51.4	46.9	55.4	55.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	23	50	107
CNEL:	11	25	53	114

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	270	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-7.13	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-24.36	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-28.32	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.7	49.9	43.9	52.5	53.1
Medium Trucks:	47.5	46.0	39.7	38.1	46.6	46.8
Heavy Trucks:	48.9	47.4	38.4	39.7	48.0	48.1
Vehicle Noise:	55.6	53.9	50.6	46.0	54.6	55.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	20	43	93
CNEL:	10	22	46	100

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	330	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.25	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.49	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.45	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.4	52.5	50.8	44.7	53.3	54.0
Medium Trucks:	48.4	46.9	40.5	39.0	47.5	47.7
Heavy Trucks:	49.7	48.3	39.3	40.5	48.9	49.0
Vehicle Noise:	56.5	54.7	51.4	46.9	55.4	55.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	23	50	107
CNEL:	11	25	53	114

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	60	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-14.17	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-31.41	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-35.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.7	46.8	45.0	39.0	47.6	48.2
Medium Trucks:	42.5	40.9	34.6	33.0	41.5	41.7
Heavy Trucks:	43.3	41.9	32.8	34.1	42.4	42.6
Vehicle Noise:	50.5	48.8	45.6	41.0	49.5	50.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	9	20	43
CNEL:	5	10	21	46

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	330	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-6.77	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-24.00	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-27.96	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.1	54.2	52.4	46.4	55.0	55.6
Medium Trucks:	49.9	48.3	42.0	40.4	48.9	49.1
Heavy Trucks:	50.7	49.3	40.2	41.5	49.8	50.0
Vehicle Noise:	57.9	56.2	53.0	48.4	56.9	57.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	29	62	134
CNEL:	14	31	67	144

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	80	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-12.41	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-29.65	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-33.60	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.3	46.4	44.6	38.6	47.2	47.8
Medium Trucks:	42.3	40.8	34.4	32.8	41.3	41.5
Heavy Trucks:	43.6	42.2	33.1	34.4	42.7	42.9
Vehicle Noise:	50.3	48.6	45.3	40.7	49.3	49.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	9	19	42
CNEL:	4	10	21	44

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Via Del Agua
Road Segment: South of "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	180	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-8.89	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-26.13	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-30.08	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.9	48.1	42.1	50.7	51.3
Medium Trucks:	45.8	44.3	37.9	36.4	44.8	45.1
Heavy Trucks:	47.1	45.7	36.6	37.9	46.3	46.4
Vehicle Noise:	53.8	52.1	48.8	44.3	52.8	53.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	15	33	71
CNEL:	8	16	35	76

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Via Del Agua
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	250	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-7.46	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-24.70	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-28.65	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.2	51.3	49.6	43.5	52.1	52.7
Medium Trucks:	47.2	45.7	39.3	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.1	39.3	47.7	47.8
Vehicle Noise:	55.2	53.5	50.2	45.7	54.2	54.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	41	89
CNEL:	10	20	44	95

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Aspen Way
Road Segment: East of San Antonio Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	50	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-14.45	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-31.69	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-35.64	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	46.3	44.4	42.6	36.5	45.2	45.8
Medium Trucks:	40.2	38.7	32.4	30.8	39.3	39.5
Heavy Trucks:	41.5	40.1	31.1	32.3	40.7	40.8
Vehicle Noise:	48.3	46.5	43.3	38.7	47.2	47.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	3	7	14	30
CNEL:	3	7	15	33

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: West of CA 90
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,120	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.31	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.93	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.88	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.8	54.7	63.3	64.0
Medium Trucks:	58.2	56.7	50.3	48.8	57.2	57.5
Heavy Trucks:	59.0	57.6	48.6	49.8	58.2	58.3
Vehicle Noise:	66.3	64.5	61.4	56.7	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	48	104	224	482
CNEL:	52	111	240	517

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,170 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.06	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.18	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.13	-4.13	-1.20	*-5.16*	0.000	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	64.3	62.5	56.5	65.1	65.7
Medium Trucks:	59.9	58.4	52.1	50.5	59.0	59.2
Heavy Trucks:	60.8	59.4	50.3	51.6	59.9	60.1
Vehicle Noise:	68.0	66.3	63.1	58.5	67.0	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	136	293	631
CNEL:	68	146	314	677

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,200 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.10	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.14	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.09	-4.13	-1.20	*-5.16*	0.000	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	64.3	62.6	56.5	65.1	65.7
Medium Trucks:	60.0	58.5	52.1	50.6	59.0	59.3
Heavy Trucks:	60.8	59.4	50.4	51.6	60.0	60.1
Vehicle Noise:	68.1	66.3	63.2	58.5	67.0	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	137	295	635
CNEL:	68	147	316	681

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,630 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.25	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.99	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.95	-4.13	-1.20	*-5.16*	0.000	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	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	59.1	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	67.2	65.5	62.3	57.6	66.2	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	259	557
CNEL:	60	129	277	597

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,140 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.02	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.22	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.18	-4.13	-1.20	*-5.16*	0.000	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	64.3	62.5	56.4	65.1	65.7
Medium Trucks:	59.9	58.4	52.0	50.5	59.0	59.2
Heavy Trucks:	60.7	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	68.0	66.2	63.1	58.4	67.0	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	135	291	627
CNEL:	67	145	312	672

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: East of Fairmont BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,210 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.49	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.75	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-19.70	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	62.5	60.7	54.6	63.3	63.9
Medium Trucks:	58.1	56.6	50.2	48.7	57.2	57.4
Heavy Trucks:	59.0	57.5	48.5	49.7	58.1	58.2
Vehicle Noise:	66.2	64.5	61.3	56.6	65.2	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	103	221	476
CNEL:	51	110	237	511

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: West of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,960 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.97	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-16.27	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-20.22	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.8	61.9	60.2	54.1	62.7	63.3
Medium Trucks:	57.6	56.1	49.7	48.2	56.6	56.9
Heavy Trucks:	58.4	57.0	48.0	49.2	57.6	57.7
Vehicle Noise:	65.7	63.9	60.8	56.1	64.6	65.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	44	95	204	440
CNEL:	47	102	219	471

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: East of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,460 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.96	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.28	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-19.24	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.8	62.9	61.2	55.1	63.7	64.3
Medium Trucks:	58.6	57.1	50.7	49.2	57.6	57.9
Heavy Trucks:	59.4	58.0	49.0	50.2	58.6	58.7
Vehicle Noise:	66.7	64.9	61.8	57.1	65.6	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	110	237	511
CNEL:	55	118	255	549

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: West of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,610 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.22	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.02	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.98	-4.39	-1.20	-5.16	0.000	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	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	58.8	57.3	51.0	49.4	57.9	58.1
Heavy Trucks:	59.7	58.3	49.2	50.5	58.8	59.0
Vehicle Noise:	66.9	65.2	62.0	57.3	65.9	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	115	247	532
CNEL:	57	123	265	571

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,820 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.55	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.69	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.64	-4.39	-1.20	*-5.16*	0.000	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	63.5	61.8	55.7	64.3	64.9
Medium Trucks:	59.2	57.7	51.3	49.8	58.2	58.5
Heavy Trucks:	60.0	58.6	49.6	50.8	59.2	59.3
Vehicle Noise:	67.3	65.5	62.4	57.7	66.2	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	121	260	560
CNEL:	60	129	279	601

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,870 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.63	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.61	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.57	-4.39	-1.20	*-5.16*	0.000	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	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.2	57.7	51.4	49.8	58.3	58.5
Heavy Trucks:	60.1	58.7	49.6	50.9	59.2	59.4
Vehicle Noise:	67.3	65.6	62.4	57.8	66.3	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	122	263	567
CNEL:	61	131	282	608

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,750 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.44	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.80	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.75	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.3	63.4	61.6	55.6	64.2	64.8
Medium Trucks:	59.1	57.6	51.2	49.6	58.1	58.3
Heavy Trucks:	59.9	58.5	49.4	50.7	59.1	59.2
Vehicle Noise:	67.1	65.4	62.3	57.6	66.1	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	256	551
CNEL:	59	127	274	591

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,670 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.31	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.92	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.88	-4.39	-1.20	*-5.16*	0.000	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	63.3	61.5	55.5	64.1	64.7
Medium Trucks:	58.9	57.4	51.1	49.5	58.0	58.2
Heavy Trucks:	59.8	58.4	49.3	50.6	58.9	59.1
Vehicle Noise:	67.0	65.3	62.1	57.4	66.0	66.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	251	540
CNEL:	58	125	269	579

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,150 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.34	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-18.58	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-22.54	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.5	59.6	57.9	51.8	60.4	61.0
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	56.1	54.7	45.7	46.9	55.3	55.4
Vehicle Noise:	63.4	61.6	58.5	53.8	62.3	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	66	143	308
CNEL:	33	71	153	330

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,480 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.25	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-17.49	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-21.44	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.7	59.0	52.9	61.5	62.1
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	57.2	55.8	46.8	48.0	56.4	56.5
Vehicle Noise:	64.5	62.7	59.6	54.9	63.4	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	36	79	169	364
CNEL:	39	84	181	391

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,210 vehicles
Vehicle Speed:	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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.80	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-12.43	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-16.39	-4.61	-1.20	-5.16	0.000	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	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.5	58.0	51.6	50.1	58.5	58.8
Heavy Trucks:	60.8	59.4	50.3	51.6	59.9	60.1
Vehicle Noise:	67.5	65.8	62.5	58.0	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	583
CNEL:	62	135	290	625

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,490 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.99	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-13.25	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-17.21	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	58.7	57.2	50.8	49.2	57.7	57.9
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	66.7	65.0	61.7	57.1	65.7	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	111	239	515
CNEL:	55	119	256	551

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	920	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.31	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.55	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.51	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.4	58.5	56.8	50.7	59.3	59.9
Medium Trucks:	54.2	52.7	46.3	44.8	53.2	53.5
Heavy Trucks:	55.0	53.6	44.6	45.8	54.2	54.3
Vehicle Noise:	62.3	60.5	57.4	52.7	61.2	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	26	56	121	261
CNEL:	28	60	130	280

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,250	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.98	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.22	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.18	-4.39	-1.20	*-5.16*	0.000	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	60.0	58.2	52.2	60.8	61.4
Medium Trucks:	55.6	54.1	47.8	46.2	54.7	54.9
Heavy Trucks:	56.5	55.1	46.0	47.3	55.6	55.8
Vehicle Noise:	63.7	62.0	58.8	54.1	62.7	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	70	151	326
CNEL:	35	75	162	349

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,060	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.70	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.94	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.89	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	59.3	57.5	51.4	60.1	60.7
Medium Trucks:	54.9	53.4	47.1	45.5	54.0	54.2
Heavy Trucks:	55.8	54.3	45.3	46.6	54.9	55.0
Vehicle Noise:	63.0	61.3	58.1	53.4	62.0	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	135	292
CNEL:	31	67	145	313

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,620	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.14	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.09	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.05	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	56.6	55.1	48.8	47.2	55.7	55.9
Heavy Trucks:	57.5	56.1	47.0	48.3	56.6	56.8
Vehicle Noise:	64.7	63.0	59.8	55.2	63.7	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	82	176	380
CNEL:	41	88	189	408

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,030	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.82	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.06	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.02	-4.51	-1.20	*-5.16*	0.000	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	59.0	57.3	51.2	59.8	60.4
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	55.5	54.1	45.1	46.3	54.7	54.8
Vehicle Noise:	62.8	61.0	57.9	53.2	61.7	62.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	61	130	281
CNEL:	30	65	140	301

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	450	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.42	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.66	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.61	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.4	55.5	53.8	47.7	56.4	57.0
Medium Trucks:	51.2	49.7	43.3	41.8	50.2	50.5
Heavy Trucks:	52.0	50.6	41.6	42.8	51.2	51.3
Vehicle Noise:	59.3	57.5	54.4	49.7	58.3	58.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	36	76	165
CNEL:	18	38	82	177

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	320	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.39	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.63	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.58	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.3	52.4	50.6	44.6	53.2	53.8
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.6
Heavy Trucks:	49.6	48.2	39.1	40.4	48.7	48.9
Vehicle Noise:	56.3	54.6	51.3	46.8	55.3	55.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	23	49	105
CNEL:	11	24	52	112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	260	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-7.29	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-24.53	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-28.48	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.4	51.5	49.7	43.7	52.3	52.9
Medium Trucks:	47.4	45.9	39.5	38.0	46.4	46.7
Heavy Trucks:	48.7	47.3	38.2	39.5	47.8	48.0
Vehicle Noise:	55.4	53.7	50.4	45.9	54.4	54.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	20	42	91
CNEL:	10	21	45	98

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	320	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.39	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.63	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.58	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.3	52.4	50.6	44.6	53.2	53.8
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.6
Heavy Trucks:	49.6	48.2	39.1	40.4	48.7	48.9
Vehicle Noise:	56.3	54.6	51.3	46.8	55.3	55.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	23	49	105
CNEL:	11	24	52	112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	60	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-14.17	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-31.41	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-35.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.7	46.8	45.0	39.0	47.6	48.2
Medium Trucks:	42.5	40.9	34.6	33.0	41.5	41.7
Heavy Trucks:	43.3	41.9	32.8	34.1	42.4	42.6
Vehicle Noise:	50.5	48.8	45.6	41.0	49.5	50.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	9	20	43
CNEL:	5	10	21	46

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	350	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-6.51	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-23.75	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-27.70	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.4	54.5	52.7	46.6	55.3	55.9
Medium Trucks:	50.1	48.6	42.2	40.7	49.2	49.4
Heavy Trucks:	51.0	49.5	40.5	41.7	50.1	50.2
Vehicle Noise:	58.2	56.4	53.3	48.6	57.2	57.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	65	139
CNEL:	15	32	69	150

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	320	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.39	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.63	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.58	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.3	52.4	50.6	44.6	53.2	53.8
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.6
Heavy Trucks:	49.6	48.2	39.1	40.4	48.7	48.9
Vehicle Noise:	56.3	54.6	51.3	46.8	55.3	55.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	23	49	105
CNEL:	11	24	52	112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Via Del Agua
Road Segment: South of "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	320 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.39	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-23.63	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-27.58	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.3	52.4	50.6	44.6	53.2	53.8
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.6
Heavy Trucks:	49.6	48.2	39.1	40.4	48.7	48.9
Vehicle Noise:	56.3	54.6	51.3	46.8	55.3	55.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	23	49	105
CNEL:	11	24	52	112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Via Del Agua
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	400 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.42	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-22.66	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-26.61	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.3	53.4	51.6	45.6	54.2	54.8
Medium Trucks:	49.3	47.7	41.4	39.8	48.3	48.5
Heavy Trucks:	50.6	49.1	40.1	41.4	49.7	49.8
Vehicle Noise:	57.3	55.6	52.3	47.7	56.3	56.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	26	56	121
CNEL:	13	28	60	130

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Aspen Way
Road Segment: East of San Antonio Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	30 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.67	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-33.91	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-37.86	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	44.0	42.1	40.4	34.3	42.9	43.5
Medium Trucks:	38.0	36.5	30.1	28.6	37.0	37.3
Heavy Trucks:	39.3	37.9	28.9	30.1	38.5	38.6
Vehicle Noise:	46.0	44.3	41.0	36.5	45.0	45.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	2	5	10	22
CNEL:	2	5	11	23

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: West of CA 90
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,240 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.55	-4.13	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.69	-4.13	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-19.64	-4.13	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	58.4	56.9	50.6	49.0	57.5	57.7
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	66.5	64.8	61.6	56.9	65.5	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	232	500
CNEL:	54	116	249	537

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,430	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.40	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.84	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.79	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.5	64.6	62.9	56.8	65.4	66.0
Medium Trucks:	60.3	58.8	52.4	50.9	59.3	59.6
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.4	66.6	63.5	58.8	67.3	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	143	309	665
CNEL:	71	154	331	713

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,480	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.46	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.77	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.73	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	62.9	56.9	65.5	66.1
Medium Trucks:	60.4	58.8	52.5	50.9	59.4	59.6
Heavy Trucks:	61.2	59.8	50.7	52.0	60.3	60.5
Vehicle Noise:	68.4	66.7	63.5	58.9	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	145	312	671
CNEL:	72	155	334	720

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,890	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.66	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.58	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.54	-4.13	-1.20	*-5.16*	0.000	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	63.9	62.1	56.1	64.7	65.3
Medium Trucks:	59.5	58.0	51.7	50.1	58.6	58.8
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.6	65.9	62.7	58.1	66.6	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	128	275	593
CNEL:	64	137	295	636

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,490	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.48	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.76	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.72	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	62.9	56.9	65.5	66.1
Medium Trucks:	60.4	58.9	52.5	50.9	59.4	59.6
Heavy Trucks:	61.2	59.8	50.7	52.0	60.4	60.5
Vehicle Noise:	68.4	66.7	63.6	58.9	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	145	312	673
CNEL:	72	155	335	721

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Fairmont BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,410	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.87	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.37	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.33	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	62.8	61.1	55.0	63.6	64.2
Medium Trucks:	58.5	57.0	50.6	49.1	57.5	57.8
Heavy Trucks:	59.3	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	66.6	64.8	61.7	57.0	65.5	66.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	50	109	234	504
CNEL:	54	117	251	541

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: West of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,160	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.39	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.84	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.80	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.6	54.5	63.2	63.8
Medium Trucks:	58.0	56.5	50.1	48.6	57.1	57.3
Heavy Trucks:	58.9	57.4	48.4	49.6	58.0	58.1
Vehicle Noise:	66.1	64.4	61.2	56.5	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	47	101	218	469
CNEL:	50	108	233	503

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,750	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.44	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.80	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.75	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	63.4	61.6	55.6	64.2	64.8
Medium Trucks:	59.1	57.6	51.2	49.6	58.1	58.3
Heavy Trucks:	59.9	58.5	49.4	50.7	59.1	59.2
Vehicle Noise:	67.1	65.4	62.3	57.6	66.1	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	119	256	551
CNEL:	59	127	274	591

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: West of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,900	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.67	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.57	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.52	-4.39	-1.20	*-5.16*	0.000	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	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	59.3	57.8	51.4	49.9	58.3	58.6
Heavy Trucks:	60.1	58.7	49.7	50.9	59.3	59.4
Vehicle Noise:	67.4	65.6	62.5	57.8	66.3	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	123	265	571
CNEL:	61	132	284	612

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,150 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.03	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.21	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.16	-4.39	-1.20	*-5.16*	0.000	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	64.0	62.2	56.2	64.8	65.4
Medium Trucks:	59.7	58.1	51.8	50.2	58.7	58.9
Heavy Trucks:	60.5	59.1	50.0	51.3	59.6	59.8
Vehicle Noise:	67.7	66.0	62.8	58.2	66.7	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	280	603
CNEL:	65	139	300	647

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,200 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.10	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.14	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.09	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	64.1	62.3	56.2	64.9	65.5
Medium Trucks:	59.7	58.2	51.9	50.3	58.8	59.0
Heavy Trucks:	60.6	59.1	50.1	51.4	59.7	59.8
Vehicle Noise:	67.8	66.1	62.9	58.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	131	283	609
CNEL:	65	141	303	654

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,080 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.93	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.30	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.26	-4.39	-1.20	*-5.16*	0.000	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	63.9	62.1	56.1	64.7	65.3
Medium Trucks:	59.6	58.0	51.7	50.1	58.6	58.8
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.6	65.9	62.7	58.1	66.6	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	59	128	276	594
CNEL:	64	137	296	637

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.52	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.72	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.67	-4.39	-1.20	*-5.16*	0.000	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	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	59.1	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	67.2	65.5	62.3	57.7	66.2	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	259	558
CNEL:	60	129	278	598

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,150 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.34	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-18.58	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-22.54	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.5	59.6	57.9	51.8	60.4	61.0
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	56.1	54.7	45.7	46.9	55.3	55.4
Vehicle Noise:	63.4	61.6	58.5	53.8	62.3	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	66	143	308
CNEL:	33	71	153	330

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,490 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.22	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-17.46	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-21.41	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.7	59.0	52.9	61.5	62.2
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	57.2	55.8	46.8	48.0	56.4	56.5
Vehicle Noise:	64.5	62.7	59.6	54.9	63.5	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	170	366
CNEL:	39	85	182	393

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,220 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.81	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-12.42	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-16.38	-4.61	-1.20	-5.16	0.000	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	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	59.5	58.0	51.6	50.1	58.5	58.8
Heavy Trucks:	60.8	59.4	50.3	51.6	60.0	60.1
Vehicle Noise:	67.5	65.8	62.5	58.0	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	584
CNEL:	63	135	290	626

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,490 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.99	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-13.25	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-17.21	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	58.7	57.2	50.8	49.2	57.7	57.9
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	66.7	65.0	61.7	57.1	65.7	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	111	239	515
CNEL:	55	119	256	551

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	930	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.27	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.50	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.46	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.5	58.6	56.8	50.8	59.4	60.0
Medium Trucks:	54.2	52.7	46.4	44.8	53.3	53.5
Heavy Trucks:	55.1	53.7	44.6	45.9	54.2	54.4
Vehicle Noise:	62.3	60.6	57.4	52.7	61.3	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	26	57	122	262
CNEL:	28	61	131	282

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,250	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.98	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.22	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.18	-4.39	-1.20	*-5.16*	0.000	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	60.0	58.2	52.2	60.8	61.4
Medium Trucks:	55.6	54.1	47.8	46.2	54.7	54.9
Heavy Trucks:	56.5	55.1	46.0	47.3	55.6	55.8
Vehicle Noise:	63.7	62.0	58.8	54.1	62.7	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	70	151	326
CNEL:	35	75	162	349

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,060	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.70	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.94	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.89	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	59.3	57.5	51.4	60.1	60.7
Medium Trucks:	54.9	53.4	47.1	45.5	54.0	54.2
Heavy Trucks:	55.8	54.3	45.3	46.6	54.9	55.0
Vehicle Noise:	63.0	61.3	58.1	53.4	62.0	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	135	292
CNEL:	31	67	145	313

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,630	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.17	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.07	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.02	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.9	61.0	59.3	53.2	61.8	62.4
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	55.9
Heavy Trucks:	57.5	56.1	47.1	48.3	56.7	56.8
Vehicle Noise:	64.8	63.0	59.9	55.2	63.7	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	82	177	382
CNEL:	41	88	190	409

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,040 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.78	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.02	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.97	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.0	59.1	57.3	51.2	59.9	60.5
Medium Trucks:	54.7	53.2	46.8	45.3	53.8	54.0
Heavy Trucks:	55.6	54.1	45.1	46.4	54.7	54.8
Vehicle Noise:	62.8	61.1	57.9	53.2	61.8	62.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	28	61	131	283
CNEL:	30	65	141	303

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	460 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.32	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.56	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.52	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.5	55.6	53.9	47.8	56.4	57.1
Medium Trucks:	51.3	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	52.1	50.7	41.7	42.9	51.3	51.4
Vehicle Noise:	59.4	57.6	54.5	49.8	58.3	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	78	167
CNEL:	18	39	83	179

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	340 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.12	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.36	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.32	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.6	52.7	50.9	44.9	53.5	54.1
Medium Trucks:	48.5	47.0	40.7	39.1	47.6	47.8
Heavy Trucks:	49.9	48.4	39.4	40.7	49.0	49.1
Vehicle Noise:	56.6	54.9	51.6	47.0	55.6	56.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	23	51	109
CNEL:	12	25	54	117

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	270 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.13	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-24.36	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-28.32	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.6	51.7	49.9	43.9	52.5	53.1
Medium Trucks:	47.5	46.0	39.7	38.1	46.6	46.8
Heavy Trucks:	48.9	47.4	38.4	39.7	48.0	48.1
Vehicle Noise:	55.6	53.9	50.6	46.0	54.6	55.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	20	43	93
CNEL:	10	22	46	100

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	340	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.12	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.36	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.32	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.6	52.7	50.9	44.9	53.5	54.1
Medium Trucks:	48.5	47.0	40.7	39.1	47.6	47.8
Heavy Trucks:	49.9	48.4	39.4	40.7	49.0	49.1
Vehicle Noise:	56.6	54.9	51.6	47.0	55.6	56.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	23	51	109
CNEL:	12	25	54	117

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	60	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-14.17	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-31.41	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-35.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	48.7	46.8	45.0	39.0	47.6	48.2
Medium Trucks:	42.5	40.9	34.6	33.0	41.5	41.7
Heavy Trucks:	43.3	41.9	32.8	34.1	42.4	42.6
Vehicle Noise:	50.5	48.8	45.6	41.0	49.5	50.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	9	20	43
CNEL:	5	10	21	46

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	350	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-6.51	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-23.75	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-27.70	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.4	54.5	52.7	46.6	55.3	55.9
Medium Trucks:	50.1	48.6	42.2	40.7	49.2	49.4
Heavy Trucks:	51.0	49.5	40.5	41.7	50.1	50.2
Vehicle Noise:	58.2	56.4	53.3	48.6	57.2	57.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	65	139
CNEL:	15	32	69	150

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	320	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.39	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.63	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.58	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.3	52.4	50.6	44.6	53.2	53.8
Medium Trucks:	48.3	46.8	40.4	38.9	47.3	47.6
Heavy Trucks:	49.6	48.2	39.1	40.4	48.7	48.9
Vehicle Noise:	56.3	54.6	51.3	46.8	55.3	55.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	23	49	105
CNEL:	11	24	52	112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Via Del Agua
Road Segment: South of "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	410	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-5.31	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-22.55	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-26.51	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.4	53.5	51.7	45.7	54.3	54.9
Medium Trucks:	49.4	47.8	41.5	39.9	48.4	48.6
Heavy Trucks:	50.7	49.3	40.2	41.5	49.8	50.0
Vehicle Noise:	57.4	55.7	52.4	47.8	56.4	56.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	27	57	123
CNEL:	13	28	61	132

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Via Del Agua
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	490	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.54	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-21.78	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-25.73	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.2	54.3	52.5	46.4	55.1	55.7
Medium Trucks:	50.1	48.6	42.3	40.7	49.2	49.4
Heavy Trucks:	51.5	50.0	41.0	42.2	50.6	50.7
Vehicle Noise:	58.2	56.4	53.2	48.6	57.1	57.6

Centerline Distance to Noise Contour (in feet)

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

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Aspen Way
Road Segment: East of San Antonio Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	50	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-14.45	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-31.69	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-35.64	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	46.3	44.4	42.6	36.5	45.2	45.8
Medium Trucks:	40.2	38.7	32.4	30.8	39.3	39.5
Heavy Trucks:	41.5	40.1	31.1	32.3	40.7	40.8
Vehicle Noise:	48.3	46.5	43.3	38.7	47.2	47.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	3	7	14	30
CNEL:	3	7	15	33

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: West of CA 90
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,250	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.57	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.67	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.62	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	58.5	56.9	50.6	49.0	57.5	57.7
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	66.5	64.8	61.6	57.0	65.5	66.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	50	108	233	502
CNEL:	54	116	250	538

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,450	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.43	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.81	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.77	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	62.9	56.8	65.5	66.1
Medium Trucks:	60.3	58.8	52.4	50.9	59.4	59.6
Heavy Trucks:	61.2	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.4	66.7	63.5	58.8	67.4	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	310	667
CNEL:	72	154	332	716

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,500	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.49	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.75	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.70	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	63.0	56.9	65.5	66.1
Medium Trucks:	60.4	58.9	52.5	51.0	59.4	59.7
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	68.5	66.7	63.6	58.9	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	145	313	674
CNEL:	72	156	336	723

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,910	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.69	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.55	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.51	-4.13	-1.20	*-5.16*	0.000	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	63.9	62.2	56.1	64.7	65.3
Medium Trucks:	59.6	58.1	51.7	50.2	58.6	58.9
Heavy Trucks:	60.4	59.0	50.0	51.2	59.6	59.7
Vehicle Noise:	67.7	65.9	62.8	58.1	66.6	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	60	128	277	596
CNEL:	64	138	297	639

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,520	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.51	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.72	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.68	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	63.0	56.9	65.5	66.2
Medium Trucks:	60.4	58.9	52.5	51.0	59.4	59.7
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	68.5	66.7	63.6	58.9	67.5	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	146	314	676
CNEL:	73	156	337	726

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Fairmont BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,450	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.94	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.30	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.25	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.8	62.9	61.1	55.1	63.7	64.3
Medium Trucks:	58.6	57.1	50.7	49.1	57.6	57.8
Heavy Trucks:	59.4	58.0	48.9	50.2	58.6	58.7
Vehicle Noise:	66.6	64.9	61.8	57.1	65.6	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	51	110	237	510
CNEL:	55	118	254	547

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: West of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,210	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.49	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.75	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.70	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.7	54.6	63.3	63.9
Medium Trucks:	58.1	56.6	50.2	48.7	57.2	57.4
Heavy Trucks:	59.0	57.5	48.5	49.7	58.1	58.2
Vehicle Noise:	66.2	64.5	61.3	56.6	65.2	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	48	103	221	476
CNEL:	51	110	237	511

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,810	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.54	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.70	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.66	-4.39	-1.20	*-5.16*	0.000	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	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	59.2	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	67.2	65.5	62.3	57.7	66.2	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	120	259	559
CNEL:	60	129	278	599

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: West of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,960	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.76	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.48	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.43	-4.39	-1.20	*-5.16*	0.000	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	63.7	62.0	55.9	64.5	65.1
Medium Trucks:	59.4	57.9	51.5	50.0	58.4	58.7
Heavy Trucks:	60.2	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	67.5	65.7	62.6	57.9	66.4	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	269	579
CNEL:	62	134	288	621

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,210 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.11	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.12	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.08	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	64.1	62.3	56.3	64.9	65.5
Medium Trucks:	59.7	58.2	51.9	50.3	58.8	59.0
Heavy Trucks:	60.6	59.2	50.1	51.4	59.7	59.9
Vehicle Noise:	67.8	66.1	62.9	58.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	132	283	611
CNEL:	66	141	304	655

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,260 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.18	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.06	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.01	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	64.1	62.4	56.3	65.0	65.6
Medium Trucks:	59.8	58.3	51.9	50.4	58.8	59.1
Heavy Trucks:	60.6	59.2	50.2	51.4	59.8	59.9
Vehicle Noise:	67.9	66.1	63.0	58.3	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	286	617
CNEL:	66	143	307	662

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,150 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.03	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.21	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.16	-4.39	-1.20	-5.16	0.000	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	64.0	62.2	56.2	64.8	65.4
Medium Trucks:	59.7	58.1	51.8	50.2	58.7	58.9
Heavy Trucks:	60.5	59.1	50.0	51.3	59.6	59.8
Vehicle Noise:	67.7	66.0	62.8	58.2	66.7	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	280	603
CNEL:	65	139	300	647

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,840 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.58	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.66	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.61	-4.39	-1.20	-5.16	0.000	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	63.6	61.8	55.7	64.4	65.0
Medium Trucks:	59.2	57.7	51.3	49.8	58.2	58.5
Heavy Trucks:	60.0	58.6	49.6	50.8	59.2	59.3
Vehicle Noise:	67.3	65.5	62.4	57.7	66.3	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	121	261	563
CNEL:	60	130	280	604

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,150 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.34	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-18.58	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-22.54	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.5	59.6	57.9	51.8	60.4	61.0
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	56.1	54.7	45.7	46.9	55.3	55.4
Vehicle Noise:	63.4	61.6	58.5	53.8	62.3	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	66	143	308
CNEL:	33	71	153	330

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,480 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.25	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-17.49	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-21.44	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.7	59.0	52.9	61.5	62.1
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	57.2	55.8	46.8	48.0	56.4	56.5
Vehicle Noise:	64.5	62.7	59.6	54.9	63.4	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	36	79	169	364
CNEL:	39	84	181	391

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,210 vehicles
Vehicle Speed:	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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.80	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-12.43	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-16.39	-4.61	-1.20	-5.16	0.000	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	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.5	58.0	51.6	50.1	58.5	58.8
Heavy Trucks:	60.8	59.4	50.3	51.6	59.9	60.1
Vehicle Noise:	67.5	65.8	62.5	58.0	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	583
CNEL:	62	135	290	625

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,490 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.99	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-13.25	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-17.21	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	58.7	57.2	50.8	49.2	57.7	57.9
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	66.7	65.0	61.7	57.1	65.7	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	111	239	515
CNEL:	55	119	256	551

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	920 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.31	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.55	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.51	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.4	58.5	56.8	50.7	59.3	59.9
Medium Trucks:	54.2	52.7	46.3	44.8	53.2	53.5
Heavy Trucks:	55.0	53.6	44.6	45.8	54.2	54.3
Vehicle Noise:	62.3	60.5	57.4	52.7	61.2	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	26	56	121	261
CNEL:	28	60	130	280

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.98	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.22	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.18	-4.39	-1.20	*-5.16*	0.000	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	60.0	58.2	52.2	60.8	61.4
Medium Trucks:	55.6	54.1	47.8	46.2	54.7	54.9
Heavy Trucks:	56.5	55.1	46.0	47.3	55.6	55.8
Vehicle Noise:	63.7	62.0	58.8	54.1	62.7	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	70	151	326
CNEL:	35	75	162	349

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,060 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.70	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.94	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.89	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	59.3	57.5	51.4	60.1	60.7
Medium Trucks:	54.9	53.4	47.1	45.5	54.0	54.2
Heavy Trucks:	55.8	54.3	45.3	46.6	54.9	55.0
Vehicle Noise:	63.0	61.3	58.1	53.4	62.0	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	135	292
CNEL:	31	67	145	313

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,620 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.14	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.09	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.05	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	56.6	55.1	48.8	47.2	55.7	55.9
Heavy Trucks:	57.5	56.1	47.0	48.3	56.6	56.8
Vehicle Noise:	64.7	63.0	59.8	55.2	63.7	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	82	176	380
CNEL:	41	88	189	408

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,030	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.82	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.06	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.02	-4.51	-1.20	*-5.16*	0.000	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	59.0	57.3	51.2	59.8	60.4
Medium Trucks:	54.7	53.2	46.8	45.3	53.7	54.0
Heavy Trucks:	55.5	54.1	45.1	46.3	54.7	54.8
Vehicle Noise:	62.8	61.0	57.9	53.2	61.7	62.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	61	130	281
CNEL:	30	65	140	301

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	450	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.42	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.66	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.61	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.4	55.5	53.8	47.7	56.4	57.0
Medium Trucks:	51.2	49.7	43.3	41.8	50.2	50.5
Heavy Trucks:	52.0	50.6	41.6	42.8	51.2	51.3
Vehicle Noise:	59.3	57.5	54.4	49.7	58.3	58.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	36	76	165
CNEL:	18	38	82	177

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	680	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-3.11	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-20.35	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-24.31	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.6	55.7	53.9	47.9	56.5	57.1
Medium Trucks:	51.6	50.0	43.7	42.1	50.6	50.8
Heavy Trucks:	52.9	51.5	42.4	43.7	52.0	52.1
Vehicle Noise:	59.6	57.9	54.6	50.0	58.6	59.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	17	37	80	173
CNEL:	19	40	86	185

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	620	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-3.52	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-20.75	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-24.71	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.2	55.3	53.5	47.5	56.1	56.7
Medium Trucks:	51.2	49.6	43.3	41.7	50.2	50.4
Heavy Trucks:	52.5	51.1	42.0	43.3	51.6	51.7
Vehicle Noise:	59.2	57.5	54.2	49.6	58.2	58.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	35	76	163
CNEL:	17	38	81	174

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	680 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.11	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-20.35	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-24.31	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.6	55.7	53.9	47.9	56.5	57.1
Medium Trucks:	51.6	50.0	43.7	42.1	50.6	50.8
Heavy Trucks:	52.9	51.5	42.4	43.7	52.0	52.1
Vehicle Noise:	59.6	57.9	54.6	50.0	58.6	59.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	80	173
CNEL:	19	40	86	185

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	60 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-14.17	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-31.41	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-35.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.7	46.8	45.0	39.0	47.6	48.2
Medium Trucks:	42.5	40.9	34.6	33.0	41.5	41.7
Heavy Trucks:	43.3	41.9	32.8	34.1	42.4	42.6
Vehicle Noise:	50.5	48.8	45.6	41.0	49.5	50.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	20	43
CNEL:	5	10	21	46

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	350 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-6.51	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-23.75	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-27.70	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	54.5	52.7	46.6	55.3	55.9
Medium Trucks:	50.1	48.6	42.2	40.7	49.2	49.4
Heavy Trucks:	51.0	49.5	40.5	41.7	50.1	50.2
Vehicle Noise:	58.2	56.4	53.3	48.6	57.2	57.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	30	65	139
CNEL:	15	32	69	150

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	90 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-11.90	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-29.14	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-33.09	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.8	46.9	45.1	39.1	47.7	48.3
Medium Trucks:	42.8	41.3	34.9	33.4	41.8	42.1
Heavy Trucks:	44.1	42.7	33.6	34.9	43.2	43.4
Vehicle Noise:	50.8	49.1	45.8	41.3	49.8	50.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	10	21	45
CNEL:	5	10	22	48

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Via Del Agua
Road Segment: South of "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	90 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-11.90	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-29.14	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-33.09	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.8	46.9	45.1	39.1	47.7	48.3
Medium Trucks:	42.8	41.3	34.9	33.4	41.8	42.1
Heavy Trucks:	44.1	42.7	33.6	34.9	43.2	43.4
Vehicle Noise:	50.8	49.1	45.8	41.3	49.8	50.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	10	21	45
CNEL:	5	10	22	48

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Via Del Agua
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	160 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-9.40	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-26.64	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-30.59	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.3	49.4	47.6	41.6	50.2	50.8
Medium Trucks:	45.3	43.8	37.4	35.9	44.3	44.6
Heavy Trucks:	46.6	45.2	36.1	37.4	45.7	45.9
Vehicle Noise:	53.3	51.6	48.3	43.8	52.3	52.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	14	31	66
CNEL:	7	15	33	71

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Aspen Way
Road Segment: East of San Antonio Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	400 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.42	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-22.66	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-26.61	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.3	53.4	51.6	45.6	54.2	54.8
Medium Trucks:	49.3	47.7	41.4	39.8	48.3	48.5
Heavy Trucks:	50.6	49.1	40.1	41.4	49.7	49.8
Vehicle Noise:	57.3	55.6	52.3	47.7	56.3	56.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	26	56	121
CNEL:	13	28	60	130

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of CA 90
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,240 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.55	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.69	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.64	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	58.4	56.9	50.6	49.0	57.5	57.7
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	66.5	64.8	61.6	56.9	65.5	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	232	500
CNEL:	54	116	249	537

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,420	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.39	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.85	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.80	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.5	64.6	62.9	56.8	65.4	66.0
Medium Trucks:	60.3	58.8	52.4	50.9	59.3	59.6
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.4	66.6	63.5	58.8	67.3	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	143	308	664
CNEL:	71	153	330	712

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,480	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.46	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.77	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.73	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	62.9	56.9	65.5	66.1
Medium Trucks:	60.4	58.8	52.5	50.9	59.4	59.6
Heavy Trucks:	61.2	59.8	50.7	52.0	60.3	60.5
Vehicle Noise:	68.4	66.7	63.5	58.9	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	145	312	671
CNEL:	72	155	334	720

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,890	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.66	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.58	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.54	-4.13	-1.20	*-5.16*	0.000	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	63.9	62.1	56.1	64.7	65.3
Medium Trucks:	59.5	58.0	51.7	50.1	58.6	58.8
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.6	65.9	62.7	58.1	66.6	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	128	275	593
CNEL:	64	137	295	636

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,490	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.48	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.76	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.72	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	62.9	56.9	65.5	66.1
Medium Trucks:	60.4	58.9	52.5	50.9	59.4	59.6
Heavy Trucks:	61.2	59.8	50.7	52.0	60.4	60.5
Vehicle Noise:	68.4	66.7	63.6	58.9	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	145	312	673
CNEL:	72	155	335	721

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Fairmont BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,410	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.87	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.37	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.33	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	62.8	61.1	55.0	63.6	64.2
Medium Trucks:	58.5	57.0	50.6	49.1	57.5	57.8
Heavy Trucks:	59.3	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	66.6	64.8	61.7	57.0	65.5	66.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	50	109	234	504
CNEL:	54	117	251	541

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,160	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.39	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.84	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.80	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	62.4	60.6	54.5	63.2	63.8
Medium Trucks:	58.0	56.5	50.1	48.6	57.1	57.3
Heavy Trucks:	58.9	57.4	48.4	49.6	58.0	58.1
Vehicle Noise:	66.1	64.4	61.2	56.5	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	47	101	218	469
CNEL:	50	108	233	503

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,750	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.44	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.80	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.75	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	63.4	61.6	55.6	64.2	64.8
Medium Trucks:	59.1	57.6	51.2	49.6	58.1	58.3
Heavy Trucks:	59.9	58.5	49.4	50.7	59.1	59.2
Vehicle Noise:	67.1	65.4	62.3	57.6	66.1	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	119	256	551
CNEL:	59	127	274	591

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,900	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.67	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.57	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.52	-4.39	-1.20	*-5.16*	0.000	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	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	59.3	57.8	51.4	49.9	58.3	58.6
Heavy Trucks:	60.1	58.7	49.7	50.9	59.3	59.4
Vehicle Noise:	67.4	65.6	62.5	57.8	66.3	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	123	265	571
CNEL:	61	132	284	612

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,150	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.03	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.21	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.16	-4.39	-1.20	*-5.16*	0.000	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	64.0	62.2	56.2	64.8	65.4
Medium Trucks:	59.7	58.1	51.8	50.2	58.7	58.9
Heavy Trucks:	60.5	59.1	50.0	51.3	59.6	59.8
Vehicle Noise:	67.7	66.0	62.8	58.2	66.7	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	60	130	280	603
CNEL:	65	139	300	647

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,120	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.99	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.25	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.20	-4.39	-1.20	*-5.16*	0.000	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	64.0	62.2	56.1	64.8	65.4
Medium Trucks:	59.6	58.1	51.7	50.2	58.7	58.9
Heavy Trucks:	60.5	59.0	50.0	51.2	59.6	59.7
Vehicle Noise:	67.7	65.9	62.8	58.1	66.7	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	60	129	278	599
CNEL:	64	138	298	643

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,980	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.79	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.45	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.40	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	63.8	62.0	55.9	64.6	65.2
Medium Trucks:	59.4	57.9	51.5	50.0	58.5	58.7
Heavy Trucks:	60.3	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	67.5	65.7	62.6	57.9	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	270	581
CNEL:	62	134	289	623

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,930	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.72	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.52	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.48	-4.39	-1.20	*-5.16*	0.000	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	63.7	61.9	55.9	64.5	65.1
Medium Trucks:	59.3	57.8	51.5	49.9	58.4	58.6
Heavy Trucks:	60.2	58.8	49.7	51.0	59.3	59.5
Vehicle Noise:	67.4	65.7	62.5	57.8	66.4	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	124	267	575
CNEL:	62	133	286	616

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,150 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.34	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-18.58	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-22.54	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.5	59.6	57.9	51.8	60.4	61.0
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	56.1	54.7	45.7	46.9	55.3	55.4
Vehicle Noise:	63.4	61.6	58.5	53.8	62.3	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	31	66	143	308
CNEL:	33	71	153	330

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,490 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.22	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-17.46	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-21.41	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.6	60.7	59.0	52.9	61.5	62.2
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	57.2	55.8	46.8	48.0	56.4	56.5
Vehicle Noise:	64.5	62.7	59.6	54.9	63.5	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	37	79	170	366
CNEL:	39	85	182	393

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,220 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.81	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-12.42	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-16.38	-4.61	-1.20	-5.16	0.000	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	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	59.5	58.0	51.6	50.1	58.5	58.8
Heavy Trucks:	60.8	59.4	50.3	51.6	60.0	60.1
Vehicle Noise:	67.5	65.8	62.5	58.0	66.5	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	584
CNEL:	63	135	290	626

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,490 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.99	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-13.25	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-17.21	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	58.7	57.2	50.8	49.2	57.7	57.9
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	66.7	65.0	61.7	57.1	65.7	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	111	239	515
CNEL:	55	119	256	551

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	930 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.27	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.50	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.46	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.5	58.6	56.8	50.8	59.4	60.0
Medium Trucks:	54.2	52.7	46.4	44.8	53.3	53.5
Heavy Trucks:	55.1	53.7	44.6	45.9	54.2	54.4
Vehicle Noise:	62.3	60.6	57.4	52.7	61.3	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	26	57	122	262
CNEL:	28	61	131	282

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.98	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.22	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.18	-4.39	-1.20	*-5.16*	0.000	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	60.0	58.2	52.2	60.8	61.4
Medium Trucks:	55.6	54.1	47.8	46.2	54.7	54.9
Heavy Trucks:	56.5	55.1	46.0	47.3	55.6	55.8
Vehicle Noise:	63.7	62.0	58.8	54.1	62.7	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	70	151	326
CNEL:	35	75	162	349

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,060 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.70	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.94	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.89	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	59.3	57.5	51.4	60.1	60.7
Medium Trucks:	54.9	53.4	47.1	45.5	54.0	54.2
Heavy Trucks:	55.8	54.3	45.3	46.6	54.9	55.0
Vehicle Noise:	63.0	61.3	58.1	53.4	62.0	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	135	292
CNEL:	31	67	145	313

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,630 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.17	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.07	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.02	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.9	61.0	59.3	53.2	61.8	62.4
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	55.9
Heavy Trucks:	57.5	56.1	47.1	48.3	56.7	56.8
Vehicle Noise:	64.8	63.0	59.9	55.2	63.7	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	82	177	382
CNEL:	41	88	190	409

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,040	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.78	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.02	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.97	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.0	59.1	57.3	51.2	59.9	60.5
Medium Trucks:	54.7	53.2	46.8	45.3	53.8	54.0
Heavy Trucks:	55.6	54.1	45.1	46.4	54.7	54.8
Vehicle Noise:	62.8	61.1	57.9	53.2	61.8	62.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	61	131	283
CNEL:	30	65	141	303

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	460	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.32	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.56	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.52	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.5	55.6	53.9	47.8	56.4	57.1
Medium Trucks:	51.3	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	52.1	50.7	41.7	42.9	51.3	51.4
Vehicle Noise:	59.4	57.6	54.5	49.8	58.3	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	17	36	78	167
CNEL:	18	39	83	179

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	700	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.99	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-20.23	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-24.18	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	55.8	54.0	48.0	56.6	57.2
Medium Trucks:	51.7	50.2	43.8	42.3	50.7	51.0
Heavy Trucks:	53.0	51.6	42.5	43.8	52.1	52.3
Vehicle Noise:	59.7	58.0	54.7	50.2	58.7	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	18	38	82	176
CNEL:	19	41	88	189

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	640	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-3.38	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-20.62	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-24.57	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.3	55.4	53.7	47.6	56.2	56.8
Medium Trucks:	51.3	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	52.6	51.2	42.2	43.4	51.8	51.9
Vehicle Noise:	59.3	57.6	54.3	49.8	58.3	58.8

Centerline Distance to Noise Contour (in feet)

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

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	700 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.99	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-20.23	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-24.18	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.7	55.8	54.0	48.0	56.6	57.2
Medium Trucks:	51.7	50.2	43.8	42.3	50.7	51.0
Heavy Trucks:	53.0	51.6	42.5	43.8	52.1	52.3
Vehicle Noise:	59.7	58.0	54.7	50.2	58.7	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	38	82	176
CNEL:	19	41	88	189

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	60 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-14.17	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-31.41	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-35.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.7	46.8	45.0	39.0	47.6	48.2
Medium Trucks:	42.5	40.9	34.6	33.0	41.5	41.7
Heavy Trucks:	43.3	41.9	32.8	34.1	42.4	42.6
Vehicle Noise:	50.5	48.8	45.6	41.0	49.5	50.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	20	43
CNEL:	5	10	21	46

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	350 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-6.51	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-23.75	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-27.70	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	54.5	52.7	46.6	55.3	55.9
Medium Trucks:	50.1	48.6	42.2	40.7	49.2	49.4
Heavy Trucks:	51.0	49.5	40.5	41.7	50.1	50.2
Vehicle Noise:	58.2	56.4	53.3	48.6	57.2	57.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	30	65	139
CNEL:	15	32	69	150

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	90 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-11.90	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-29.14	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-33.09	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	48.8	46.9	45.1	39.1	47.7	48.3
Medium Trucks:	42.8	41.3	34.9	33.4	41.8	42.1
Heavy Trucks:	44.1	42.7	33.6	34.9	43.2	43.4
Vehicle Noise:	50.8	49.1	45.8	41.3	49.8	50.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	10	21	45
CNEL:	5	10	22	48

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Via Del Agua
Road Segment: South of "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	180	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-8.89	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-26.13	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-30.08	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.8	49.9	48.1	42.1	50.7	51.3
Medium Trucks:	45.8	44.3	37.9	36.4	44.8	45.1
Heavy Trucks:	47.1	45.7	36.6	37.9	46.3	46.4
Vehicle Noise:	53.8	52.1	48.8	44.3	52.8	53.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	7	15	33	71
CNEL:	8	16	35	76

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Via Del Agua
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	250	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-7.46	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-24.70	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-28.65	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.2	51.3	49.6	43.5	52.1	52.7
Medium Trucks:	47.2	45.7	39.3	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.1	39.3	47.7	47.8
Vehicle Noise:	55.2	53.5	50.2	45.7	54.2	54.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	41	89
CNEL:	10	20	44	95

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Aspen Way
Road Segment: East of San Antonio Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	410	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-5.31	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-22.55	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-26.51	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.4	53.5	51.7	45.7	54.3	54.9
Medium Trucks:	49.4	47.8	41.5	39.9	48.4	48.6
Heavy Trucks:	50.7	49.3	40.2	41.5	49.8	50.0
Vehicle Noise:	57.4	55.7	52.4	47.8	56.4	56.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	12	27	57	123
CNEL:	13	28	61	132

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of CA 90
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,250	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.57	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.67	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.62	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	62.8	61.0	55.0	63.6	64.2
Medium Trucks:	58.5	56.9	50.6	49.0	57.5	57.7
Heavy Trucks:	59.3	57.9	48.8	50.1	58.4	58.6
Vehicle Noise:	66.5	64.8	61.6	57.0	65.5	66.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	50	108	233	502
CNEL:	54	116	250	538

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,450	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.43	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.81	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.77	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	62.9	56.8	65.5	66.1
Medium Trucks:	60.3	58.8	52.4	50.9	59.4	59.6
Heavy Trucks:	61.2	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.4	66.7	63.5	58.8	67.4	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	310	667
CNEL:	72	154	332	716

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,500	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.49	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.75	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.70	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	63.0	56.9	65.5	66.1
Medium Trucks:	60.4	58.9	52.5	51.0	59.4	59.7
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	68.5	66.7	63.6	58.9	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	145	313	674
CNEL:	72	156	336	723

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,910	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.69	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.55	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.51	-4.13	-1.20	*-5.16*	0.000	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	63.9	62.2	56.1	64.7	65.3
Medium Trucks:	59.6	58.1	51.7	50.2	58.6	58.9
Heavy Trucks:	60.4	59.0	50.0	51.2	59.6	59.7
Vehicle Noise:	67.7	65.9	62.8	58.1	66.6	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	60	128	277	596
CNEL:	64	138	297	639

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,520	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.51	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.72	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.68	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	63.0	56.9	65.5	66.2
Medium Trucks:	60.4	58.9	52.5	51.0	59.4	59.7
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	68.5	66.7	63.6	58.9	67.5	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	146	314	676
CNEL:	73	156	337	726

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Fairmont BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,450	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.94	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.30	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.25	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.8	62.9	61.1	55.1	63.7	64.3
Medium Trucks:	58.6	57.1	50.7	49.1	57.6	57.8
Heavy Trucks:	59.4	58.0	48.9	50.2	58.6	58.7
Vehicle Noise:	66.6	64.9	61.8	57.1	65.6	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	51	110	237	510
CNEL:	55	118	254	547

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,210	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.49	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.75	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.70	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.7	54.6	63.3	63.9
Medium Trucks:	58.1	56.6	50.2	48.7	57.2	57.4
Heavy Trucks:	59.0	57.5	48.5	49.7	58.1	58.2
Vehicle Noise:	66.2	64.5	61.3	56.6	65.2	65.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	48	103	221	476
CNEL:	51	110	237	511

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,810	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.54	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.70	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.66	-4.39	-1.20	*-5.16*	0.000	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	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	59.2	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	60.0	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	67.2	65.5	62.3	57.7	66.2	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	120	259	559
CNEL:	60	129	278	599

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,960	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.76	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.48	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.43	-4.39	-1.20	*-5.16*	0.000	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	63.7	62.0	55.9	64.5	65.1
Medium Trucks:	59.4	57.9	51.5	50.0	58.4	58.7
Heavy Trucks:	60.2	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	67.5	65.7	62.6	57.9	66.4	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	269	579
CNEL:	62	134	288	621

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,210	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.11	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.12	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.08	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.0	64.1	62.3	56.3	64.9	65.5
Medium Trucks:	59.7	58.2	51.9	50.3	58.8	59.0
Heavy Trucks:	60.6	59.2	50.1	51.4	59.7	59.9
Vehicle Noise:	67.8	66.1	62.9	58.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	132	283	611
CNEL:	66	141	304	655

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,190	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.09	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.15	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.11	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.0	64.1	62.3	56.2	64.9	65.5
Medium Trucks:	59.7	58.2	51.8	50.3	58.8	59.0
Heavy Trucks:	60.6	59.1	50.1	51.3	59.7	59.8
Vehicle Noise:	67.8	66.0	62.9	58.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	131	282	608
CNEL:	65	141	303	652

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,050	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.89	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.35	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.30	-4.39	-1.20	*-5.16*	0.000	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	63.9	62.1	56.0	64.7	65.3
Medium Trucks:	59.5	58.0	51.6	50.1	58.6	58.8
Heavy Trucks:	60.4	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	67.6	65.9	62.7	58.0	66.6	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	127	274	590
CNEL:	63	136	294	633

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2015 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,970	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.78	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.46	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.42	-4.39	-1.20	*-5.16*	0.000	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	63.7	62.0	55.9	64.5	65.2
Medium Trucks:	59.4	57.9	51.5	50.0	58.4	58.7
Heavy Trucks:	60.2	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	67.5	65.7	62.6	57.9	66.4	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	269	580
CNEL:	62	134	289	622

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,620	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.14	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.09	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.05	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.0	61.1	59.3	53.3	61.9	62.5
Medium Trucks:	56.8	55.3	48.9	47.3	55.8	56.0
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	64.8	63.1	60.0	55.3	63.8	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	83	180	387
CNEL:	42	89	193	415

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,830	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.67	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-16.56	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-20.52	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.5	61.6	59.9	53.8	62.4	63.0
Medium Trucks:	57.3	55.8	49.4	47.9	56.3	56.6
Heavy Trucks:	58.1	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	65.4	63.6	60.5	55.8	64.3	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	195	420
CNEL:	45	97	209	450

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	4,600	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	5.19	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-12.05	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-16.01	-4.61	-1.20	*-5.16*	0.000	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	64.0	62.2	56.2	64.8	65.4
Medium Trucks:	59.9	58.3	52.0	50.4	58.9	59.1
Heavy Trucks:	61.2	59.8	50.7	52.0	60.3	60.5
Vehicle Noise:	67.9	66.2	62.9	58.3	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	133	287	619
CNEL:	66	143	308	663

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,840	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	4.40	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-12.83	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-16.79	-4.61	-1.20	*-5.16*	0.000	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	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	59.1	57.6	51.2	49.7	58.1	58.4
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.1	65.4	62.1	57.6	66.1	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	118	255	549
CNEL:	59	127	273	588

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,000	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.95	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.19	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.15	-4.51	-1.20	*-5.16*	0.000	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	58.9	57.1	51.1	59.7	60.3
Medium Trucks:	54.5	53.0	46.7	45.1	53.6	53.8
Heavy Trucks:	55.4	54.0	44.9	46.2	54.5	54.7
Vehicle Noise:	62.6	60.9	57.7	53.1	61.6	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	59	128	275
CNEL:	30	64	137	296

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,510	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.16	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.40	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	60.8	59.0	53.0	61.6	62.2
Medium Trucks:	56.5	55.0	48.6	47.0	55.5	55.7
Heavy Trucks:	57.3	55.9	46.8	48.1	56.5	56.6
Vehicle Noise:	64.5	62.8	59.6	55.0	63.5	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	37	80	171	369
CNEL:	40	85	184	396

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,130	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.42	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.66	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.61	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.4	59.5	57.8	51.7	60.3	61.0
Medium Trucks:	55.2	53.7	47.3	45.8	54.2	54.5
Heavy Trucks:	56.0	54.6	45.6	46.8	55.2	55.3
Vehicle Noise:	63.3	61.5	58.4	53.7	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	66	141	304
CNEL:	33	70	152	327

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,780	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.55	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-16.69	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-20.64	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.3	61.4	59.6	53.6	62.2	62.8
Medium Trucks:	57.1	55.5	49.2	47.6	56.1	56.3
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.2
Vehicle Noise:	65.1	63.4	60.2	55.6	64.1	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	87	188	405
CNEL:	43	94	201	434

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,100	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.54	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.78	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.73	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	59.3	57.5	51.5	60.1	60.7
Medium Trucks:	55.0	53.5	47.1	45.5	54.0	54.2
Heavy Trucks:	55.8	54.4	45.3	46.6	55.0	55.1
Vehicle Noise:	63.0	61.3	58.2	53.5	62.0	62.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	136	294
CNEL:	31	68	146	315

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	460	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.32	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.56	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.52	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.5	55.6	53.9	47.8	56.4	57.1
Medium Trucks:	51.3	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	52.1	50.7	41.7	42.9	51.3	51.4
Vehicle Noise:	59.4	57.6	54.5	49.8	58.3	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	17	36	78	167
CNEL:	18	39	83	179

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	500	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.45	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-21.69	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-25.64	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.3	54.4	52.6	46.5	55.2	55.8
Medium Trucks:	50.2	48.7	42.4	40.8	49.3	49.5
Heavy Trucks:	51.5	50.1	41.1	42.3	50.7	50.8
Vehicle Noise:	58.3	56.5	53.3	48.7	57.2	57.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	65	141
CNEL:	15	33	70	151

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	310	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.53	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.76	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.72	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.2	52.3	50.5	44.5	53.1	53.7
Medium Trucks:	48.1	46.6	40.3	38.7	47.2	47.4
Heavy Trucks:	49.5	48.0	39.0	40.3	48.6	48.7
Vehicle Noise:	56.2	54.5	51.2	46.6	55.2	55.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	22	48	102
CNEL:	11	24	51	110

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	500 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.45	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-21.69	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-25.64	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.3	54.4	52.6	46.5	55.2	55.8
Medium Trucks:	50.2	48.7	42.4	40.8	49.3	49.5
Heavy Trucks:	51.5	50.1	41.1	42.3	50.7	50.8
Vehicle Noise:	58.3	56.5	53.3	48.7	57.2	57.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	65	141
CNEL:	15	33	70	151

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	70 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-13.50	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-30.74	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-34.69	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.4	47.5	45.7	39.6	48.3	48.9
Medium Trucks:	43.1	41.6	35.3	33.7	42.2	42.4
Heavy Trucks:	44.0	42.5	33.5	34.8	43.1	43.2
Vehicle Noise:	51.2	49.5	46.3	41.6	50.2	50.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	10	22	48
CNEL:	5	11	24	51

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	420 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.72	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.96	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.91	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.1	55.2	53.5	47.4	56.1	56.7
Medium Trucks:	50.9	49.4	43.0	41.5	49.9	50.2
Heavy Trucks:	51.7	50.3	41.3	42.5	50.9	51.0
Vehicle Noise:	59.0	57.2	54.1	49.4	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	34	73	157
CNEL:	17	36	78	169

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	350 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.00	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.24	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.19	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.7	52.8	51.0	45.0	53.6	54.2
Medium Trucks:	48.7	47.2	40.8	39.3	47.7	47.9
Heavy Trucks:	50.0	48.6	39.5	40.8	49.1	49.3
Vehicle Noise:	56.7	55.0	51.7	47.2	55.7	56.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	11	24	52	111
CNEL:	12	26	55	119

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project | Project Name: Cielo Vista
Road Name: Via Del Agua | Job Number: 7148
Road Segment: South of "A" Street

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	370 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.76	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.00	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-26.95	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.9	53.0	51.3	45.2	53.8	54.5
Medium Trucks:	48.9	47.4	41.0	39.5	48.0	48.2
Heavy Trucks:	50.2	48.8	39.8	41.0	49.4	49.5
Vehicle Noise:	57.0	55.2	51.9	47.4	55.9	56.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	25	54	115
CNEL:	12	27	57	123

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project | Project Name: Cielo Vista
Road Name: Via Del Agua | Job Number: 7148
Road Segment: North of Yorba Linda BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	460 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.81	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-22.05	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-26.01	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.9	54.0	52.2	46.2	54.8	55.4
Medium Trucks:	49.9	48.3	42.0	40.4	48.9	49.1
Heavy Trucks:	51.2	49.8	40.7	42.0	50.3	50.5
Vehicle Noise:	57.9	56.2	52.9	48.3	56.9	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	29	62	133
CNEL:	14	31	66	143

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project | Project Name: Cielo Vista
Road Name: Aspen Way | Job Number: 7148
Road Segment: East of San Antonio Road

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	40 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-15.42	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-32.66	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-36.61	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	45.3	43.4	41.6	35.6	44.2	44.8
Medium Trucks:	39.3	37.7	31.4	29.8	38.3	38.5
Heavy Trucks:	40.6	39.1	30.1	31.4	39.7	39.8
Vehicle Noise:	47.3	45.6	42.3	37.7	46.3	46.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	3	6	12	26
CNEL:	3	6	13	28

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of CA 90

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,440 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.92	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.32	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.27	-4.13	-1.20	*-5.16*	0.000	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	63.2	61.4	55.3	64.0	64.6
Medium Trucks:	58.8	57.3	50.9	49.4	57.9	58.1
Heavy Trucks:	59.7	58.2	49.2	50.4	58.8	58.9
Vehicle Noise:	66.9	65.1	62.0	57.3	65.9	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	114	246	530
CNEL:	57	122	264	568

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,710	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.74	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.50	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.45	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.6	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.7
Vehicle Noise:	68.7	67.0	63.8	59.1	67.7	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	325	701
CNEL:	75	162	349	751

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,730	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.77	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.47	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.43	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.7	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.8
Vehicle Noise:	68.7	67.0	63.8	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	326	703
CNEL:	75	162	350	754

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,070	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.92	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.32	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.27	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.2	62.4	56.3	65.0	65.6
Medium Trucks:	59.8	58.3	51.9	50.4	58.9	59.1
Heavy Trucks:	60.7	59.2	50.2	51.4	59.8	59.9
Vehicle Noise:	67.9	66.1	63.0	58.3	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	133	287	617
CNEL:	66	143	307	662

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,730	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.77	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.47	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.43	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.7	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.8
Vehicle Noise:	68.7	67.0	63.8	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	326	703
CNEL:	75	162	350	754

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Fairmont BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,500 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.03	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.21	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-19.17	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.9	63.0	61.2	55.2	63.8	64.4
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	59.5	58.1	49.0	50.3	58.6	58.8
Vehicle Noise:	66.7	65.0	61.8	57.2	65.7	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	111	240	517
CNEL:	55	119	257	555

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of Village Center Drive

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,230 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.53	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.71	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-19.66	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.4	62.5	60.7	54.7	63.3	63.9
Medium Trucks:	58.2	56.6	50.3	48.7	57.2	57.4
Heavy Trucks:	59.0	57.6	48.5	49.8	58.1	58.3
Vehicle Noise:	66.2	64.5	61.3	56.7	65.2	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	103	222	479
CNEL:	51	111	239	514

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Village Center Drive

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,830 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.57	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.67	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.63	-4.39	-1.20	-5.16	0.000	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	63.5	61.8	55.7	64.3	64.9
Medium Trucks:	59.2	57.7	51.3	49.8	58.2	58.5
Heavy Trucks:	60.0	58.6	49.6	50.8	59.2	59.3
Vehicle Noise:	67.3	65.5	62.4	57.7	66.2	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	121	261	561
CNEL:	60	130	280	602

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of Paseo De Las Palomas

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,000 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.82	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.42	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.37	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.7	63.8	62.0	56.0	64.6	65.2
Medium Trucks:	59.4	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	60.3	58.9	49.8	51.1	59.4	59.6
Vehicle Noise:	67.5	65.8	62.6	58.0	66.5	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	584
CNEL:	63	135	291	626

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,240 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.15	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.08	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.04	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	64.1	62.4	56.3	64.9	65.5
Medium Trucks:	59.8	58.3	51.9	50.4	58.8	59.1
Heavy Trucks:	60.6	59.2	50.2	51.4	59.8	59.9
Vehicle Noise:	67.9	66.1	63.0	58.3	66.8	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	132	285	614
CNEL:	66	142	306	659

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,720 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.75	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-13.48	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-17.44	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	64.7	63.0	56.9	65.5	66.1
Medium Trucks:	60.4	58.9	52.5	51.0	59.4	59.7
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	68.5	66.7	63.6	58.9	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	145	313	674
CNEL:	72	156	335	723

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,590 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.60	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-13.64	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-17.59	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.5	64.6	62.8	56.7	65.4	66.0
Medium Trucks:	60.2	58.7	52.4	50.8	59.3	59.5
Heavy Trucks:	61.1	59.6	50.6	51.9	60.2	60.3
Vehicle Noise:	68.3	66.6	63.4	58.7	67.3	67.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	142	305	658
CNEL:	71	152	328	706

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,310 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.25	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-13.99	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-17.95	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.1	64.2	62.4	56.4	65.0	65.6
Medium Trucks:	59.9	58.4	52.0	50.5	58.9	59.1
Heavy Trucks:	60.7	59.3	50.3	51.5	59.9	60.0
Vehicle Noise:	67.9	66.2	63.1	58.4	66.9	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	134	289	623
CNEL:	67	144	310	669

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,620 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.14	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-17.09	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-21.05	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.1	59.3	53.3	61.9	62.5
Medium Trucks:	56.8	55.3	48.9	47.3	55.8	56.0
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	64.8	63.1	60.0	55.3	63.8	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	83	180	387
CNEL:	42	89	193	415

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,840 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.70	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-16.54	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-20.50	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.6	61.7	59.9	53.8	62.5	63.1
Medium Trucks:	57.3	55.8	49.4	47.9	56.4	56.6
Heavy Trucks:	58.2	56.7	47.7	49.0	57.3	57.4
Vehicle Noise:	65.4	63.7	60.5	55.8	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	91	196	421
CNEL:	45	97	210	452

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,610 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	5.20	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-12.04	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-16.00	-4.61	-1.20	-5.16	0.000	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	64.0	62.2	56.2	64.8	65.4
Medium Trucks:	59.9	58.4	52.0	50.5	58.9	59.1
Heavy Trucks:	61.2	59.8	50.7	52.0	60.3	60.5
Vehicle Noise:	67.9	66.2	62.9	58.3	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	134	288	620
CNEL:	66	143	308	664

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,840 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.40	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-12.83	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-16.79	-4.61	-1.20	-5.16	0.000	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	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	59.1	57.6	51.2	49.7	58.1	58.4
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.1	65.4	62.1	57.6	66.1	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	255	549
CNEL:	59	127	273	588

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,000	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.95	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.19	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.15	-4.51	-1.20	*-5.16*	0.000	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	58.9	57.1	51.1	59.7	60.3
Medium Trucks:	54.5	53.0	46.7	45.1	53.6	53.8
Heavy Trucks:	55.4	54.0	44.9	46.2	54.5	54.7
Vehicle Noise:	62.6	60.9	57.7	53.1	61.6	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	59	128	275
CNEL:	30	64	137	296

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,510	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.16	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.40	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	60.8	59.0	53.0	61.6	62.2
Medium Trucks:	56.5	55.0	48.6	47.0	55.5	55.7
Heavy Trucks:	57.3	55.9	46.8	48.1	56.5	56.6
Vehicle Noise:	64.5	62.8	59.6	55.0	63.5	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	37	80	171	369
CNEL:	40	85	184	396

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,140	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.38	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.62	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.58	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.5	59.6	57.8	51.8	60.4	61.0
Medium Trucks:	55.2	53.7	47.4	45.8	54.3	54.5
Heavy Trucks:	56.1	54.7	45.6	46.9	55.2	55.4
Vehicle Noise:	63.3	61.6	58.4	53.7	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	66	142	306
CNEL:	33	71	152	329

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,780	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.55	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-16.69	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-20.64	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.3	61.4	59.6	53.6	62.2	62.8
Medium Trucks:	57.1	55.5	49.2	47.6	56.1	56.3
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.2
Vehicle Noise:	65.1	63.4	60.2	55.6	64.1	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	87	188	405
CNEL:	43	94	201	434

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,110 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.50	-4.51	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-18.74	-4.51	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-22.69	-4.51	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.2	59.3	57.6	51.5	60.2	60.8
Medium Trucks:	55.0	53.5	47.1	45.6	54.0	54.3
Heavy Trucks:	55.8	54.4	45.4	46.6	55.0	55.1
Vehicle Noise:	63.1	61.3	58.2	53.5	62.1	62.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	30	64	137	295
CNEL:	32	68	147	317

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	470 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.23	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-22.47	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-26.42	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.6	55.7	54.0	47.9	56.5	57.1
Medium Trucks:	51.4	49.9	43.5	42.0	50.4	50.7
Heavy Trucks:	52.2	50.8	41.8	43.0	51.4	51.5
Vehicle Noise:	59.5	57.7	54.6	49.9	58.4	58.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	79	170
CNEL:	18	39	84	182

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.04	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-21.27	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-25.23	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.7	54.8	53.0	46.9	55.6	56.2
Medium Trucks:	50.6	49.1	42.8	41.2	49.7	49.9
Heavy Trucks:	52.0	50.5	41.5	42.7	51.1	51.2
Vehicle Noise:	58.7	56.9	53.7	49.1	57.7	58.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	70	150
CNEL:	16	35	75	161

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	330 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.25	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-23.49	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-27.45	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.4	52.5	50.8	44.7	53.3	54.0
Medium Trucks:	48.4	46.9	40.5	39.0	47.5	47.7
Heavy Trucks:	49.7	48.3	39.3	40.5	48.9	49.0
Vehicle Noise:	56.5	54.7	51.4	46.9	55.4	55.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	23	50	107
CNEL:	11	25	53	114

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	520 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	12 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.28	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-21.52	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-25.47	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.4	54.5	52.8	46.7	55.3	55.9
Medium Trucks:	50.4	48.9	42.5	41.0	49.4	49.7
Heavy Trucks:	51.7	50.3	41.3	42.5	50.9	51.0
Vehicle Noise:	58.4	56.7	53.4	48.9	57.4	57.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	31	67	145
CNEL:	15	33	72	155

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	70 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-13.50	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-30.74	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-34.69	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.4	47.5	45.7	39.6	48.3	48.9
Medium Trucks:	43.1	41.6	35.3	33.7	42.2	42.4
Heavy Trucks:	44.0	42.5	33.5	34.8	43.1	43.2
Vehicle Noise:	51.2	49.5	46.3	41.6	50.2	50.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	10	22	48
CNEL:	5	11	24	51

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	420 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.72	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-22.96	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-26.91	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	55.2	53.5	47.4	56.1	56.7
Medium Trucks:	50.9	49.4	43.0	41.5	49.9	50.2
Heavy Trucks:	51.7	50.3	41.3	42.5	50.9	51.0
Vehicle Noise:	59.0	57.2	54.1	49.4	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	73	157
CNEL:	17	36	78	169

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	350 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.00	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-23.24	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-27.19	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.0	45.0	53.6	54.2
Medium Trucks:	48.7	47.2	40.8	39.3	47.7	47.9
Heavy Trucks:	50.0	48.6	39.5	40.8	49.1	49.3
Vehicle Noise:	56.7	55.0	51.7	47.2	55.7	56.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	24	52	111
CNEL:	12	26	55	119

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Via Del Agua
Road Segment: South of "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	460	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.81	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-22.05	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-26.01	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.9	54.0	52.2	46.2	54.8	55.4
Medium Trucks:	49.9	48.3	42.0	40.4	48.9	49.1
Heavy Trucks:	51.2	49.8	40.7	42.0	50.3	50.5
Vehicle Noise:	57.9	56.2	52.9	48.3	56.9	57.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	29	62	133
CNEL:	14	31	66	143

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Via Del Agua
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	550	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	12	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.04	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-21.27	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-25.23	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.7	54.8	53.0	46.9	55.6	56.2
Medium Trucks:	50.6	49.1	42.8	41.2	49.7	49.9
Heavy Trucks:	52.0	50.5	41.5	42.7	51.1	51.2
Vehicle Noise:	58.7	56.9	53.7	49.1	57.7	58.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	15	32	70	150
CNEL:	16	35	75	161

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Aspen Way
Road Segment: East of San Antonio Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	60	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-13.66	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-30.90	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-34.85	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	47.0	45.1	43.4	37.3	45.9	46.6
Medium Trucks:	41.0	39.5	33.1	31.6	40.1	40.3
Heavy Trucks:	42.3	40.9	31.9	33.1	41.5	41.6
Vehicle Noise:	49.1	47.3	44.0	39.5	48.0	48.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	3	7	16	34
CNEL:	4	8	17	37

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: West of CA 90
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,450	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.94	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.30	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.25	-4.13	-1.20	*-5.16*	0.000	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	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	58.8	57.3	51.0	49.4	57.9	58.1
Heavy Trucks:	59.7	58.2	49.2	50.5	58.8	58.9
Vehicle Noise:	66.9	65.2	62.0	57.3	65.9	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	114	247	531
CNEL:	57	123	265	570

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,730	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.77	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.47	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.43	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.7	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.8
Vehicle Noise:	68.7	67.0	63.8	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	326	703
CNEL:	75	162	350	754

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,760	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.80	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.44	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.39	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.3	57.2	65.8	66.4
Medium Trucks:	60.7	59.2	52.8	51.3	59.7	60.0
Heavy Trucks:	61.5	60.1	51.1	52.3	60.7	60.8
Vehicle Noise:	68.8	67.0	63.9	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	71	152	328	707
CNEL:	76	163	352	758

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,100	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.96	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.28	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.23	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.2	62.4	56.4	65.0	65.6
Medium Trucks:	59.8	58.3	52.0	50.4	58.9	59.1
Heavy Trucks:	60.7	59.3	50.2	51.5	59.8	60.0
Vehicle Noise:	67.9	66.2	63.0	58.4	66.9	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	134	288	621
CNEL:	67	144	309	667

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,760	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.80	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.44	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.39	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.3	57.2	65.8	66.4
Medium Trucks:	60.7	59.2	52.8	51.3	59.7	60.0
Heavy Trucks:	61.5	60.1	51.1	52.3	60.7	60.8
Vehicle Noise:	68.8	67.0	63.9	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	71	152	328	707
CNEL:	76	163	352	758

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Fairmont BL.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,540 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.10	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.14	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-19.10	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.0	63.1	61.3	55.2	63.9	64.5
Medium Trucks:	58.7	57.2	50.8	49.3	57.8	58.0
Heavy Trucks:	59.6	58.1	49.1	50.4	58.7	58.8
Vehicle Noise:	66.8	65.1	61.9	57.2	65.8	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	113	242	522
CNEL:	56	121	260	560

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of Village Center Drive

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,270 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.61	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.63	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-19.58	-4.39	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.5	62.6	60.8	54.8	63.4	64.0
Medium Trucks:	58.2	56.7	50.4	48.8	57.3	57.5
Heavy Trucks:	59.1	57.7	48.6	49.9	58.2	58.3
Vehicle Noise:	66.3	64.6	61.4	56.7	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	225	485
CNEL:	52	112	241	520

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: East of Village Center Drive

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,880 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.64	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.60	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.55	-4.39	-1.20	-5.16	0.000	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	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.3	57.8	51.4	49.8	58.3	58.5
Heavy Trucks:	60.1	58.7	49.6	50.9	59.3	59.4
Vehicle Noise:	67.3	65.6	62.5	57.8	66.3	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	122	264	568
CNEL:	61	131	283	609

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project | Project Name: Cielo Vista
Road Name: Yorba Linda BL. | Job Number: 7148
Road Segment: West of Paseo De Las Palomas

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,050 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.89	-4.39	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-14.35	-4.39	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-18.30	-4.39	-1.20	-5.16	0.000	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	63.9	62.1	56.0	64.7	65.3
Medium Trucks:	59.5	58.0	51.6	50.1	58.6	58.8
Heavy Trucks:	60.4	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	67.6	65.9	62.7	58.0	66.6	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	59	127	274	590
CNEL:	63	136	294	633

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,300	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.23	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.00	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.96	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.2	62.4	56.4	65.0	65.6
Medium Trucks:	59.9	58.3	52.0	50.4	58.9	59.1
Heavy Trucks:	60.7	59.3	50.2	51.5	59.8	60.0
Vehicle Noise:	67.9	66.2	63.0	58.4	66.9	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	134	289	622
CNEL:	67	144	310	667

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,790	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.84	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.40	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	64.8	63.0	57.0	65.6	66.2
Medium Trucks:	60.5	58.9	52.6	51.0	59.5	59.7
Heavy Trucks:	61.3	59.9	50.8	52.1	60.4	60.6
Vehicle Noise:	68.5	66.8	63.6	59.0	67.5	68.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	68	147	317	682
CNEL:	73	158	340	732

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,660	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.68	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.55	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.51	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	62.9	56.8	65.5	66.1
Medium Trucks:	60.3	58.8	52.4	50.9	59.4	59.6
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.4	66.6	63.5	58.8	67.4	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	144	309	666
CNEL:	71	154	332	715

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua

Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,350	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.30	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.94	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.89	-4.39	-1.20	*-5.16*	0.000	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	64.3	62.5	56.4	65.1	65.7
Medium Trucks:	59.9	58.4	52.0	50.5	59.0	59.2
Heavy Trucks:	60.8	59.3	50.3	51.6	59.9	60.0
Vehicle Noise:	68.0	66.3	63.1	58.4	67.0	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	63	135	292	628
CNEL:	67	145	313	674

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,620 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.14	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.09	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.05	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.1	59.3	53.3	61.9	62.5
Medium Trucks:	56.8	55.3	48.9	47.3	55.8	56.0
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	64.8	63.1	60.0	55.3	63.8	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	83	180	387
CNEL:	42	89	193	415

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,830 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.67	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-16.56	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-20.52	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	61.6	59.9	53.8	62.4	63.0
Medium Trucks:	57.3	55.8	49.4	47.9	56.3	56.6
Heavy Trucks:	58.1	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	65.4	63.6	60.5	55.8	64.3	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	90	195	420
CNEL:	45	97	209	450

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,600 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	5.19	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-12.05	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-16.01	-4.61	-1.20	*-5.16*	0.000	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	64.0	62.2	56.2	64.8	65.4
Medium Trucks:	59.9	58.3	52.0	50.4	58.9	59.1
Heavy Trucks:	61.2	59.8	50.7	52.0	60.3	60.5
Vehicle Noise:	67.9	66.2	62.9	58.3	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	287	619
CNEL:	66	143	308	663

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,840 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.40	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-12.83	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-16.79	-4.61	-1.20	*-5.16*	0.000	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	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	59.1	57.6	51.2	49.7	58.1	58.4
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.1	65.4	62.1	57.6	66.1	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	255	549
CNEL:	59	127	273	588

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,000	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.95	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.19	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.15	-4.51	-1.20	*-5.16*	0.000	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	58.9	57.1	51.1	59.7	60.3
Medium Trucks:	54.5	53.0	46.7	45.1	53.6	53.8
Heavy Trucks:	55.4	54.0	44.9	46.2	54.5	54.7
Vehicle Noise:	62.6	60.9	57.7	53.1	61.6	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	59	128	275
CNEL:	30	64	137	296

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,510	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.16	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.40	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	60.8	59.0	53.0	61.6	62.2
Medium Trucks:	56.5	55.0	48.6	47.0	55.5	55.7
Heavy Trucks:	57.3	55.9	46.8	48.1	56.5	56.6
Vehicle Noise:	64.5	62.8	59.6	55.0	63.5	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	37	80	171	369
CNEL:	40	85	184	396

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,130	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.42	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.66	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.61	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.4	59.5	57.8	51.7	60.3	61.0
Medium Trucks:	55.2	53.7	47.3	45.8	54.2	54.5
Heavy Trucks:	56.0	54.6	45.6	46.8	55.2	55.3
Vehicle Noise:	63.3	61.5	58.4	53.7	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	66	141	304
CNEL:	33	70	152	327

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,780	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.55	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-16.69	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-20.64	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.3	61.4	59.6	53.6	62.2	62.8
Medium Trucks:	57.1	55.5	49.2	47.6	56.1	56.3
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.2
Vehicle Noise:	65.1	63.4	60.2	55.6	64.1	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	87	188	405
CNEL:	43	94	201	434

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,100	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.54	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.78	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.73	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.2	59.3	57.5	51.5	60.1	60.7
Medium Trucks:	55.0	53.5	47.1	45.5	54.0	54.2
Heavy Trucks:	55.8	54.4	45.3	46.6	55.0	55.1
Vehicle Noise:	63.0	61.3	58.2	53.5	62.0	62.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	29	63	136	294
CNEL:	31	68	146	315

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	460	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.32	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.56	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.52	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.5	55.6	53.9	47.8	56.4	57.1
Medium Trucks:	51.3	49.8	43.4	41.9	50.3	50.6
Heavy Trucks:	52.1	50.7	41.7	42.9	51.3	51.4
Vehicle Noise:	59.4	57.6	54.5	49.8	58.3	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	36	78	167
CNEL:	18	39	83	179

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	860	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.09	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-19.33	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-23.29	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.6	56.7	54.9	48.9	57.5	58.1
Medium Trucks:	52.6	51.1	44.7	43.2	51.6	51.9
Heavy Trucks:	53.9	52.5	43.4	44.7	53.0	53.2
Vehicle Noise:	60.6	58.9	55.6	51.1	59.6	60.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	20	44	94	202
CNEL:	22	47	101	217

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	670	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.18	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-20.42	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-24.37	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.5	55.6	53.9	47.8	56.4	57.0
Medium Trucks:	51.5	50.0	43.6	42.1	50.5	50.8
Heavy Trucks:	52.8	51.4	42.4	43.6	52.0	52.1
Vehicle Noise:	59.5	57.8	54.5	50.0	58.5	59.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	80	171
CNEL:	18	40	85	183

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	860 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-2.09	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-19.33	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-23.29	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.6	56.7	54.9	48.9	57.5	58.1
Medium Trucks:	52.6	51.1	44.7	43.2	51.6	51.9
Heavy Trucks:	53.9	52.5	43.4	44.7	53.0	53.2
Vehicle Noise:	60.6	58.9	55.6	51.1	59.6	60.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	20	44	94	202
CNEL:	22	47	101	217

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	70 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-13.50	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-30.74	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-34.69	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.4	47.5	45.7	39.6	48.3	48.9
Medium Trucks:	43.1	41.6	35.3	33.7	42.2	42.4
Heavy Trucks:	44.0	42.5	33.5	34.8	43.1	43.2
Vehicle Noise:	51.2	49.5	46.3	41.6	50.2	50.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	10	22	48
CNEL:	5	11	24	51

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	420 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.72	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.96	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.91	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	55.2	53.5	47.4	56.1	56.7
Medium Trucks:	50.9	49.4	43.0	41.5	49.9	50.2
Heavy Trucks:	51.7	50.3	41.3	42.5	50.9	51.0
Vehicle Noise:	59.0	57.2	54.1	49.4	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	73	157
CNEL:	17	36	78	169

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	110 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-11.03	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-28.26	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-32.22	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	47.8	46.0	40.0	48.6	49.2
Medium Trucks:	43.6	42.1	35.8	34.2	42.7	42.9
Heavy Trucks:	45.0	43.5	34.5	35.8	44.1	44.2
Vehicle Noise:	51.7	50.0	46.7	42.1	50.7	51.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	24	51
CNEL:	6	12	26	55

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Via Del Agua
Road Segment: South of "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	130 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-10.30	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-27.54	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-31.49	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.4	48.5	46.7	40.7	49.3	49.9
Medium Trucks:	44.4	42.9	36.5	35.0	43.4	43.6
Heavy Trucks:	45.7	44.3	35.2	36.5	44.8	45.0
Vehicle Noise:	52.4	50.7	47.4	42.9	51.4	51.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	12	27	57
CNEL:	6	13	29	61

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Via Del Agua
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	220 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-8.02	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-25.25	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-29.21	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.7	50.8	49.0	43.0	51.6	52.2
Medium Trucks:	46.7	45.1	38.8	37.2	45.7	45.9
Heavy Trucks:	48.0	46.6	37.5	38.8	47.1	47.2
Vehicle Noise:	54.7	53.0	49.7	45.1	53.7	54.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	18	38	82
CNEL:	9	19	41	87

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Aspen Way
Road Segment: East of San Antonio Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	400 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.42	-4.61	-1.20	-4.87	0.000	0.000
Medium Trucks:	77.72	-22.66	-4.61	-1.20	-4.97	0.000	0.000
Heavy Trucks:	82.99	-26.61	-4.61	-1.20	-5.16	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.3	53.4	51.6	45.6	54.2	54.8
Medium Trucks:	49.3	47.7	41.4	39.8	48.3	48.5
Heavy Trucks:	50.6	49.1	40.1	41.4	49.7	49.8
Vehicle Noise:	57.3	55.6	52.3	47.7	56.3	56.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	26	56	121
CNEL:	13	28	60	130

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of CA 90
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,440 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	75 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.92	-4.13	-1.20	-4.87	0.000	0.000
Medium Trucks:	79.45	-15.32	-4.13	-1.20	-4.97	0.000	0.000
Heavy Trucks:	84.25	-19.27	-4.13	-1.20	-5.16	0.000	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	63.2	61.4	55.3	64.0	64.6
Medium Trucks:	58.8	57.3	50.9	49.4	57.9	58.1
Heavy Trucks:	59.7	58.2	49.2	50.4	58.8	58.9
Vehicle Noise:	66.9	65.1	62.0	57.3	65.9	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	114	246	530
CNEL:	57	122	264	568

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,710	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.74	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.50	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.45	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.6	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.7
Vehicle Noise:	68.7	67.0	63.8	59.1	67.7	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	325	701
CNEL:	75	162	349	751

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,730	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.77	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.47	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.43	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.7	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.8
Vehicle Noise:	68.7	67.0	63.8	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	326	703
CNEL:	75	162	350	754

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,070	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.92	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.32	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.27	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.1	64.2	62.4	56.3	65.0	65.6
Medium Trucks:	59.8	58.3	51.9	50.4	58.9	59.1
Heavy Trucks:	60.7	59.2	50.2	51.4	59.8	59.9
Vehicle Noise:	67.9	66.1	63.0	58.3	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	133	287	617
CNEL:	66	143	307	662

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,730	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.77	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.47	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.43	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.7	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.8
Vehicle Noise:	68.7	67.0	63.8	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	70	151	326	703
CNEL:	75	162	350	754

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Fairmont BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,500	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.03	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.21	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.17	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	63.0	61.2	55.2	63.8	64.4
Medium Trucks:	58.6	57.1	50.8	49.2	57.7	57.9
Heavy Trucks:	59.5	58.1	49.0	50.3	58.6	58.8
Vehicle Noise:	66.7	65.0	61.8	57.2	65.7	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	111	240	517
CNEL:	55	119	257	555

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,230	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.53	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.71	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.66	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	62.5	60.7	54.7	63.3	63.9
Medium Trucks:	58.2	56.6	50.3	48.7	57.2	57.4
Heavy Trucks:	59.0	57.6	48.5	49.8	58.1	58.3
Vehicle Noise:	66.2	64.5	61.3	56.7	65.2	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	48	103	222	479
CNEL:	51	111	239	514

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,830	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.57	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.67	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.63	-4.39	-1.20	*-5.16*	0.000	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	63.5	61.8	55.7	64.3	64.9
Medium Trucks:	59.2	57.7	51.3	49.8	58.2	58.5
Heavy Trucks:	60.0	58.6	49.6	50.8	59.2	59.3
Vehicle Noise:	67.3	65.5	62.4	57.7	66.2	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	121	261	561
CNEL:	60	130	280	602

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,000	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.82	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.42	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.37	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	63.8	62.0	56.0	64.6	65.2
Medium Trucks:	59.4	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	60.3	58.9	49.8	51.1	59.4	59.6
Vehicle Noise:	67.5	65.8	62.6	58.0	66.5	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	126	271	584
CNEL:	63	135	291	626

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,240	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.15	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.08	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.04	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.0	64.1	62.4	56.3	64.9	65.5
Medium Trucks:	59.8	58.3	51.9	50.4	58.8	59.1
Heavy Trucks:	60.6	59.2	50.2	51.4	59.8	59.9
Vehicle Noise:	67.9	66.1	63.0	58.3	66.8	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	132	285	614
CNEL:	66	142	306	659

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,650	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.67	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.57	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.52	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.5	64.6	62.9	56.8	65.4	66.0
Medium Trucks:	60.3	58.8	52.4	50.9	59.3	59.6
Heavy Trucks:	61.1	59.7	50.7	51.9	60.3	60.4
Vehicle Noise:	68.4	66.6	63.5	58.8	67.3	67.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	143	309	665
CNEL:	71	154	331	714

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,490	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.48	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.76	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.72	-4.39	-1.20	*-5.16*	0.000	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	64.4	62.7	56.6	65.2	65.9
Medium Trucks:	60.1	58.6	52.2	50.7	59.1	59.4
Heavy Trucks:	60.9	59.5	50.5	51.7	60.1	60.2
Vehicle Noise:	68.2	66.4	63.3	58.6	67.2	67.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	65	139	300	646
CNEL:	69	149	322	693

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 Without Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,430	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.40	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.84	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.79	-4.39	-1.20	*-5.16*	0.000	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	64.4	62.6	56.5	65.2	65.8
Medium Trucks:	60.0	58.5	52.2	50.6	59.1	59.3
Heavy Trucks:	60.9	59.4	50.4	51.7	60.0	60.1
Vehicle Noise:	68.1	66.4	63.2	58.5	67.1	67.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	64	138	296	638
CNEL:	68	148	318	685

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Lakeview Ave
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,620 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.14	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.09	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.05	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	61.1	59.3	53.3	61.9	62.5
Medium Trucks:	56.8	55.3	48.9	47.3	55.8	56.0
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	64.8	63.1	60.0	55.3	63.8	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	83	180	387
CNEL:	42	89	193	415

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Lakeview Ave
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,840 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.70	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-16.54	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-20.50	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.6	61.7	59.9	53.8	62.5	63.1
Medium Trucks:	57.3	55.8	49.4	47.9	56.4	56.6
Heavy Trucks:	58.2	56.7	47.7	49.0	57.3	57.4
Vehicle Noise:	65.4	63.7	60.5	55.8	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	42	91	196	421
CNEL:	45	97	210	452

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: CA 90
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,610 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	5.20	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-12.04	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-16.00	-4.61	-1.20	*-5.16*	0.000	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	64.0	62.2	56.2	64.8	65.4
Medium Trucks:	59.9	58.4	52.0	50.5	58.9	59.1
Heavy Trucks:	61.2	59.8	50.7	52.0	60.3	60.5
Vehicle Noise:	67.9	66.2	62.9	58.3	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	134	288	620
CNEL:	66	143	308	664

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: CA 90
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,840 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.40	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-12.83	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-16.79	-4.61	-1.20	*-5.16*	0.000	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	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	59.1	57.6	51.2	49.7	58.1	58.4
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.1	65.4	62.1	57.6	66.1	66.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	255	549
CNEL:	59	127	273	588

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Kellogg Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,000	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.95	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-19.19	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-23.15	-4.51	-1.20	*-5.16*	0.000	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	58.9	57.1	51.1	59.7	60.3
Medium Trucks:	54.5	53.0	46.7	45.1	53.6	53.8
Heavy Trucks:	55.4	54.0	44.9	46.2	54.5	54.7
Vehicle Noise:	62.6	60.9	57.7	53.1	61.6	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	59	128	275
CNEL:	30	64	137	296

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Fairmont BL.
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,510	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.16	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-17.40	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-21.36	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	60.8	59.0	53.0	61.6	62.2
Medium Trucks:	56.5	55.0	48.6	47.0	55.5	55.7
Heavy Trucks:	57.3	55.9	46.8	48.1	56.5	56.6
Vehicle Noise:	64.5	62.8	59.6	55.0	63.5	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	37	80	171	369
CNEL:	40	85	184	396

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Fairmont BL.
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,140	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.38	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.62	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.58	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.5	59.6	57.8	51.8	60.4	61.0
Medium Trucks:	55.2	53.7	47.4	45.8	54.3	54.5
Heavy Trucks:	56.1	54.7	45.6	46.9	55.2	55.4
Vehicle Noise:	63.3	61.6	58.4	53.7	62.3	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	66	142	306
CNEL:	33	71	152	329

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Village Center Drive
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,780	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.55	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-16.69	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-20.64	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.3	61.4	59.6	53.6	62.2	62.8
Medium Trucks:	57.1	55.5	49.2	47.6	56.1	56.3
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.2
Vehicle Noise:	65.1	63.4	60.2	55.6	64.1	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	87	188	405
CNEL:	43	94	201	434

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Village Center Drive
Road Segment: South of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,110	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.412
Medium Trucks:	98.372
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.50	-4.51	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-18.74	-4.51	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-22.69	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	59.3	57.6	51.5	60.2	60.8
Medium Trucks:	55.0	53.5	47.1	45.6	54.0	54.3
Heavy Trucks:	55.8	54.4	45.4	46.6	55.0	55.1
Vehicle Noise:	63.1	61.3	58.2	53.5	62.1	62.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	64	137	295
CNEL:	32	68	147	317

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Paseo De Las Palomas
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	470	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-5.23	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.47	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.42	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.6	55.7	54.0	47.9	56.5	57.1
Medium Trucks:	51.4	49.9	43.5	42.0	50.4	50.7
Heavy Trucks:	52.2	50.8	41.8	43.0	51.4	51.5
Vehicle Noise:	59.5	57.7	54.6	49.9	58.4	58.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	17	37	79	170
CNEL:	18	39	84	182

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: San Antonio Road
Road Segment: North of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	880	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.99	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-19.23	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-23.19	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.7	56.8	55.0	49.0	57.6	58.2
Medium Trucks:	52.7	51.2	44.8	43.3	51.7	52.0
Heavy Trucks:	54.0	52.6	43.5	44.8	53.1	53.3
Vehicle Noise:	60.7	59.0	55.7	51.2	59.7	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	21	44	95	205
CNEL:	22	47	102	220

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: San Antonio Road
Road Segment: South of Aspen Way
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,900	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	690	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-3.05	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-20.29	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-24.25	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	55.8	54.0	47.9	56.6	57.2
Medium Trucks:	51.6	50.1	43.7	42.2	50.7	50.9
Heavy Trucks:	52.9	51.5	42.5	43.7	52.1	52.2
Vehicle Noise:	59.7	57.9	54.7	50.1	58.6	59.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	17	38	81	175
CNEL:	19	40	87	187

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: San Antonio Road
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	880 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.99	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-19.23	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-23.19	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.7	56.8	55.0	49.0	57.6	58.2
Medium Trucks:	52.7	51.2	44.8	43.3	51.7	52.0
Heavy Trucks:	54.0	52.6	43.5	44.8	53.1	53.3
Vehicle Noise:	60.7	59.0	55.7	51.2	59.7	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	44	95	205
CNEL:	22	47	102	220

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Ranch
Road Segment: North of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	70 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-13.50	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-30.74	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-34.69	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.4	47.5	45.7	39.6	48.3	48.9
Medium Trucks:	43.1	41.6	35.3	33.7	42.2	42.4
Heavy Trucks:	44.0	42.5	33.5	34.8	43.1	43.2
Vehicle Noise:	51.2	49.5	46.3	41.6	50.2	50.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	10	22	48
CNEL:	5	11	24	51

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Ranch
Road Segment: South of Yorba Linda Bl.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	420 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	52 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-5.72	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-22.96	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-26.91	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.1	55.2	53.5	47.4	56.1	56.7
Medium Trucks:	50.9	49.4	43.0	41.5	49.9	50.2
Heavy Trucks:	51.7	50.3	41.3	42.5	50.9	51.0
Vehicle Noise:	59.0	57.2	54.1	49.4	58.0	58.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	73	157
CNEL:	17	36	78	169

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Via Del Agua
Road Segment: North "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	110 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:	100.0 feet
Centerline Dist. to Observer:	100.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-11.03	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-28.26	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-32.22	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	49.7	47.8	46.0	40.0	48.6	49.2
Medium Trucks:	43.6	42.1	35.8	34.2	42.7	42.9
Heavy Trucks:	45.0	43.5	34.5	35.8	44.1	44.2
Vehicle Noise:	51.7	50.0	46.7	42.1	50.7	51.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	11	24	51
CNEL:	6	12	26	55

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Via Del Agua
Road Segment: South of "A" Street
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	220	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-8.02	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-25.25	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-29.21	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	52.7	50.8	49.0	43.0	51.6	52.2
Medium Trucks:	46.7	45.1	38.8	37.2	45.7	45.9
Heavy Trucks:	48.0	46.6	37.5	38.8	47.1	47.2
Vehicle Noise:	54.7	53.0	49.7	45.1	53.7	54.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	8	18	38	82
CNEL:	9	19	41	87

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Via Del Agua
Road Segment: North of Yorba Linda BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,100	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	310	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-6.53	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-23.76	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-27.72	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.2	52.3	50.5	44.5	53.1	53.7
Medium Trucks:	48.1	46.6	40.3	38.7	47.2	47.4
Heavy Trucks:	49.5	48.0	39.0	40.3	48.6	48.7
Vehicle Noise:	56.2	54.5	51.2	46.6	55.2	55.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	10	22	48	102
CNEL:	11	24	51	110

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Aspen Way
Road Segment: East of San Antonio Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	420	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:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	99.865
Medium Trucks:	99.825
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-5.21	-4.61	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	77.72	-22.45	-4.61	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	82.99	-26.40	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.5	53.6	51.8	45.8	54.4	55.0
Medium Trucks:	49.5	48.0	41.6	40.0	48.5	48.7
Heavy Trucks:	50.8	49.4	40.3	41.6	49.9	50.1
Vehicle Noise:	57.5	55.8	52.5	47.9	56.5	56.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	27	58	125
CNEL:	13	29	62	134

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of CA 90
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,450	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.94	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.30	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.25	-4.13	-1.20	*-5.16*	0.000	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	63.2	61.4	55.4	64.0	64.6
Medium Trucks:	58.8	57.3	51.0	49.4	57.9	58.1
Heavy Trucks:	59.7	58.2	49.2	50.5	58.8	58.9
Vehicle Noise:	66.9	65.2	62.0	57.3	65.9	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	114	247	531
CNEL:	57	123	265	570

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: Between CA 90 and Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,730	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.77	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.47	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.43	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.7	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.8
Vehicle Noise:	68.7	67.0	63.8	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	326	703
CNEL:	75	162	350	754

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Lakeview Ave
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,760	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.80	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.44	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.39	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.3	57.2	65.8	66.4
Medium Trucks:	60.7	59.2	52.8	51.3	59.7	60.0
Heavy Trucks:	61.5	60.1	51.1	52.3	60.7	60.8
Vehicle Noise:	68.8	67.0	63.9	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	71	152	328	707
CNEL:	76	163	352	758

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,100	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.96	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.28	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.23	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.2	62.4	56.4	65.0	65.6
Medium Trucks:	59.8	58.3	52.0	50.4	58.9	59.1
Heavy Trucks:	60.7	59.3	50.2	51.5	59.8	60.0
Vehicle Noise:	67.9	66.2	63.0	58.4	66.9	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	134	288	621
CNEL:	67	144	309	667

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Kellogg Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,760	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	75	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	92.751
Medium Trucks:	92.708
Heavy Trucks:	92.751

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.80	-4.13	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.44	-4.13	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.39	-4.13	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.3	57.2	65.8	66.4
Medium Trucks:	60.7	59.2	52.8	51.3	59.7	60.0
Heavy Trucks:	61.5	60.1	51.1	52.3	60.7	60.8
Vehicle Noise:	68.8	67.0	63.9	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	71	152	328	707
CNEL:	76	163	352	758

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Fairmont BL.
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,400	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,540	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.10	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.14	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.10	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.1	61.3	55.2	63.9	64.5
Medium Trucks:	58.7	57.2	50.8	49.3	57.8	58.0
Heavy Trucks:	59.6	58.1	49.1	50.4	58.7	58.8
Vehicle Noise:	66.8	65.1	61.9	57.2	65.8	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	52	113	242	522
CNEL:	56	121	260	560

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,270	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.61	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-15.63	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-19.58	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.5	62.6	60.8	54.8	63.4	64.0
Medium Trucks:	58.2	56.7	50.4	48.8	57.3	57.5
Heavy Trucks:	59.1	57.7	48.6	49.9	58.2	58.3
Vehicle Noise:	66.3	64.6	61.4	56.7	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	48	104	225	485
CNEL:	52	112	241	520

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Village Center Drive
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,880	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.64	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.60	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.55	-4.39	-1.20	*-5.16*	0.000	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	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.3	57.8	51.4	49.8	58.3	58.5
Heavy Trucks:	60.1	58.7	49.6	50.9	59.3	59.4
Vehicle Noise:	67.3	65.6	62.5	57.8	66.3	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	122	264	568
CNEL:	61	131	283	609

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,500	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,050	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.89	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.35	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-18.30	-4.39	-1.20	*-5.16*	0.000	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	63.9	62.1	56.0	64.7	65.3
Medium Trucks:	59.5	58.0	51.6	50.1	58.6	58.8
Heavy Trucks:	60.4	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	67.6	65.9	62.7	58.0	66.6	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	127	274	590
CNEL:	63	136	294	633

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Paseo De Las Palomas
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,300	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.23	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-14.00	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.96	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.2	62.4	56.4	65.0	65.6
Medium Trucks:	59.9	58.3	52.0	50.4	58.9	59.1
Heavy Trucks:	60.7	59.3	50.2	51.5	59.8	60.0
Vehicle Noise:	67.9	66.2	63.0	58.4	66.9	67.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	134	289	622
CNEL:	67	144	310	667

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: West of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,200	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,720	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.75	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.48	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.44	-4.39	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.7	63.0	56.9	65.5	66.1
Medium Trucks:	60.4	58.9	52.5	51.0	59.4	59.7
Heavy Trucks:	61.2	59.8	50.8	52.0	60.4	60.5
Vehicle Noise:	68.5	66.7	63.6	58.9	67.4	67.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	67	145	313	674
CNEL:	72	156	335	723

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Yorba Ranch Road
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,600	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,560	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.56	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.67	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.63	-4.39	-1.20	*-5.16*	0.000	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	64.5	62.8	56.7	65.3	65.9
Medium Trucks:	60.2	58.7	52.3	50.8	59.2	59.5
Heavy Trucks:	61.0	59.6	50.6	51.8	60.2	60.3
Vehicle Noise:	68.3	66.5	63.4	58.7	67.2	67.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	65	141	304	654
CNEL:	70	151	326	702

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: 2035 With Project Alt. Access
Road Name: Yorba Linda BL.
Road Segment: East of Via Del Agua
Project Name: Cielo Vista
Job Number: 7148

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	3,470	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	52	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	100.0	feet
Centerline Dist. to Observer:	100.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	2.000		
Medium Trucks:	4.000		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.607
Medium Trucks:	96.566
Heavy Trucks:	96.608

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.45	-4.39	-1.20	*-4.87*	0.000	0.000
Medium Trucks:	79.45	-13.79	-4.39	-1.20	*-4.97*	0.000	0.000
Heavy Trucks:	84.25	-17.74	-4.39	-1.20	*-5.16*	0.000	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	64.4	62.7	56.6	65.2	65.8
Medium Trucks:	60.1	58.6	52.2	50.7	59.1	59.4
Heavy Trucks:	60.9	59.5	50.5	51.7	60.1	60.2
Vehicle Noise:	68.2	66.4	63.3	58.6	67.1	67.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	64	139	299	643
CNEL:	69	149	320	690

APPENDIX 8.1

RCNM (Roadway Construction Noise Model) Database

U.S. Department
of Transportation

Federal Highway Administration

FHWA
Roadway Construction Noise Model
User's Guide

FHWA-HEP-05-054
DOT-VNTSC-FHWA-05-01

Final Report
January 2006

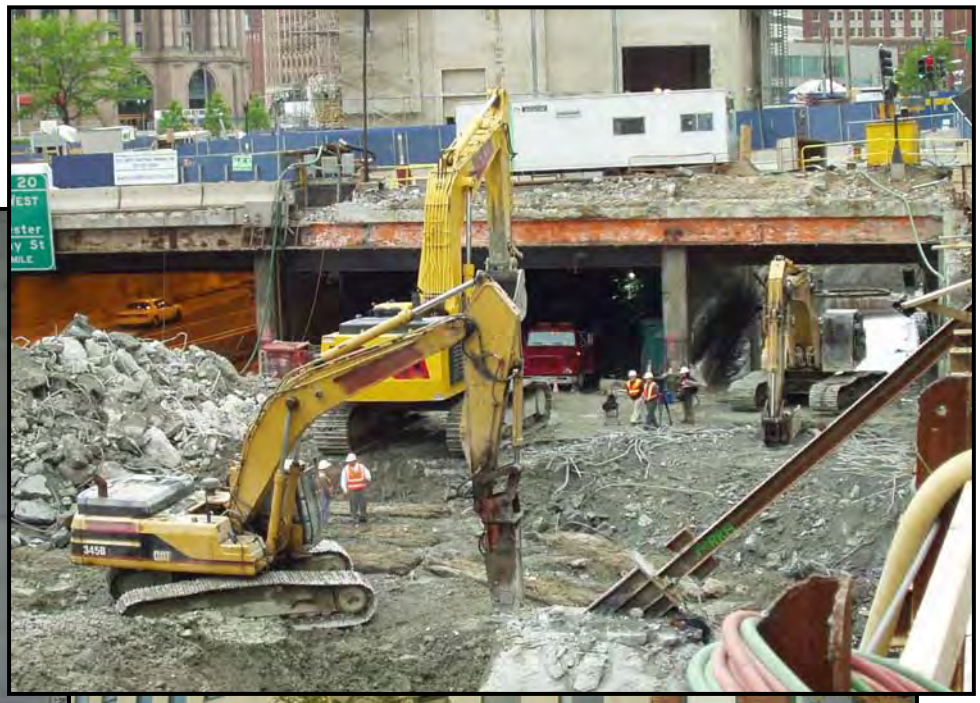

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Table 1. CA/T equipment noise emissions and acoustical usage factors database.

CA/T Noise Emission Reference Levels and Usage Factors					
filename: EQUIPLST.xls					
revised: 7/26/05		Acoustical	Spec 721.560	Actual Measured	No. of Actual
	Impact	Use Factor	Lmax @ 50ft	Lmax @ 50ft	Data Samples
Equipment Description	Device ?	(%)	(dBA, slow)	(dBA, slow)	(Count)
				(samples averaged)	
All Other Equipment > 5 HP	No	50	85	-- N/A --	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	-- N/A --	0
Blasting	Yes	-- N/A --	94	-- N/A --	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	No	20	80	83	57
Compressor (air)	No	40	80	78	18
Concrete Batch Plant	No	15	83	-- N/A --	0
Concrete Mixer Truck	No	40	85	79	40
Concrete Pump Truck	No	20	82	81	30
Concrete Saw	No	20	90	90	55
Crane	No	16	85	81	405
Dozer	No	40	85	82	55
Drill Rig Truck	No	20	84	79	22
Drum Mixer	No	50	80	80	1
Dump Truck	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Front End Loader	No	40	80	79	96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	-- N/A --	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	-- N/A --	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact Hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	40	55	75	1
Pneumatic Tools	No	50	85	85	90
Pumps	No	50	77	81	17
Refrigerator Unit	No	100	82	73	3
Rivit Buster/chipping gun	Yes	20	85	79	19
Rock Drill	No	20	85	81	3
Roller	No	20	85	80	16
Sand Blasting (Single Nozzle)	No	20	85	96	9
Scraper	No	40	85	84	12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	-- N/A --	0
Tractor	No	40	84	-- N/A --	0
Vacuum Excavator (Vac-truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
Welder / Torch	No	40	73	74	5