URBAN CROSSROADS

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July 28, 2011

Mr. Bentley T. Kerr
BLUESTONE COMMUNITIES
41 Corporate Park, Suite 380
Irvine, CA 92606

Subject: Arantine Hills Specific Plan Existing Plus Project Supplemental Letter

Dear Mr. Kerr:

Urban Crossroads, Inc. is pleased to provide this letter which provides an analysis of off-site traffic noise level impacts for existing plus project conditions for the Arantine Hills Specific Plan. This letter supplements the Arantine Hills EIR Noise Analysis dated May 13, 2011.

Noise Standards

The City of Corona addresses two separate types of noise sources through the CEQA process: (1) mobile, and (2) stationary. The mobile, or transportation related, noise impacts are analyzed using the 24-hour Community Noise Equivalent Level (CNEL) to assess the land use compatibility for community noise exposure. To analyze community noise impacts from stationary (non-transportation) noise sources (such as truck deliveries, speakerphones, trash compactors, etc.) the City of Corona has identified the worst-case noise levels for daytime and nighttime activities. In the context of this noise analysis, the noise impacts associated with the commercial / office land use activities found in the proposed Arantine Hills Development are governed by the City noise standards for stationary sources. The off-site Project-related vehicular traffic is governed by the CNEL noise level standards.

Transportation Noise Standards

For noise sensitive residential uses, the City noise element requires an exterior noise level of 65 dBA CNEL or lower for the outdoor living areas including outdoor patio areas and an interior noise level of 45 dBA CNEL or lower. In the context of this noise analysis, the traffic noise impacts associated with the project are governed by the City noise element presented in Appendix 1.

Community Noise Assessment Criteria

The noise criteria presented in this section is based on well documented criteria and research into human response to community noise. In community noise assessment, changes in noise levels greater than 3 dBA are often identified as "barely perceptible," while changes of 5 dBA are "readily perceptible." Studies show that a relative noise impact of 5 dBA triggers community reaction (sporadic complaints to widespread complaints to several legal threats to vigorous action). In the range of 1 dBA to 3 dBA, people who are very sensitive to noise may perceive a slight change in noise level. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dBA. However, in a community situation the noise exposure is extended over a long time period, and changes in noise levels occur over years rather than the immediate comparison made in a laboratory situation. Therefore, 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. While a 1dBA increase may be perceptible to a minority of very noise sensitive people, noise increases of up to 3dBA are “barely perceptible” to most people. The 3 dBA increase criteria represents a balance of community benefits and reasonableness.

Thresholds of Significance

In accordance with Appendix G to the State CEQA Guidelines, a Project may be deemed to have a significant adverse noise impact if it would result in:

> Off-site cumulative noise impacts describes how much noise levels are projected to increase over existing conditions with the development of the proposed Project and all other traffic growth Projected with buildout of the General Plan. Long-term cumulative off-site impacts from traffic noise are also measured against two criteria. Both criteria must be met for a significant impact to be identified:

- Future traffic noise levels must create a "readily perceptible" increase of 5 dBA CNEL or more compared to existing conditions on a roadway segment adjacent to a noise sensitive land use.

- The resulting future with Project noise level must exceed the criteria level for the noise sensitive land use. In this case, the criteria level is 65 dBA CNEL for residential land uses. The Project would considerably contribute to this increase if it contributes a "barely perceptible" 3 dBA CNEL or more to the increase.

Methods and Procedures

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

FHWA Traffic Noise Prediction Model

The 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.

Traffic Noise Prediction Model Inputs

Table 1 presents the FHWA Traffic Noise Prediction Model roadway parameters used in this analysis. Soft site conditions were used to develop the noise contours to analyze the traffic

noise impacts to the study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Based on our experience, soft site conditions better represent the noise level contours.

The existing and existing plus project average daily traffic volumes used for this study and presented in Table 2 were provided by the Arantine Hills Specific Plan Addendum prepared by Urban Crossroads, Inc. in July 2011.

Table 3 presents the hourly traffic flow distribution (vehicle mix) used for this analysis. The mix for the city roads are based on a typical Southern California vehicle mix. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model.

Off-Site Transportation Noise Impacts

To assess the unmitigated reference off-site noise level impacts associated with development of the proposed Project, noise contours were developed for the following traffic scenarios:

Existing: This scenario refers to the existing traffic noise conditions, without the proposed Project.

Existing Plus Project: This scenario refers to the existing traffic noise conditions with the proposed Project.

Traffic Noise Contour Boundaries

Traffic noise contour boundaries are often desired by local land planning and zoning authorities to represent sound level exposures on land that is being considered for development and is adjacent to highways. Noise contour boundaries represent the equal levels of noise exposure and are measured from the center of the roadway. Traffic noise contour boundaries are typically calculated at distances of 100 feet from a roadway centerline. CNEL noise contour boundaries are also determined below for the 55, 60, 65 and 70 dBA noise levels.

The distance from the centerline of the roadway to the CNEL contour boundaries for roadways in the proposed Project's vicinity are presented in Tables 4 and 5 and shown in Appendix 2. The noise contour boundaries do not take into account the effect of any existing or proposed noise barriers or topography that may affect noise levels.

Existing Roadway Noise Levels

Table 4 presents the existing noise contour boundaries. Table 4 shows for existing traffic volumes all segments currently do not exceed the City of Corona 65 dBA CNEL standard for noise sensitive residential areas at 100 feet from each roadway's centerline.

Existing Plus Project Roadway Noise Levels

Table 5 presents the existing plus project noise contour boundaries. Table 5 shows for existing traffic volumes with the project, most segments will do not exceed the City of Corona 65 dBA CNEL standard for noise sensitive residential areas at 100 feet from each roadway's centerline.

Existing Plus Project Traffic Noise Level Contributions

Table 6 presents a comparison of existing conditions without and with the proposed Project noise levels shown in Tables 4 and 5. The roadway noise impacts will increase on all segments from 0.0 dBA CNEL to 3.5 dBA CNEL with the development of the proposed Project.

Off-Site Transportation Related Project Noise Impacts

Project-related vehicular source noise may affect permanent and on-going ambient noise conditions and would not be considered a temporary or periodic noise source. Applying the Thresholds of Significance discussed above, unmitigated potentially permanent increases in the ambient noise levels generated by Project traffic will be considered potentially significant if:

a) Vehicular source noise exceeds applicable City standards;

b) Ambient conditions are within the normally acceptable community noise exposure levels identified in the Noise Element, and the Project increases the

noise to levels above the normally acceptable community noise exposure at any sensitive receptor; or

c) Ambient conditions exceed the normally acceptable community noise exposure level identified in the Noise Element, *and* the Project increases the ambient noise at any sensitive receptor by an audible amount (3 dB or more).

As indicated above, for the existing and existing plus project scenarios, one roadway segment on Cajalco Road may experience an unmitigated noise increase greater than 3.0 dBA CNEL at a distance of 100 feet from roadway centerline or the project related transportation noise level impacts may cause ambient noise levels that are below the City of Corona exterior noise level standard for transportation of 65 dBA CNEL to increase above the acceptable noise level standard. These levels are calculated to show the potential transportation related noise increase with the addition of the proposed project and are not meant to provide specific noise level impacts at any noise sensitive private living area. In order to provide a proper assessment of the significance of the expected transportation noise increase, an analysis shall be completed at the specific noise sensitive uses along each segment expected to have a "potentially significant" impact, however there are no current or planned noise sensitive uses along Cajalco Road from Bedford Canyon to the I-15 Freeway. For all other roadway segments, the Project's incremental vehicular-source noise contributions will be considered "barely perceptible" (less than 3.0 dBA CNEL) or impacts will remain below the City of Corona exterior noise level standard of 65 dBA CNEL with the proposed project and therefore, no mitigation is required.

If you have any questions, please contact me at (949) 660-1994, ext. 203.

Respectfully submitted,

URBAN CROSSROADS, INC.

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Principal

JS:BL

Table 1

Off-Site Roadway Parameters

Roadway	Segment	Roadway Classification[1]	Vehicle Speed (MPH)	Site Conditions
California Drive	w/o Masters Drive	Collector	40	Soft
California Drive	e/o Masters Drive	Collector	40	Soft
El Cerrito Road	w/o Bedford Cayon	Seconday	40	Soft
El Cerrito Road	Bedford Cayon to I-15 Freeway	Seconday	40	Soft
El Cerrito Road	I-15 Freeway to Temescal Canyon Road	Seconday	40	Soft
Bennett Avenue	Eagle Glen Parkway to Masters Drive	Collector	40	Soft
Bennett Avenue	n/o Masters Drive	Collector	40	Soft
Georgetown Drive	w/o Bedford Cayon	Collector	40	Soft
Eagle Glen Parkway	Bennett Avenue to Masters Drive	Seconday	40	Soft
Eagle Glen Parkway	Masters Drive to Bedford Canyon	Seconday	40	Soft
Cajalco Road	Bedford Canyon to I-15 Freeway	Major Arterial	40	Soft
Cajalco Road	I-15 Freeway to Grand Oaks	Major Arterial	45	Soft
Cajalco Road	Grand Oaks to Temescal Canyon Road	Major Arterial	45	Soft
Cajalco Road	e/o Temescal Canyon Road	Major Arterial	45	Soft
Masters Drive	n/o California Drive	Collector	45	Soft
Masters Drive	California Drive to Bennett Avenue	Collector	40	Soft
Masters Drive	Bennett Avenue to Eagle Glen Parkway	Collector	40	Soft
Bedford Canyon	El Cerrito Road to Georgetown Drive	Divided Collector	40	Soft
Bedford Canyon	Georgetown Drive to Eagle Glen Parkway	Divided Collector	40	Soft
Temescal Canyon Road	n/o Cajalco Road	Major	45	Soft
Temescal Canyon Road	s/o Cajalco Road	Major	45	Soft

[1] According to the City of Corona General Plan Circulation Element.

Table 2

Average Daily Traffic For Existing And Existing Plus Project Conditions

Roadway	Segment	Average Daily Traffic (1,000's)	
		Existing	Existing Plus Project
California Drive	w/o Masters Drive	4.1	5.3
California Drive	e/o Masters Drive	8.3	9.5
El Cerrito Road	w/o Bedford Cayon	19.2	20.8
El Cerrito Road	Bedford Cayon to I-15 Freeway	19.4	20.3
El Cerrito Road	I-15 Freeway to Temescal Canyon Road	8.5	9.4
Bennett Avenue	Eagle Glen Parkway to Masters Drive	1.4	1.4
Bennett Avenue	n/o Masters Drive	0.9	0.9
Georgetown Drive	w/o Bedford Cayon	2.2	2.5
Eagle Glen Parkway	Bennett Avenue to Masters Drive	7.7	12.8
Eagle Glen Parkway	Masters Drive to Bedford Canyon	11.0	19.2
Cajalco Road	Bedford Canyon to I-15 Freeway	17.3	39.0
Cajalco Road	I-15 Freeway to Grand Oaks	12.3	16.1
Cajalco Road	Grand Oaks to Temescal Canyon Road	11.5	15.0
Cajalco Road	e/o Temescal Canyon Road	10.9	12.9
Masters Drive	n/o California Drive	4.5	5.0
Masters Drive	California Drive to Bennett Avenue	7.8	10.7
Masters Drive	Bennett Avenue to Eagle Glen Parkway	5.9	9.3
Bedford Canyon	El Cerrito Road to Georgetown Drive	6.0	8.5
Bedford Canyon	Georgetown Drive to Eagle Glen Parkway	6.0	8.8
Temescal Canyon Road	n/o Cajalco Road	10.4	10.9
Temescal Canyon Road	s/o Cajalco Road	13.0	14.0

[1] According to the Arantine Hills Traffic Impact Analysis by Urban Crossroads, Inc. in July 2011.

Table 3

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
City of Corona Roadways[1]				
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 Southern California vehicle mix.

Table 4

Existing 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
California Drive	w/o Masters Drive	56.8	RW	RW	61	132
California Drive	e/o Masters Drive	59.9	21	46	98	212
El Cerrito Road	w/o Bedford Cayon	63.6	38	81	174	375
El Cerrito Road	Bedford Cayon to I-15 Freeway	63.7	RW	RW	RW	RW
El Cerrito Road	I-15 Freeway to Temescal Canyon Road	60.1	RW	47	101	218
Bennett Avenue	Eagle Glen Parkway to Masters Drive	52.2	RW	RW	RW	65
Bennett Avenue	n/o Masters Drive	50.2	RW	RW	RW	48
Georgetown Drive	w/o Bedford Cayon	54.1	RW	RW	RW	87
Eagle Glen Parkway	Bennett Avenue to Masters Drive	59.6	RW	RW	95	204
Eagle Glen Parkway	Masters Drive to Bedford Canyon	61.2	RW	56	120	259
Cajalco Road	Bedford Canyon to I-15 Freeway	64.8	45	98	211	454
Cajalco Road	I-15 Freeway to Grand Oaks	63.4	36	78	168	361
Cajalco Road	Grand Oaks to Temescal Canyon Road	63.1	RW	74	160	345
Cajalco Road	e/o Temescal Canyon Road	62.8	RW	72	155	333
Masters Drive	n/o California Drive	57.2	RW	RW	RW	141
Masters Drive	California Drive to Bennett Avenue	59.6	RW	RW	94	203
Masters Drive	Bennett Avenue to Eagle Glen Parkway	58.4	RW	RW	78	169
Bedford Canyon	El Cerrito Road to Georgetown Drive	58.5	RW	RW	80	171
Bedford Canyon	Georgetown Drive to Eagle Glen Parkway	58.5	RW	37	80	171
Temescal Canyon Road	n/o Cajalco Road	62.4	RW	67	144	309
Temescal Canyon Road	s/o Cajalco Road	63.3	36	77	167	359

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

Table 5

Existing Plus 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
California Drive	w/o Masters Drive	57.9	RW	RW	73	157
California Drive	e/o Masters Drive	60.5	23	50	107	232
El Cerrito Road	w/o Bedford Cayon	64.0	40	85	184	396
El Cerrito Road	Bedford Cayon to I-15 Freeway	63.9	RW	RW	RW	RW
El Cerrito Road	I-15 Freeway to Temescal Canyon Road	60.5	RW	50	108	233
Bennett Avenue	Eagle Glen Parkway to Masters Drive	52.2	RW	RW	RW	65
Bennett Avenue	n/o Masters Drive	50.2	RW	RW	RW	48
Georgetown Drive	w/o Bedford Cayon	54.7	RW	RW	RW	95
Eagle Glen Parkway	Bennett Avenue to Masters Drive	61.9	RW	62	133	286
Eagle Glen Parkway	Masters Drive to Bedford Canyon	63.6	38	81	174	375
Cajalco Road	Bedford Canyon to I-15 Freeway	68.4	78	168	362	780
Cajalco Road	I-15 Freeway to Grand Oaks	64.5	43	93	201	432
Cajalco Road	Grand Oaks to Temescal Canyon Road	64.2	RW	89	191	412
Cajalco Road	e/o Temescal Canyon Road	63.6	RW	80	173	373
Masters Drive	n/o California Drive	57.7	RW	RW	70	151
Masters Drive	California Drive to Bennett Avenue	61.0	RW	RW	116	251
Masters Drive	Bennett Avenue to Eagle Glen Parkway	60.4	RW	RW	106	228
Bedford Canyon	El Cerrito Road to Georgetown Drive	60.0	RW	RW	100	216
Bedford Canyon	Georgetown Drive to Eagle Glen Parkway	60.2	RW	48	103	221
Temescal Canyon Road	n/o Cajalco Road	62.6	RW	69	148	319
Temescal Canyon Road	s/o Cajalco Road	63.6	38	81	175	377

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

Table 6

Existing Plus Project Off-Site Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet (dBA)			Potential Significant Impact?[1]
		No Project	With Project	Project Contribution	
California Drive	w/o Masters Drive	56.8	57.9	1.1	NO
California Drive	e/o Masters Drive	59.9	60.5	0.6	NO
El Cerrito Road	w/o Bedford Cayon	63.6	64.0	0.3	NO
El Cerrito Road	Bedford Cayon to I-15 Freeway	63.7	63.9	0.2	NO
El Cerrito Road	I-15 Freeway to Temescal Canyon Road	60.1	60.5	0.4	NO
Bennett Avenue	Eagle Glen Parkway to Masters Drive	52.2	52.2	0.0	NO
Bennett Avenue	n/o Masters Drive	50.2	50.2	0.0	NO
Georgetown Drive	w/o Bedford Cayon	54.1	54.7	0.6	NO
Eagle Glen Parkway	Bennett Avenue to Masters Drive	59.6	61.9	2.2	NO
Eagle Glen Parkway	Masters Drive to Bedford Canyon	61.2	63.6	2.4	NO
Cajalco Road	Bedford Canyon to I-15 Freeway	64.8	68.4	3.5	YES
Cajalco Road	I-15 Freeway to Grand Oaks	63.4	64.5	1.2	NO
Cajalco Road	Grand Oaks to Temescal Canyon Road	63.1	64.2	1.2	NO
Cajalco Road	e/o Temescal Canyon Road	62.8	63.6	0.7	NO
Masters Drive	n/o California Drive	57.2	57.7	0.5	NO
Masters Drive	California Drive to Bennett Avenue	59.6	61.0	1.4	NO
Masters Drive	Bennett Avenue to Eagle Glen Parkway	58.4	60.4	2.0	NO
Bedford Canyon	El Cerrito Road to Georgetown Drive	58.5	60.0	1.5	NO
Bedford Canyon	Georgetown Drive to Eagle Glen Parkway	58.5	60.2	1.7	NO
Temescal Canyon Road	n/o Cajalco Road	62.4	62.6	0.2	NO
Temescal Canyon Road	s/o Cajalco Road	63.3	63.6	0.3	NO

[1] A significant impact is considered both a level above 65 dBA CNEL and an increase of 3.0 dBA CNEL or greater.

Appendix 1

City of Corona Noise Element

11.3.4

With the assistance of the Riverside County, determine Corona's long-term need for hazardous materials management facilities including the proper collection, transport, treatment, and disposal of such materials. *(Imp 15d)*

11.3.5

If it is determined that a hazardous materials management facility is required, develop and implement strict land use controls, performance standards, and structure and property design requirements on this facility including development setbacks from existing and planned schools, hospitals and medical offices, day care and elder care facilities, residential areas, and other sensitive land uses. *(Imp 2, 6)*

11.3.6

Require property owners of contaminated sites to develop and implement, at their expense, a site remediation plan to the satisfaction of Riverside County and the Department of Toxic Substances Control. *(Imp 6)*

11.3.7

Minimize the potential risk of contamination to surface water and groundwater resources and implement restoration efforts to resources adversely impacted by past urban and rural land use activities. *(Imp 6)*

NOISE

CONTEXT

This section identifies noise sensitive land uses, at-source noise generators, and the geographic extent of noise impacts for the purposes of protecting residents and businesses from excessive and persistent noise intrusions.

California State law, Government Code Section 65302(g), requires the preparation and adoption of a Noise Element, as follows:

> The General Plan shall include a Noise Element that shall identify and appraise noise problems in the community. The Noise Element shall recognize the guidelines adopted by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:
>
> - Highways and freeways
> - Primary arterials and major local streets
> - Passenger and freight on-line railroad operations and ground rapid transit systems
> - Aviation and airport related operations
> - Local industrial plants
> - Other ground stationary noise sources contributing to community noise environment"

A local Noise Element should accurately reflect the noise environment, the stationary sources of noise, and the impacts of noise on local residents.

Freeways and Arterial Roadways

Throughout the City of Corona, the dominant noise sources are transportation related. Two major, region-serving freeways bisect Corona and numerous major surface streets carry vehicles throughout the developed portions of the City. Motor vehicle noise commonly causes sustained noise levels and often in close proximity of sensitive land uses.

The major sources of traffic noise in Corona are the Riverside Freeway (SR-91) and I-15 Freeway. Many of the residential uses built near the freeways include some level of noise attenuation, provided by either a sound barrier or grade separation. As highway projects are implemented on the freeways, Caltrans policies regarding environmental protection are implemented and noise mitigation strategies are developed as necessary to meet Caltrans and/or FHWA goals.

Railroad Traffic

The Burlington Northern/Santa Fe (BNSF) Railroad main line also bisects Corona. This rail line carries heavy east-west freight train traffic, and about fifteen daily Metrolink and Amtrak passenger trains, from Los Angeles and Orange Counties through Riverside County to points east. During any typical 24-hour period, 75 to 90 freight trains use this line. Because freight train traffic occurs around the clock, nighttime traffic on the railroad has the potential to be the most disruptive to the community noise environment.

Aircraft

The Corona Municipal Airport is a recreational airport that experiences more than 60,000 annual operations per year. Because the airport generally serves small aircraft and it is located in the Prado Flood Control Basin approximately one-half mile from the nearest residential neighborhoods to the north of Rincon Street, it is not a substantial source of noise at any sensitive land use, and noise from the airport does not affect most of the City.

Stationary Sources

Stationary sources of noise include common building or home mechanical equipment, such as air conditioners, ventilation systems, or pool pumps, and industrial facilities, such as manufacturing plants, power plants, or processing plants. Industry in Corona and near Corona city limits includes a variety of light manufacturing, rail and truck transportation-related businesses, some heavy manufacturing, and, in the eastern portion of the City, surface mining operations.

Sensitive Land Uses

Noise-sensitive land uses are defined in the Corona Municipal Code, Section 17.84.040. Sensitive land uses are those uses that have associated human activities that may be subject to stress or significant interference from noise. Sensitive land uses include single family residential, multiple family residential, churches, hospitals and similar health care institutions, convalescent homes, libraries, and school classroom areas.

Noise Standards

The Corona Municipal Code establishes standards for transportation noise sources in relation to sensitive uses. These standards are used by the City to guide project-level development to a

community noise environment that does not disrupt sensitive uses. New sensitive uses are prohibited from locating in areas where aircraft noise exceeds 65 CNEL, and mitigation is required for projects proposing to locate where roadway noise exceeds 65 CNEL.

The land use compatibility standards for community noise levels recommended in the guidelines established by the State of California, Governor's Office of Planning and Research. In addition, the California Noise Insulation Standards identify an interior noise standard of 45 dBA CNEL for new multi-family residential units.

2002 Noise Levels

Ambient noise levels were measured in the City of Corona to characterize existing daytime noise conditions caused by various noise sources. The locations were selected to characterize conditions caused by unique noise sources in the community (freeways, industry, the airport, and the railroad). Refer to Figure 18(1) through Figure 18(4).

SR-91 and I-15 are the greatest source of noise within the City. Yuma Drive located east of I-15 and Ontario Avenue located east of Rimpau Avenue also generate high levels of roadway noise. Existing residential uses in close proximity to these freeway and roadway segments could be exposed to high noise levels on a regular basis.

In addition to the noise levels identified above, there are currently several active surface aggregate mines within the City. Noise is generated by heavy vehicles within the mining sites, processing plant equipment, and transport trucks traveling to and from the mines. Most of the mines are located directly east of I-15 and SR-91.

As with locations in the City of Corona, motor vehicles are the primary source of noise within the SOI. Existing roadway noise levels in the Sphere of Influence Area are lower than within the City of Corona. As there are few existing residential uses in close proximity to the roadway segments, it is unlikely that these residents are exposed to high noise levels on a regular basis. There are currently several active surface aggregate mines within the South and East SOI areas. The noise generated by these mines is not known to adversely affect residential uses or other sensitive uses at the present time.

Comprehensive descriptions and maps of noise related issues in Corona are available in the *Corona General Plan Update Technical Background Report.* The following noise related policies are intended to be a comprehensive program that addresses noise control and mitigation in the planning and development process. The underlying purpose is to minimize exposure of excessive noise sources to the greatest number of residents and visitors of Corona as possible.

Goal 11.4

Ensure that appropriate actions are taken to protect residents, visitors, and noise sensitive land uses from adverse human health and environmental impacts created by excessive noise levels from ambient sources.

Policies

11.4.1

Provide for the reduction in noise impacts from transportation noise sources through the following actions:

- Implement noise mitigation measures in the design and daily operation of arterial road improvement projects consistent with funding capabilities.
- Require the use of site design and architectural design measures in the development of residential and other "noise-sensitive" land uses that are to be located adjacent to major roads or railroads. Measures that may be appropriate include increased building setbacks and dedicated noise easements, use of "noise-tolerant" land uses and buildings to serve as compatible buffers, landscaped earthen berms, walls, and clustering of buildings, to reduce interior open space noise levels.
- Encourage the enforcement of State Motor Vehicle noise standards for cars, vans, trucks, and motorcycles through coordination with the California Highway Patrol and the Corona Police Department.
- Ensure that the Zoning Ordinance, Circulation Element, and Land Use Element of the General Plan fully integrate the policies adopted as part of the Noise Element.

(Imp 1 to 9, 12, 13)

11.4.2

Minimize vehicle noise impacts from streets and freeways through proper route location and sensitive roadway design through the following strategies:

- Assess the impacts of truck routes, the effects of a variety of truck traffic, and future motor vehicle volumes on noise levels adjacent to roadways when improvements to the circulation system are being planned.
- Mitigate traffic volumes and vehicle speed through residential neighborhoods and school districts.
- Work closely with Caltrans in the early stages of highway improvements and design modifications to ensure that proper consideration is being given to potential noise impacts.

(Imp 15c, 17)

11.4.3

Encourage Caltrans to install and maintain mitigation (e.g., noise walls) and/or landscaping elements along highways under their jurisdiction that are adjacent to existing residential subdivisions or other noise-sensitive areas in order to reduce adverse noise impacts. *(Imp 15c, 17)*

11.4.4

Require municipal vehicles and noise-generating mechanical equipment purchased or used by the City of Corona to comply with noise performance standards consistent with the latest available noise reduction technology. *(Imp 19)*

11.4.5

Require local and regional public transit providers to ensure that equipment used does not create excessive noise impacts on the community. *(Imp 15d, 17)*

11.4.6

Require new nonresidential development to design and configure onsite ingress and egress points to divert traffic away from "noise-sensitive" land uses, to the greatest extent practicable. *(Imp 6)*

11.4.7

Provide for the development of alternate transportation modes, such as bicycle paths and pedestrian walkways, to minimize the number of noise generating automobile trips. *(Imp 2, 6)*

11.4.8

Restrict development of land uses located within the 65 dBA CNEL contour of the Corona Municipal Airport to industrial, agricultural, or other open space activities and that all development in the vicinity of the Corona Municipal Airport comply with the noise standards contained in the Corona Municipal Airport Master Plan. *(Imp 1, 2)*

11.4.9

Work closely with the Corona Municipal Airport to ensure that the airport's operations do not generate adverse noise conditions in the City of Corona. *(Imp 15d)*

Goal 11.5

Prevent and mitigate the adverse impacts of excessive ambient noise exposure on residents, employees, visitors, and "noise-sensitive" land uses within the City of Corona.

Policies

11.5.1

Require that in areas where existing or future ambient noise levels exceed an exterior noise level of 65 dB(A) L_{dn}, all development of new housing, health care facilities, schools, libraries, religious facilities, and other "noise sensitive" land uses shall include satisfactory buffering and/or construction mitigation measures to reduce noise exposure to levels within acceptable limits. *(Imp 2 to 6, 9, 12)*

11.5.2

Require new industrial and new commercial land uses or the major expansion of such uses to demonstrate that ambient noise levels will not exceed an exterior noise level of 65 dB(A) L_{dn} on areas containing "noise sensitive" land uses as depicted on Table 4. *(Imp 2 to 6, 9, 12)*

11.5.3

Require development in all areas where the existing or future ambient noise level exceeds 65 dB(A) L_{dn} to conduct an acoustical analysis and incorporate special design measures in their construction, thereby, reducing interior noise levels to the 45 dB(A) L_{dn} level, as depicted on Table 5. *(Imp 2 to 6, 9, 12)*

11.5.4

Encourage existing "noise sensitive uses," including schools, libraries, health care facilities, and residential uses in areas where existing or future noise levels exceed 65 dB(A) L_{dn} to incorporate fences, walls, landscaping, and/or other noise buffers and barriers, where appropriate and feasible. *(Imp 2 to 6, 9, 12)*

11.5.5

Require development that generates increased traffic and substantial increases in ambient noise levels adjacent to noise sensitive land uses, to provide appropriate mitigation measures in accordance with the acceptable limits of the City Noise Ordinance. *(Imp 2 to 6, 9, 12)*

11.5.6

Require construction activities that occur in close proximity to existing "noise sensitive" uses, including schools, libraries, health care facilities, and residential uses to limit the hours and days of operation in accordance with City Noise Ordinance. *(Imp 2–6, 9, 12)*

Table 4 Land Use Noise Compatibility Matrix

Land Use Categories		*Community Noise Equivalent Level CNEL*						
Categories	*Uses*	*<55*	*60*	*65*	*70*	*75*	*80>*	
RESIDENTIAL	Single Family, Duplex	A	A	B	B	D	D	D
	Multiple Family	A	A	B	B	C	D	D
RESIDENTIAL	Mobile Home	A	A	B	C	C	D	D
COMMERCIAL Regional, District	Hotel, Motel Transient Lodging	A	A	B	B	C	C	D
COMMERCIAL Regional, Village District, Special	Commercial Retail, Bank, Restaurant, Movie Theatre	A	A	A	A	B	B	C
COMMERCIAL OFFICE INSTITUTIONAL	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMERCIAL Recreation INSTITUTIONAL Civic Center	Amphitheatre, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
COMMERCIAL Recreation	Children's Amusement Park, Miniature Golf Course, Go-cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
COMMERCIAL General, Special INDUSTIRAL, INSTITUTIONAL	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
INSTITUTIONAL General	Hospital, Church, Library, Schools' Classroom	A	A	B	C	C	D	D
OPEN SPACE	Parks	A	A	A	B	C	D	D
OPEN SPACE	Golf Course, Cemeteries, Nature Centers Wildlife Reserves, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A

Interpretation

Zone A Clearly Compatible	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
Zone B Normally Compatible	New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice. Note that residential uses are prohibited with airport CNEL greater than 65.
Zone C Normally Incompatible	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.
Zone D Clearly Incompatible	New construction of development should generally not be undertaken.

Table 5 Interior and Exterior Noise Standards

Land Use Categories		*Energy Average CNEL*	
Categories	*Uses*	*Interior*[1]	*Exterior*[2]
RESIDENTIAL	Single Family, Duplex, Multiple Family	45[3]	65
	Mobile Home	NA	65[4]
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Hotel, Motel, Transient Lodging	45	65[5]
	Commercial Retail, Bank, Restaurant	55	NA
	Office Building, Research and Development, Professional Offices, City Office Building	50	NA
	Amphitheatre, Concert Hall Auditorium, Meeting Hall	45	NA
	Gymnasium (Multipurpose)	50	NA
	Sports Club	55	NA
	Manufacturing, Warehousing, Wholesale, Utilities	65	NA
	Movie Theatres	45	NA
INSTITUTIONAL	Hospital, Schools' classroom	45	65
	Church, Library	45	NA
OPEN SPACE	Parks	NA	65

INTERPRETATION

1. Indoor environment excluding bathrooms, toilets, closets, corridors.
2. Outdoor environment limited to:
   - Private yard of single family
   - Multi-family private patio or balcony that is served by a means of exit from inside
   - Mobile home park
   - Hospital patio
   - Park's picnic area
   - School's playground
   - Hotel and motel recreation area
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.
4. Exterior noise level should be such that interior noise level will not exceed 45 CNEL.
5. Except those areas affected by aircraft noise.

Source: Mestre Greve Associates

Goal 11.6

Provide sufficient information concerning community noise levels to ensure that noise can be objectively considered and incorporated into land use planning.

Policies

11.6.1

Monitor and update available data regarding the City's existing and projected ambient and stationary noise levels. *(Imp 13)*

11.6.2

Undertake modifications and updates to the City's noise ordinances, regulations, and guidelines, on an ongoing basis, as required, in response to new Federal, State and County standards and guidelines. *(Imp 1 to 6)*

11.6.3

Incorporate noise considerations into land use planning decisions in order to prevent future noise and land use incompatibilities. Considerations may include, but not necessarily be limited to standards that specify acceptable noise limits for various land uses, noise reduction features, acoustical design in new construction, and enforcement of the State of California Uniform Building Code provisions for indoor and outdoor noise levels. *(Imp 2 to 6, 9, 12)*

Goal 11.7

Provide for the reduction of noise spillover or encroachment where the noise environment from commercial and industrial land uses is unacceptable; and protect and maintain adjoining residential areas and other "noise sensitive" areas having acceptable noise environments.

Policies

11.7.1

Provide for the reduction in noise impacts from commercial and industrial noise sources as controlled and enforced through the Community Noise Ordinance. *(Imp 2 to 6, 9, 12)*

11.7.2

Require that new commercial structures located adjacent to existing and planned residential areas shield HVAC units so as to limit adverse noise impacts to the greatest extent possible. *(Imp 6)*

11.7.3

Require that parking areas for commercial and industrial land operations be set back from adjacent residential areas to the maximum extent feasible or be buffered and shielded by walls, fences, berms, and/or adequate landscaping. *(Imp 6)*

11.7.4

Require that parking structures serving commercial or industrial land uses be designed to minimize potential noise impacts of vehicles using these structures to both on-site and adjacent properties. *(Imp 2, 6)*

11.7.5

Require that automobile and truck access to commercial or industrial land uses abutting existing or planned residential areas be located at the maximum practical distance from residential areas. *(Imp 2, 6)*

11.7.6

Prohibit the siting of loading and shipping facilities for commercial and industrial operations adjacent to existing or planned residential areas. *(Imp 2, 6)*

11.7.7

Require that restaurant/bar establishments take appropriate steps to control the activities of their patrons on-site and within a reasonable and legally justified distance from the establishment in order to minimize potential noise-related impacts on adjacent residential neighborhoods. *(Imp 2)*

Goal 11.8

Minimize potentially adverse noise impacts associated with the development of mixed-use structures in which residential dwelling units are proposed above ground floor commercial or institutional uses.

Policies

11.8.1

Require that mixed-use structures incorporating both commercial or institutional and residential uses minimize through design and construction technology, the transfer or transmission of noise and vibration from the commercial or institutional use to the residential land use. *(Imp 6)*

11.8.2

Prohibit the development of new nightclubs and other high noise-generating entertainment uses directly adjacent to existing and planned residential neighborhoods, residential dwelling units, schools, health care facilities, or other "noise-sensitive" land uses. Such uses may be permitted, at the direction of the City Council, if it can be satisfactorily demonstrated to the City through a noise analysis prepared by an

acoustical expert that effective measures can be installed and employed on an ongoing basis by the establishment to satisfactorily mitigate the potential impacts of onsite operations and/or offsite customer activities upon these areas. *(Imp 2)*

11.8.3

Prohibit the location of uses characterized by excessive noise, such as fast food restaurants with drive-through speakers, adjacent to existing and planned residential neighborhoods. *(Imp 2)*

Goal 11.9

Minimize noise impacts created by the Santa Fe railroad transit on residential areas and other "noise-sensitive" land use areas.

Policies

11.9.1

Continue to work closely with the Santa Fe Railroad operators to install and maintain noise mitigation features where operations impact existing and planned residential areas or other "noise-sensitive" areas. *(Imp 15d)*

11.9.2

Coordinate with rail planners to properly maintain lines within the municipal boundaries of the City of Corona and establish operational restrictions including hours of operation and speed limits during the early morning and late evening hours to reduce adverse noise impacts in residential areas and other "noise-sensitive" areas. *(Imp 15d)*

11.9.3

Require that all new development of new housing, health care facilities, schools, libraries, religious facilities, and other "noise sensitive" land uses in close proximity to the railroad line include satisfactory buffering and/or construction mitigation measures to reduce noise exposure to levels within acceptable limits (i.e., 65 dB(A) L_{dn} interior and 45 dB(A) L_{dn} exterior). *(Imp 2–6, 9, 12)*

EMERGENCY/DISASTER PREPAREDNESS

CONTEXT

Municipalities use emergency/disaster preparedness plans in order to identify planning processes, organizations, response, and recovery policies and procedures to address a range of emergencies/ disasters including seismic, flooding, urban and wildfires, and hazardous waste. These plans specify how preparedness and response activities and responsibilities are integrated and coordinated between local and county jurisdictions and with other government agencies, when required.

The California Emergency Services Act requires cities and counties to manage and coordinate emergency response and recovery activities within their jurisdictional boundaries. During disasters, the City of Corona coordinates its operations with the Riverside Operational Area. In the event of a disaster, the City and other involved agencies will implement the Incident Command System (ICS) at the field-response level to standardize response procedures. At the local government level, a designated Emergency Operations Center (EOC) is used as the central location to administer emergency operations.

APPENDIX 2

Off-Site FHWA Traffic Noise Model Contours

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: California Drive
Road Segment: w/o Masters Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

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	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-22.55	-4.61	-1.20	*-4.88*	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	47.9	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	124
CNEL:	13	28	61	132

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: California Drive
Road Segment: e/o Masters Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	830 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.25	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-19.49	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-23.44	-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:	58.5	56.6	54.8	48.7	57.4	58.0
Medium Trucks:	52.4	50.9	44.6	43.0	51.5	51.7
Heavy Trucks:	53.7	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	60.5	58.7	55.5	50.9	59.4	59.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	20	43	92	198
CNEL:	21	46	98	212

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: El Cerrito Road
Road Segment: w/o Bedford Cayon

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	40 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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.39	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-15.84	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-19.80	-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:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	56.2	54.6	48.3	46.7	55.2	55.4
Heavy Trucks:	57.5	56.1	47.0	48.3	56.6	56.8
Vehicle Noise:	64.2	62.5	59.2	54.6	63.2	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	76	163	351
CNEL:	38	81	174	375

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: El Cerrito Road
Road Segment: Bedford Cayon to I-15 Freeway

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,940 vehicles
Vehicle Speed:	40 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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.44	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-15.80	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-19.76	-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:	62.2	60.3	58.6	52.5	61.1	61.7
Medium Trucks:	56.2	54.7	48.3	46.8	55.2	55.5
Heavy Trucks:	57.5	56.1	47.1	48.3	56.7	56.8
Vehicle Noise:	64.2	62.5	59.2	54.7	63.2	63.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	76	164	353
CNEL:	38	81	175	378

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: El Cerrito Road
Road Segment: I-15 Freeway to Temescal Canyo

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	850 vehicles
Vehicle Speed:	40 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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.15	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-19.38	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-23.34	-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:	58.6	56.7	55.0	48.9	57.5	58.2
Medium Trucks:	52.6	51.1	44.7	43.2	51.7	51.9
Heavy Trucks:	53.9	52.5	43.5	44.7	53.1	53.2
Vehicle Noise:	60.7	58.9	55.6	51.1	59.6	60.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	20	44	95	204
CNEL:	22	47	101	218

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Bennett Avenue
Road Segment: Eagle Glen Parkway to Masters D

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	140 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-9.98	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-27.22	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-31.17	-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:	50.7	48.8	47.1	41.0	49.6	50.2
Medium Trucks:	44.7	43.2	36.8	35.3	43.7	44.0
Heavy Trucks:	46.0	44.6	35.6	36.8	45.2	45.3
Vehicle Noise:	52.7	51.0	47.7	43.2	51.7	52.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	13	28	60
CNEL:	6	14	30	65

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Bennett Avenue
Road Segment: n/o Masters Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

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	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-29.14	-4.61	-1.20	*-4.88*	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: Existing Conditions
Road Name: Georgetown Drive
Road Segment: w/o Bedford Cayon

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

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	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-25.25	-4.61	-1.20	*-4.88*	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	47.3
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: Existing Conditions
Road Name: Eagle Glen Parkway
Road Segment: Bennett Avenue to Masters Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	770 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.57	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-19.81	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-23.77	-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:	58.2	56.3	54.6	48.5	57.1	57.7
Medium Trucks:	52.2	50.7	44.3	42.8	51.2	51.5
Heavy Trucks:	53.5	52.1	43.1	44.3	52.7	52.8
Vehicle Noise:	60.2	58.5	55.2	50.7	59.2	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	19	41	88	191
CNEL:	20	44	95	204

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Eagle Glen Parkway
Road Segment: Masters Drive to Bedford Canyon

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	40 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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.03	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-18.26	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-22.22	-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:	59.8	57.9	56.1	50.0	58.7	59.3
Medium Trucks:	53.7	52.2	45.9	44.3	52.8	53.0
Heavy Trucks:	55.1	53.6	44.6	45.9	54.2	54.3
Vehicle Noise:	61.8	60.0	56.8	52.2	60.8	61.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	52	112	242
CNEL:	26	56	120	259

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Cajalco Road
Road Segment: Bedford Canyon to I-15 Freeway

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,730 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.427
Medium Trucks:	92.331
Heavy Trucks:	92.341

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.43	-4.11	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.81	-4.10	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.76	-4.10	-1.20	*-5.16*	0.000	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	53.9	62.5	63.1
Medium Trucks:	57.3	55.8	49.5	47.9	56.4	56.6
Heavy Trucks:	58.2	56.8	47.7	49.0	57.3	57.5
Vehicle Noise:	65.4	63.7	60.5	55.9	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	91	196	423
CNEL:	45	98	211	454

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Cajalco Road
Road Segment: I-15 Freeway to Grand Oaks

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,300	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,230	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	77	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.427
Medium Trucks:	92.331
Heavy Trucks:	92.341

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.05	-4.11	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.29	-4.10	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.25	-4.10	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.1	60.2	58.4	52.4	61.0	61.6
Medium Trucks:	55.9	54.4	48.0	46.4	54.9	55.1
Heavy Trucks:	56.7	55.3	46.2	47.5	55.9	56.0
Vehicle Noise:	63.9	62.2	59.0	54.4	62.9	63.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	34	73	156	337
CNEL:	36	78	168	361

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Cajalco Road
Road Segment: Grand Oaks to Temescal Canyon

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	77 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.427
Medium Trucks:	92.331
Heavy Trucks:	92.341

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.34	-4.11	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.58	-4.10	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.54	-4.10	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	55.6	54.1	47.7	46.2	54.6	54.8
Heavy Trucks:	56.4	55.0	46.0	47.2	55.6	55.7
Vehicle Noise:	63.6	61.9	58.8	54.1	62.6	63.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	32	69	149	322
CNEL:	35	74	160	345

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Cajalco Road
Road Segment: e/o Temescal Canyon Road

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	77 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.427
Medium Trucks:	92.331
Heavy Trucks:	92.341

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.58	-4.11	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.82	-4.10	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.77	-4.10	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.6	59.7	57.9	51.9	60.5	61.1
Medium Trucks:	55.3	53.8	47.5	45.9	54.4	54.6
Heavy Trucks:	56.2	54.8	45.7	47.0	55.3	55.5
Vehicle Noise:	63.4	61.7	58.5	53.8	62.4	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	67	144	311
CNEL:	33	72	155	333

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Masters Drive
Road Segment: n/o California Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	450 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.91	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-22.15	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-26.10	-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:	55.8	53.9	52.1	46.1	54.7	55.3
Medium Trucks:	49.8	48.3	41.9	40.4	48.8	49.0
Heavy Trucks:	51.1	49.7	40.6	41.9	50.2	50.4
Vehicle Noise:	57.8	56.1	52.8	48.2	56.8	57.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	28	61	131
CNEL:	14	30	65	141

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Masters Drive
Road Segment: California Drive to Bennett Avenu

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	780 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.52	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-19.76	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-23.71	-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:	58.2	56.3	54.5	48.5	57.1	57.7
Medium Trucks:	52.2	50.6	44.3	42.7	51.2	51.4
Heavy Trucks:	53.5	52.1	43.0	44.3	52.6	52.7
Vehicle Noise:	60.2	58.5	55.2	50.6	59.2	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	19	41	88	190
CNEL:	20	44	94	203

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Masters Drive
Road Segment: Bennett Avenue to Eagle Glen Pa

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	590 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-3.73	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-20.97	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-24.93	-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:	57.0	55.1	53.3	47.3	55.9	56.5
Medium Trucks:	50.9	49.4	43.1	41.5	50.0	50.2
Heavy Trucks:	52.3	50.8	41.8	43.1	51.4	51.5
Vehicle Noise:	59.0	57.2	54.0	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 Conditions
Road Name: Bedford Canyon
Road Segment: El Cerrito Road to Georgetown Dr

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	600 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.403
Medium Trucks:	99.314
Heavy Trucks:	99.323

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-3.66	-4.58	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-20.90	-4.57	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-24.85	-4.57	-1.20	*-5.16*	0.000	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	53.4	47.4	56.0	56.6
Medium Trucks:	51.0	49.5	43.2	41.6	50.1	50.3
Heavy Trucks:	52.4	50.9	41.9	43.2	51.5	51.6
Vehicle Noise:	59.1	57.4	54.1	49.5	58.1	58.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	34	74	160
CNEL:	17	37	80	171

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Bedford Canyon
Road Segment: Georgetown Drive to Eagle Glen

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	600 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.403
Medium Trucks:	99.314
Heavy Trucks:	99.323

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-3.66	-4.58	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-20.90	-4.57	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-24.85	-4.57	-1.20	*-5.16*	0.000	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	53.4	47.4	56.0	56.6
Medium Trucks:	51.0	49.5	43.2	41.6	50.1	50.3
Heavy Trucks:	52.4	50.9	41.9	43.2	51.5	51.6
Vehicle Noise:	59.1	57.4	54.1	49.5	58.1	58.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	34	74	160
CNEL:	17	37	80	171

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Temescal Canyon Road
Road Segment: n/o Cajalco Road

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	53 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.554
Medium Trucks:	96.463
Heavy Trucks:	96.472

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	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.02	-4.38	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.97	-4.38	-1.20	*-5.16*	0.000	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	53.4	61.9	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	62	134	288
CNEL:	31	67	144	309

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Temescal Canyon Road
Road Segment: s/o Cajalco Road

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,300 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	53 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.554
Medium Trucks:	96.463
Heavy Trucks:	96.472

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.81	-4.39	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.05	-4.38	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.01	-4.38	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.1	60.2	58.4	52.3	61.0	61.6
Medium Trucks:	55.8	54.3	47.9	46.4	54.9	55.1
Heavy Trucks:	56.7	55.2	46.2	47.5	55.8	55.9
Vehicle Noise:	63.9	62.2	59.0	54.3	62.9	63.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	33	72	155	335
CNEL:	36	77	167	359

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: California Drive
Road Segment: w/o Masters Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	530 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.20	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-21.44	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-25.39	-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:	56.5	54.6	52.8	46.8	55.4	56.0
Medium Trucks:	50.5	49.0	42.6	41.1	49.5	49.8
Heavy Trucks:	51.8	50.4	41.3	42.6	50.9	51.1
Vehicle Noise:	58.5	56.8	53.5	49.0	57.5	57.9

Centerline Distance to Noise Contour (in feet)

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

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: California Drive
Road Segment: e/o Masters Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	950 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.66	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-18.90	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-22.86	-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:	59.0	57.1	55.4	49.3	57.9	58.5
Medium Trucks:	53.0	51.5	45.1	43.6	52.1	52.3
Heavy Trucks:	54.3	52.9	43.9	45.1	53.5	53.6
Vehicle Noise:	61.0	59.3	56.0	51.5	60.0	60.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	22	47	100	216
CNEL:	23	50	107	232

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: El Cerrito Road
Road Segment: w/o Bedford Cayon

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,800	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	2,080	vehicles
Vehicle Speed:	40	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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.74	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-15.50	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-19.45	-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:	62.5	60.6	58.9	52.8	61.4	62.0
Medium Trucks:	56.5	55.0	48.6	47.1	55.6	55.8
Heavy Trucks:	57.8	56.4	47.4	48.6	57.0	57.1
Vehicle Noise:	64.5	62.8	59.5	55.0	63.5	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	37	80	172	370
CNEL:	40	85	184	396

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: El Cerrito Road
Road Segment: Bedford Cayon to I-15 Freeway

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,030 vehicles
Vehicle Speed:	40 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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.64	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-15.60	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-19.56	-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:	62.4	60.5	58.8	52.7	61.3	61.9
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	57.7	56.3	47.3	48.5	56.9	57.0
Vehicle Noise:	64.4	62.7	59.4	54.9	63.4	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	78	169	364
CNEL:	39	84	181	390

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: El Cerrito Road
Road Segment: I-15 Freeway to Temescal Canyo

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	940 vehicles
Vehicle Speed:	40 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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.71	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-18.95	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-22.90	-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:	59.1	57.2	55.4	49.4	58.0	58.6
Medium Trucks:	53.1	51.5	45.2	43.6	52.1	52.3
Heavy Trucks:	54.4	53.0	43.9	45.2	53.5	53.7
Vehicle Noise:	61.1	59.4	56.1	51.5	60.1	60.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	22	47	101	218
CNEL:	23	50	108	233

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Bennett Avenue
Road Segment: Eagle Glen Parkway to Masters D

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	140 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-9.98	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-27.22	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-31.17	-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:	50.7	48.8	47.1	41.0	49.6	50.2
Medium Trucks:	44.7	43.2	36.8	35.3	43.7	44.0
Heavy Trucks:	46.0	44.6	35.6	36.8	45.2	45.3
Vehicle Noise:	52.7	51.0	47.7	43.2	51.7	52.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	13	28	60
CNEL:	6	14	30	65

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Bennett Avenue
Road Segment: n/o Masters Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

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	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-29.14	-4.61	-1.20	*-4.88*	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: Existing Plus Project
Road Name: Georgetown Drive
Road Segment: w/o Bedford Cayon

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

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	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-24.70	-4.61	-1.20	*-4.88*	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: Eagle Glen Parkway
Road Segment: Bennett Avenue to Masters Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,280 vehicles
Vehicle Speed:	40 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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-0.37	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-17.61	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-21.56	-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:	54.4	52.9	46.5	45.0	53.4	53.7
Heavy Trucks:	55.7	54.3	45.3	46.5	54.9	55.0
Vehicle Noise:	62.4	60.7	57.4	52.9	61.4	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	27	58	124	268
CNEL:	29	62	133	286

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Eagle Glen Parkway
Road Segment: Masters Drive to Bedford Canyon

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	40	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:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	98.494
Medium Trucks:	98.404
Heavy Trucks:	98.413

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	1.39	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-15.84	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-19.80	-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:	62.2	60.3	58.5	52.5	61.1	61.7
Medium Trucks:	56.2	54.6	48.3	46.7	55.2	55.4
Heavy Trucks:	57.5	56.1	47.0	48.3	56.6	56.8
Vehicle Noise:	64.2	62.5	59.2	54.6	63.2	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	76	163	351
CNEL:	38	81	174	375

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Cajalco Road
Road Segment: Bedford Canyon to I-15 Freeway

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.427
Medium Trucks:	92.331
Heavy Trucks:	92.341

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.96	-4.11	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-13.28	-4.10	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.23	-4.10	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.1	65.2	63.4	57.4	66.0	66.6
Medium Trucks:	60.9	59.4	53.0	51.5	59.9	60.2
Heavy Trucks:	61.7	60.3	51.3	52.5	60.9	61.0
Vehicle Noise:	69.0	67.2	64.1	59.4	67.9	68.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	73	157	337	727
CNEL:	78	168	362	780

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Cajalco Road
Road Segment: I-15 Freeway to Grand Oaks

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,610 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.427
Medium Trucks:	92.331
Heavy Trucks:	92.341

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.12	-4.11	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.12	-4.10	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.08	-4.10	-1.20	*-5.16*	0.000	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:	57.0	55.5	49.2	47.6	56.1	56.3
Heavy Trucks:	57.9	56.5	47.4	48.7	57.0	57.1
Vehicle Noise:	65.1	63.4	60.2	55.5	64.1	64.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	40	87	187	403
CNEL:	43	93	201	432

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Cajalco Road
Road Segment: Grand Oaks to Temescal Canyon

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.427
Medium Trucks:	92.331
Heavy Trucks:	92.341

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.19	-4.11	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.43	-4.10	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.38	-4.10	-1.20	*-5.16*	0.000	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	53.2	61.9	62.5
Medium Trucks:	56.7	55.2	48.9	47.3	55.8	56.0
Heavy Trucks:	57.6	56.1	47.1	48.4	56.7	56.8
Vehicle Noise:	64.8	63.1	59.9	55.2	63.8	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	83	178	384
CNEL:	41	89	191	412

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Cajalco Road
Road Segment: e/o Temescal Canyon Road

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,290 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	77 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.427
Medium Trucks:	92.331
Heavy Trucks:	92.341

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.85	-4.11	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.08	-4.10	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.04	-4.10	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.3	60.4	58.6	52.6	61.2	61.8
Medium Trucks:	56.1	54.6	48.2	46.7	55.1	55.3
Heavy Trucks:	56.9	55.5	46.5	47.7	56.1	56.2
Vehicle Noise:	64.1	62.4	59.3	54.6	63.1	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	75	161	348
CNEL:	37	80	173	373

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Masters Drive
Road Segment: n/o California Drive

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

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	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-21.69	-4.61	-1.20	*-4.88*	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: Existing Plus Project
Road Name: Masters Drive
Road Segment: California Drive to Bennett Avenu

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,700	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,070	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	14	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.15	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-18.38	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-22.34	-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:	59.6	57.7	55.9	49.8	58.5	59.1
Medium Trucks:	53.5	52.0	45.7	44.1	52.6	52.8
Heavy Trucks:	54.8	53.4	44.4	45.6	54.0	54.1
Vehicle Noise:	61.6	59.8	56.6	52.0	60.5	61.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	50	109	234
CNEL:	25	54	116	251

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Masters Drive
Road Segment: Bennett Avenue to Eagle Glen Pa

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	930 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	14 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.880
Medium Trucks:	99.791
Heavy Trucks:	99.800

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.75	-4.61	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-18.99	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-22.95	-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:	58.9	57.0	55.3	49.2	57.8	58.5
Medium Trucks:	52.9	51.4	45.0	43.5	52.0	52.2
Heavy Trucks:	54.2	52.8	43.8	45.0	53.4	53.5
Vehicle Noise:	61.0	59.2	55.9	51.4	59.9	60.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	21	46	99	213
CNEL:	23	49	106	228

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Bedford Canyon
Road Segment: El Cerrito Road to Georgetown Dr

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	850 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.403
Medium Trucks:	99.314
Heavy Trucks:	99.323

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.15	-4.58	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-19.38	-4.57	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-23.34	-4.57	-1.20	*-5.16*	0.000	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	51.0	44.7	43.1	51.6	51.8
Heavy Trucks:	53.9	52.5	43.4	44.7	53.0	53.2
Vehicle Noise:	60.6	58.9	55.6	51.0	59.6	60.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	20	43	94	202
CNEL:	22	47	100	216

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Bedford Canyon
Road Segment: Georgetown Drive to Eagle Glen

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	24 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.403
Medium Trucks:	99.314
Heavy Trucks:	99.323

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-1.99	-4.58	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	77.72	-19.23	-4.57	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	82.99	-23.19	-4.57	-1.20	*-5.16*	0.000	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	55.1	49.0	57.6	58.2
Medium Trucks:	52.7	51.2	44.8	43.3	51.8	52.0
Heavy Trucks:	54.0	52.6	43.6	44.8	53.2	53.3
Vehicle Noise:	60.7	59.0	55.7	51.2	59.7	60.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	21	44	96	206
CNEL:	22	48	103	221

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Plus Project
Road Name: Temescal Canyon Road
Road Segment: n/o Cajalco Road

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

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:	53	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.554
Medium Trucks:	96.463
Heavy Trucks:	96.472

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	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.82	-4.38	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.77	-4.38	-1.20	*-5.16*	0.000	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: Temescal Canyon Road
Road Segment: s/o Cajalco Road

Project Name: Arantine Hills Noise Analy
Job Number: 6897
Analyst: J.T. Stephens

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,000	vehicles
Peak Hour Percentage:	10%	
Peak Hour Volume:	1,400	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	53	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	96.554
Medium Trucks:	96.463
Heavy Trucks:	96.472

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.49	-4.39	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.73	-4.38	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.68	-4.38	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.4	60.5	58.7	52.7	61.3	61.9
Medium Trucks:	56.1	54.6	48.3	46.7	55.2	55.4
Heavy Trucks:	57.0	55.6	46.5	47.8	56.1	56.3
Vehicle Noise:	64.2	62.5	59.3	54.6	63.2	63.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	35	76	163	351
CNEL:	38	81	175	377