URBAN CROSSROADS

41 Corporate Park, Suite 300
Irvine, CA 92606

Prepared by:

Bill Lawson, P.E., INCE

Prepared for:

Mr. Mike Davis
TRANSCOAST FINANCIAL, INC.
8405 Pershing Drive, Suite 301
Playa del Rey, CA 90293

UNIVERSITY CROSSINGS APARTMENTS
NOISE IMPACT ANALYSIS
COUNTY OF SAN BERNARDINO, CALIFORNIA

March 9, 2012

JN:08140-05 Report.docx

TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

Section Page

LIST OF TABLES

UNIVERSITY CROSSINGS APARTMENTS
NOISE IMPACT ANALYSIS
COUNTY OF SAN BERNARDINO, CALIFORNIA

1.0 EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts associated with the development of the proposed University Crossings Apartments (Project). The applicant is proposing the development of 321 apartment units north of Lugonia Avenue and west of Alabama Street in the unincorporated region of the County of San Bernardino. The purpose of this noise assessment is to evaluate the noise impacts for the project study area and to recommend noise mitigation measures, if necessary, to minimize the potential project impacts. In addition, this study has been prepared to satisfy the County of San Bernardino noise standards.

1.1 Analysis of Traffic Noise Impacts to Off-Site Sensitive Receptors

Traffic generated by the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise impacts on the surrounding off-site areas, the changes in traffic noise levels on 19 roadway segments surrounding the Project site were estimated based on the change in the average daily traffic volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts provided in the *University Crossings Apartments Traffic Impact Analysis* prepared by Urban Crossroads, Inc. in March 2012.[1]

To assess the off-site noise level impacts associated with the proposed project, noise contour boundaries were developed for existing and Year 2014 and Year 2035 traffic conditions. In order for an off-site transportation related noise impact to be considered a significant impact, the project traffic must create a noise level increase of 3.0 dBA or greater and the resulting noise level must exceed the County of San Bernardino 60 dBA CNEL exterior noise standard. This analysis shows that the project will not generate a substantial permanent increase in transportation related ambient noise levels.

1.2 Analysis of Noise Impacts to On-Site Sensitive Receptors

The results of this analysis indicate that the future vehicle noise from Lugonia Avenue, Nevada Street and the I-10 Freeway are the principal sources of community noise that will impact the site. While the site will experience some noise level impacts associated with the operation of the neighboring JC Penny department store, such truck deliveries, trash compactors and roof-mounted ventilation systems, these noise levels will likely be overshadowed by traffic noise. In addition, there is an existing perimeter wall separating the project site from the Redlands Town Center department store.

Based on the future traffic noise level projections, portions of the site will experience unmitigated exterior noise levels that will exceed the County of San Bernardino noise standards for transportation related noise impacts in the outdoor living areas. Since multi-family residential development does not typically include private outdoor living areas or backyards, exterior noise mitigation is generally not provided. For multi-level residential developments such as the proposed University Crossings Apartments, exterior noise mitigation would only reduce the noise levels for the first floor units and would not mitigate any of the exterior noise levels for second or third floor units. However, while no exterior noise mitigation is provided for multi-family residential development; additional interior noise mitigation is usually needed to satisfy the interior noise level standards

1.2.1 Exterior Noise Level Impacts to On-Site Sensitive Receptors

While the unmitigated exterior noise levels within the on-site multi-family residential areas may exceed 60 dBA CNEL, the County of San Bernardino does not recognize these exterior areas as noise sensitive outdoor living spaces. Noise sensitive exterior uses are generally limited to private yard of single-family homes or multi-family private patios which are assessed by a means of exit from inside the unit. Consequently, noise barriers to reduce the unmitigated exterior noise levels are not identified for the multi-family residential development. However, multi-family developments with outdoor balconies facing Lugonia Avenue should provide occupancy disclosure notices to all future tenants regarding the potential noise impacts.

1.2.2 Interior Noise Level Impacts to On-Site Sensitive Receptors

To satisfy the County of San Bernardino's 45 dBA CNEL interior noise level standard, all units facing Lugonia Avenue and the I-10 Freeway must maintain a windows closed condition and include a means of mechanical ventilation (e.g. air conditioning), in combination with standard building construction that includes dual-glazed windows. In addition, units facing Lugonia Avenue may require upgraded dual-glazed windows with a Sound Transmission Class Rating (STC) of 26. Specific window recommendations will be made once final architectural plans are available and detailed interior noise level reduction calculations can be estimated based on actual building assembly details.

A final noise study should be prepared prior to obtaining building permits for the Project. This report will finalize the mitigation measures that are proposed in this report using the precise grading plans and actual building design specifications.

The on-site preliminary noise mitigation measures recommended in this noise analysis have been designed to reduce the interior noise levels to satisfy the County of San Bernardino noise standards. With the recommended on-site noise mitigation measures shown on Exhibit 1-A, the noise impacts to the on-site noise sensitive receptor locations will be less than significant.

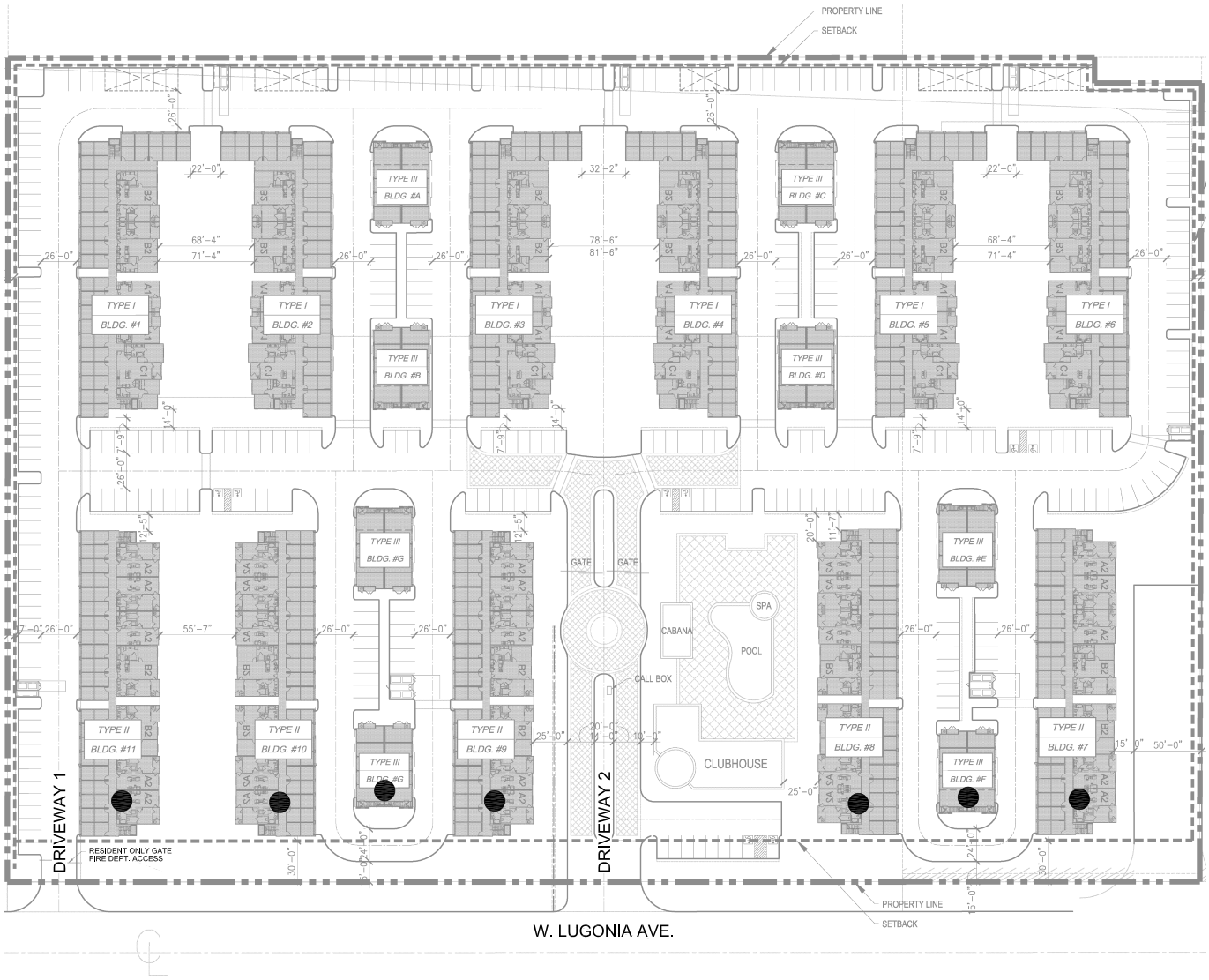
1.3 Construction Noise Analysis

To estimate the construction noise impacts, typical reference construction noise level sources were placed within the project site and then used to estimate the potential noise impacts on the neighboring land uses. Using a drop-off rate of 6 dBA per doubling of distance, noise levels at 100 feet are estimated at 83 dBA Leq, at 200 feet 77 dBA, and at 400 feet 71 dBA. This noise level impact represents a worst-case condition when grading equipment is operating near the project boundaries. Even though the County of San Bernardino does not regulate noise levels from construction activities so long as those activities occur between the hours of 7:00 a.m. to 7:00 p.m. except Sundays and Federal holidays, several noise mitigation measures are provided below to reduce the potential construction noise level impact:.

EXHIBIT 1-A

SUMMARY OF RECOMMENDATIONS

ALL UNITS WILL REQUIRE A MEANS OF MECHANICAL VENTILATION TO ALLOW FOR A "WINDOWS CLOSED" CONDITION.



LEGEND:

● = PROVIDE UPGRADED DUAL GLAZED WINDOWS WITH A MINIMUM SOUND TRANSMISSION CLASS RATING OF 26 FOR ALL WINDOWS FACING LUGONIA AVENUE.

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- The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal working hours, to be determined by County staff.
- During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise sensitive receptors nearest the project site during all project construction.
- The construction contractor shall limit haul truck deliveries to the same hours specified for construction equipment. To the extent feasible, haul routes shall not pass sensitive land uses or residential dwellings.

The recommended construction noise impact mitigation measures recognize that construction noise is of short-term duration and will not present any long-term impacts on the project site or surrounding area.

2.0 INTRODUCTION

This noise study has been completed to determine the noise impacts associated with off-site traffic noise impacts, on-site operational noise impacts, and temporary construction noise impacts related to the development of the proposed University Crossings Apartments located in the San Bernardino County, California.

2.1 Purpose of Report

This noise study briefly describes the proposed project, provides information regarding noise fundamentals, describes the regulatory setting, establishes significance criteria, identifies the existing noise environment, provides the study methods and procedures for traffic noise analysis, and evaluates the future off-site exterior noise environment. Included in this study is an analysis of the potential off-site project-related noise impacts during construction activities and the predicted future noise environment that can be expected with the proposed Project. This study has been prepared to satisfy the County of San Bernardino noise standards.

2.2 Project Location

The project site is located north of Lugonia Avenue and west of Alabama Street in the unincorporated region of the County of San Bernardino. Adjacent land uses consist mostly of retail and commercial land uses. Exhibit 2-A illustrates the location of the project site within the study area. Based on the site plan provided to Urban Crossroads at the time of study preparation, the Project consists of 321 apartment units as shown on Exhibit 2-B.

EXHIBIT 2-A

LOCATION MAP

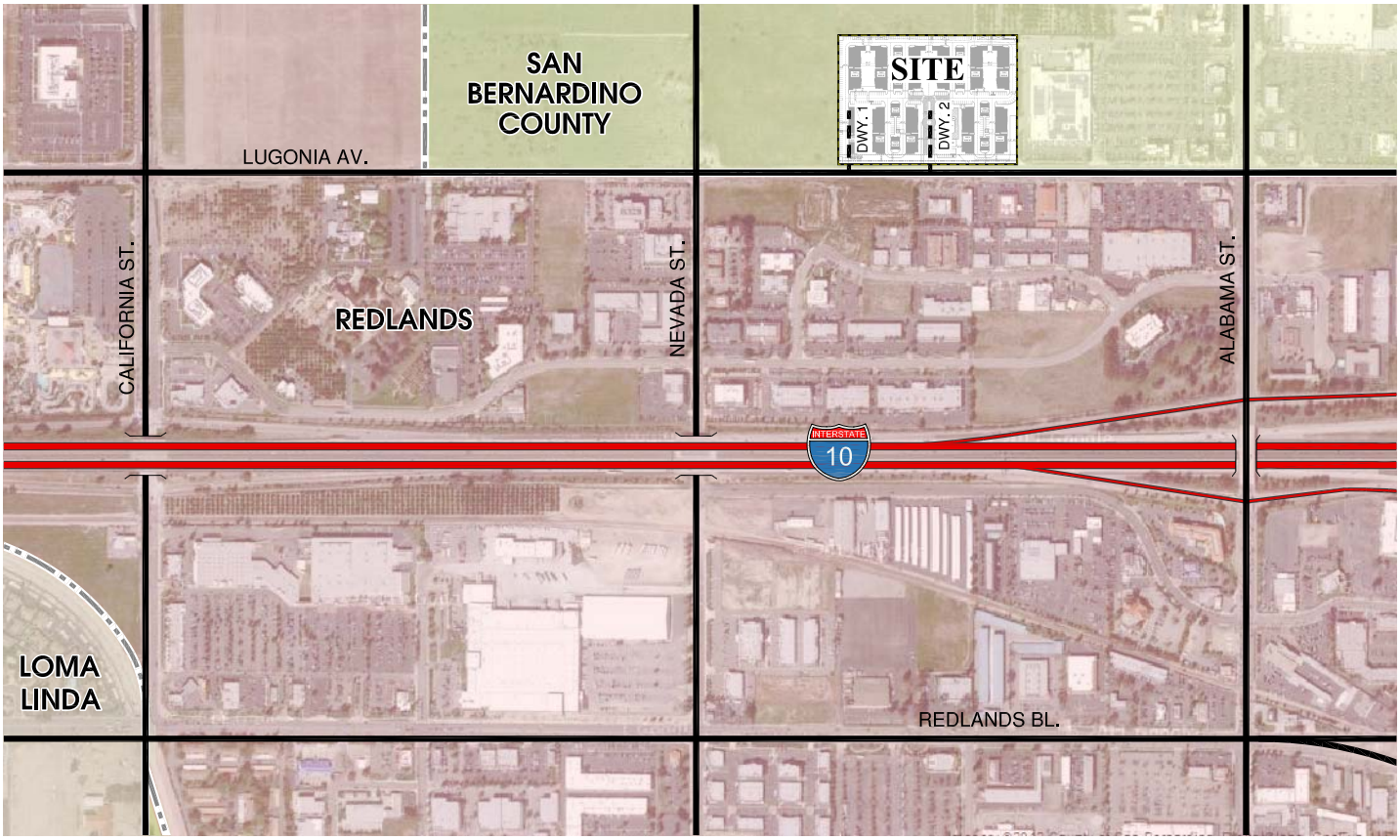

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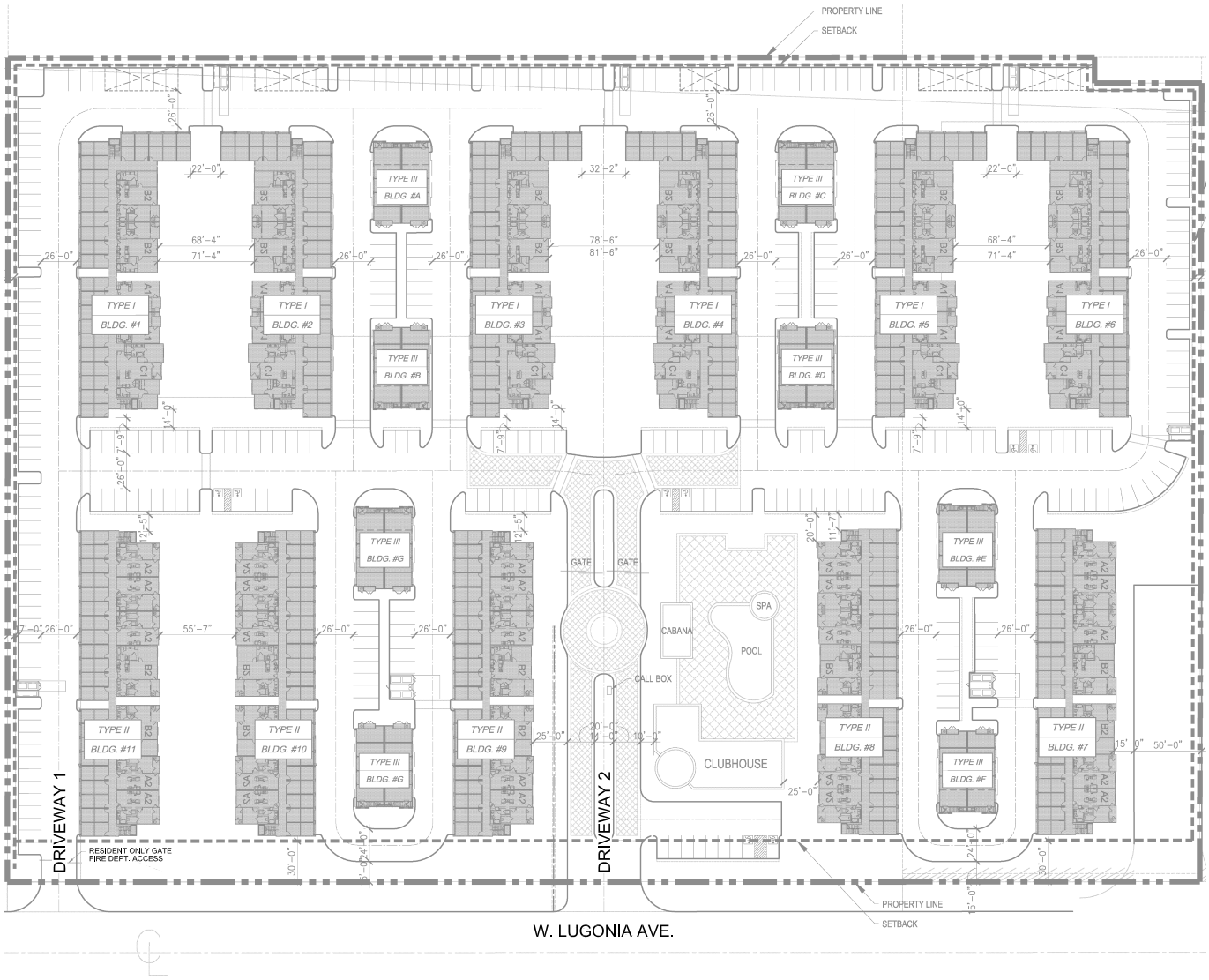
EXHIBIT 2-B

SITE PLAN



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3.0 NOISE FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health.

3.1 Range of Noise

Since the range of sound that the human ear can detect is so large, the scale used to measure sound intensity is a scale based on multiples of 10, the logarithmic scale. The unit of measure in which a sound intensity is described is the decibel (dB). Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud.[2] However, due to the internal mechanism of the human ear and how it receives and processes noise, when two sound sources of equal intensity or power are measured together, their combined effect (intensity level) is 3 dBA higher than the level of either separately. Thus, two 72 dBA cars together measure 75 dBA under ideal conditions.

The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud).[2] Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort.[2] Exhibit 3-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

3.2 Effects of Noise

Harmful effects of noise can include speech interference; sleep disruption and loss of hearing. High background noise levels can affect performance and learning processes through distraction, reduced accuracy, increased fatigue, annoyance and irritability, the inability to concentrate, and sleep prevention.[2]

Several factors determine whether a particular noise will interfere with sleep. These factors include the noise level and characteristics, the stage of sleep, the individual's age and motivation to waken.[2]

EXHIBIT 3-A

TYPICAL NOISE LEVELS AND THEIR SUBJECTIVE LOUDNESS AND EFFECTS

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

SOURCE: NOISE TECHNICAL SUPPLEMENT BY CALTRANS

3.3 Noise Descriptors

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (Leq). Leq represents a steady sound level containing the same total energy as a time-varying level over a given measurement interval. Leq's may represent any desired length of time; however, one hour is the most commonly used in environmental work. Consequently, Leq's can vary depending upon the time of day. In traffic noise measurements, the noisiest hour of the day is considered the benchmark of a road's noise emissions; therefore, the peak hour Leq is the noise metric used by Caltrans for all traffic noise impact analyses.[2]

Peak hour noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour levels may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite twenty-four hour noise level, is utilized.

The Community Noise Equivalent Level (CNEL) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of five decibels to sound levels in the evening from 7 p.m. to 10 p.m., and the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder and it is weighted accordingly. CNEL does not represent the actual sound level heard at any particular time, but rather represents the total sound exposure. The County of San Bernardino relies on the CNEL noise standard to assess transportation related impacts on noise sensitive land uses.[3,4]

3.4 Traffic Noise Prediction

According to the *Highway Traffic Noise Analysis and Abatement Policy and Guidance,* provided by the Federal Highway Administration[5], the level of traffic noise depends on three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the

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

3.5 Ground Absorption

To account for the ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft site and hard site conditions. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. A drop-off rate of 4.5 dBA per doubling of distance is typically observed over soft ground with landscaping, as compared with a 3.0 dBA drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. Caltrans research has shown that the use of soft site conditions is more appropriate for the application of the FHWA traffic noise prediction model used in this analysis.[2]

3.6 Noise Control

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

3.7 Noise Barrier Attenuation[5]

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

3.8 Community Response to Noise

Approximately ten (10) percent of the population has a very low tolerance for noise and will object to any noise not of their own making. Consequently, even in the quietest environment, some complaints will occur. Another 25 percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment.[6]

Despite this variability in behavior on an individual level, the population as a whole can be expected to exhibit the following responses to changes in noise levels. An increase or decrease of 1.0 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3.0 dBA are considered "barely perceptible," and changes of 5 dBA are considered "readily perceptible."[2,5]

3.9 Land Use Compatibility

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches and residences are considered to be more sensitive to noise intrusion than are commercial or industrial activities. Ambient noise levels can also affect the perceived desirability or livability of a development. For these reasons, land use compatibility with the noise environment is an important consideration in the planning and design process.

4.0 REGULATORY SETTING

The County of San Bernardino has identified two separate types of noise sources: (1) mobile, and (2) stationary. To control mobile or transportation related noise sources such as freeways, airport and railroads, the County of San Bernardino has adopted policies to minimize the exposure of community residents to excessive noise levels. Section 83.02.080 of the County's Development Code included in Appendix 4.1 sets forth performance standards for affected land uses from mobile and stationary sources.

4.1 Mobile (Transportation Related) Noise Source Criteria

The County's Development Code specifies the maximum noise levels allowable for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. The mobile noise source criteria are derived from standards contained in the *General Plan Guidelines*, a publication of the California Office of Planning and Research.

Based on these standards, the County has developed policies to ensure land use compatibility when placing new land uses. The County uses the 60 dBA CNEL as the critical criterion for assessing the compatibility of residential land uses with noise sources. The County requires that, for new residential land uses, the noise levels in the exterior areas considered by the County to be noise sensitive not exceed 60 dBA CNEL. However, an exterior noise level of up to 65 dBA CNEL shall be allowed provided the exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology.

In addition, the County requires that residential developments achieve an indoor noise standard of 45 dBA CNEL with windows closed consistent with the California Building Code requirements.

4.2 Stationary Noise Source Criteria

The County of San Bernardino Development Code Section 83.01.080 provides performance standards and noise control guidelines for determining and mitigating non-

transportation, or stationary, noise source impacts to residential properties. The purpose of the noise ordinance is to protect, create and maintain an environment free from noise and vibration that may jeopardize the health or welfare, or degrade the quality of life.

The County has also adopted noise level criteria to control the potential noise impacts with the operation of the neighboring JC Penny department store, such truck deliveries, trash compactors and roof-mounted ventilation systems. Section 84.07.030 identifies the commercial and industrial development standards for screening and buffering. The standards require barriers for loading docks, mechanical equipment, utility services, and outside storage. In addition, the noise barrier screening is required to attenuate noise levels to 65 dBA CNEL at the property line of the noise source.

4.3 Construction Noise Criteria

The County of San Bernardino does not regulate noise levels from construction activities so long as those activities occur between the hours of 7:00 a.m. to 7:00 p.m. except Sundays and Federal holidays.

5.0 SIGNIFICANCE CRITERIA

The following significance criteria are based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. For the purposes of this report, noise impacts would be potentially significant if the Project is determined to result in or cause:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project; or
- A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.

While the CEQA Guidelines and the County of San Bernardino noise standards provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts under the first threshold, they do not define the levels at which increases are considered substantial for use under the second and third threshold. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels and the location of noise-sensitive receptors in order to determine if a noise increase represents a significant adverse environmental effect.

The Federal Highway Administration and Caltrans both identify changes in noise levels of greater than 3 dBA as "barely perceptible," while changes of 5 dBA are considered "readily perceptible."[2,5] In a community situation, the noise exposure is extended over a long time period, and changes in noise levels occur over a period of years. For the purpose of this analysis, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dBA, and 3 dBA appears to be appropriate for most people.

On this basis, and for the purposes of this study, a substantial permanent increase in noise levels attributable to the Project would occur if the projected noise levels generated would exceed the 60 dBA CNEL General Plan Standard *and* the project-generated noise would create a project-related traffic noise level increase of greater than 3.0 dBA within off-site noise-sensitive areas.

6.0 EXISTING NOISE LEVEL MEASUREMENTS

To determine the existing noise level environment, two (2) long-term 24-hour measurements were taken at receptor locations in the Project study area. Exhibit 6-A provides the boundaries of the Project study area and the noise level measurement locations. The noise level measurements were recorded by Urban Crossroads, Inc. on February 21st and 22nd, 2012. Appendix 6.1 includes study area photos.

6.1 Measurement Procedure and Criteria

The 24-hour noise readings were recorded using two (2) Quest DL Pro data logging Type 2 noise dosimeters. All noise meters were programmed in "fast" mode to record noise levels in "A" weighted form. The sound level meters and microphone equipped with a windscreen during all measurements. The Quest DL noise dosimeters were calibrated using a Quest QC-10 calibrator. All noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (Standard S1.4-1983).

6.2 Noise Measurement Locations

The project site is currently vacant with agricultural land to the north, commercial retail to the east and south and a vacant lot the west. The noise level measurement receptor locations were selected to describe the existing ambient noise conditions in the project study area during typical weekday conditions.

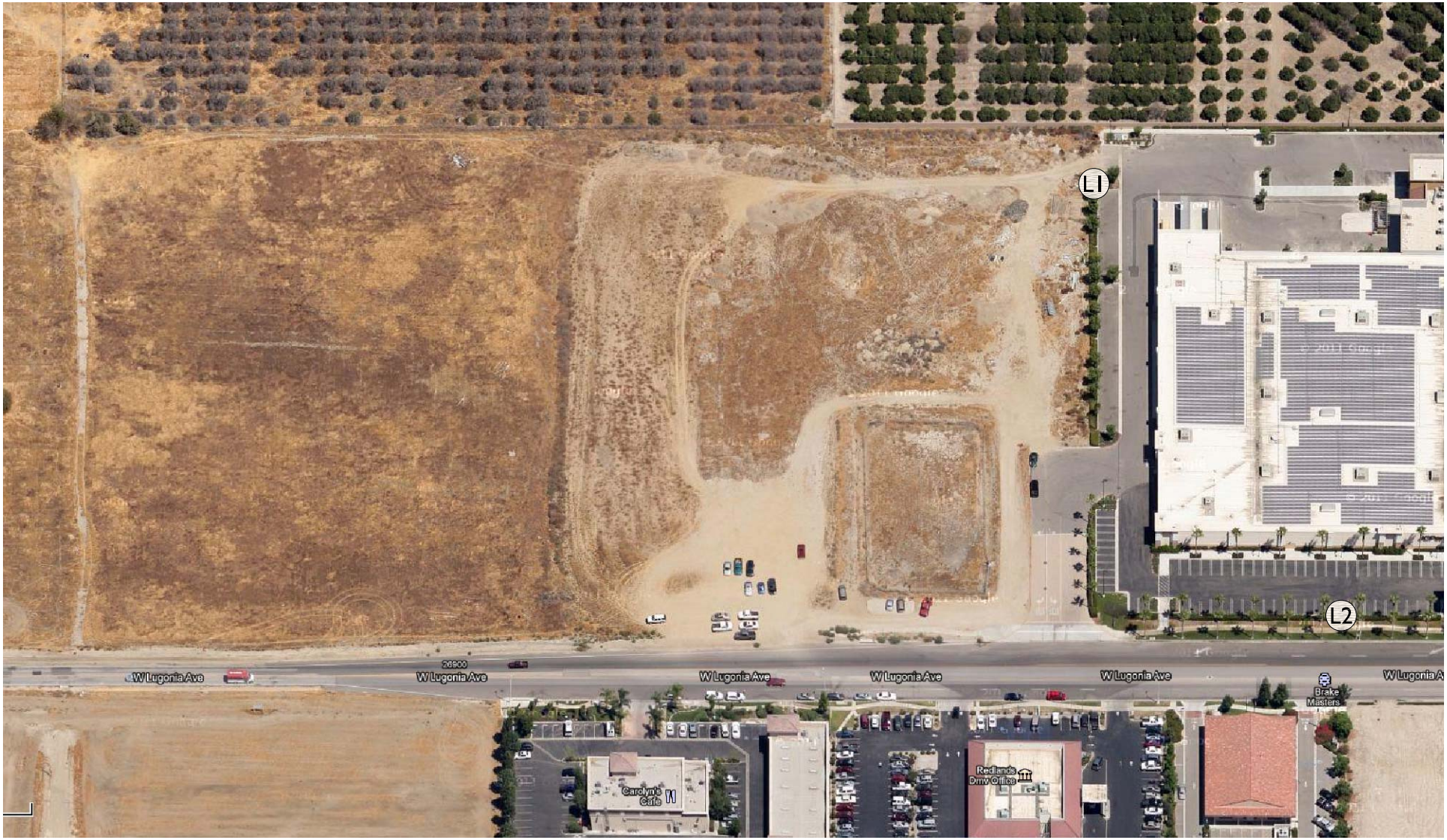
Long-term measurement receptor location (L) L1 and L2 were monitored for a period of 24 hours. Receptor L1 was located near the existing loading docks at the JC Penny Department store in the Redlands Town Center. Receptor L2 was located north of Lugonia Avenue in the parking lot of the Redlands Town Center.

6.3 Noise Measurement Results

The results of the noise level measurements are presented in Table 6-1. The hourly noise levels range from 50.7 to 61.5 dBA Leq at Site L1. At site L2, the hourly noise levels ranged from 58.5 to 67.4. The measured 24-hour CNEL noise levels ranged from 64.5

EXHIBIT 6-A

NOISE MONITORING LOCATIONS



LEGEND:

(L1) **= LONG-TERM, 24-HOUR, NOISE MONITOR LOCATION**

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Table 6-1

Existing Long-Term (Ambient) Noise Level Measurements

Receptor Location[1]	Description	Time Of Measurement	Primary Noise Source	Hourly Noise Levels (Leq dBA)[2]	Daily Noise Levels (dBA CNEL)[3]
L1	Located at the farmost north-eastern corner of the project site.	February 21-22, 2012	Traffic on Lugonia Ave and traffic in the JC Penney parking lot	50.7 - 61.5	64.5
L2	Located at the south property line of JC Penney within the parking lot, boardering Lugonia Ave.	February 21-22, 2012	Ambient noise and JC Penney loading docks.	58.5 - 67.4	69.8

[1] See Exhibit 5-A for the location of the monitoring sites.

[2] Measurement locations L1 and L2 were monitored for a period of 24 hours.

[3] The long-term noise level measurements printouts are included in Appendix 5.1.

dBA at receptor L1 to 69.8 dBA at receptor L2. The long-term noise monitoring results printouts are included in Appendix 6.2. Traffic noise from nearby roadways represented the primary noise source at each of the receptor locations.

7.0 METHODS AND PROCEDURES

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

7.1 FHWA Traffic Noise Prediction Model

The roadway noise impacts from the Modified Project's 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").[7] The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level ("REMEL"). Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic ("ADT"), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

Table 7-1 presents the FHWA Traffic Noise Prediction Model roadway parameters used in this analysis. Soft site conditions were used to develop the noise level contour boundaries. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation.

Table 7-2 presents the hourly traffic flow distributions (vehicle mixes) used for this analysis. The vehicle mixes provide the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Traffic Noise Prediction Model based on roadway types.

Table 7-1

Off-Site Roadway Parameters[1]

Roadway	Segment	Roadway Classification	Vehicle Speed (MPH)
California St.	n/o Lugonia Ave.	Major Arterial Highway	45
California St.	s/o Lugonia Ave.	Major Arterial Highway	45
Nevada St.	n/o Lugonia Ave.	Secondary Highway	45
Nevada St.	s/o Lugonia Ave.	Secondary Highway	45
Alabama St.	n/o Lugonia Ave.	Major Arterial Highway	45
Alabama St.	s/o Lugonia Ave.	Major Arterial Highway	45
Alabama St.	Bridge over I-10	Major Arterial Highway	45
Alabama St.	n/o Redlands Blvd.	Major Arterial Highway	45
Alabama St.	s/o Redlands Blvd.	Major Arterial Highway	45
Lugonia Ave.	e/o California St.	Major Highway	45
Lugonia Ave.	e/o Nevada St.	Major Highway	45
Lugonia Ave.	e/o Alabama St.	Major Highway	45
I-10 EB Ramps	w/o Alabama St.	Ramp	45
I-10 EB Ramps	e/o Alabama St.	Ramp	45
I-10 Freeway	w/o Alabama St.	Freeway	60
I-10 WB Ramps	w/o Alabama St.	Ramp	45
I-10 WB Ramps	e/o Alabama St.	Ramp	45
Redland Blvd.	w/o Alabama St.	Major Arterial Highway	45
Redland Blvd.	e/o Alabama St.	Major Arterial Highway	45

[1] According to the University Crossings Apartments Traffic Impact Analysis by Urban Crossroads Inc. in March 2012.

Table 7-2

Hourly Traffic Flow Distribution

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 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%
I-10 Freeway[2]				
Automobiles	77.5%	12.9%	9.6%	88.00%
Medium Trucks	84.8%	4.9%	10.3%	4.84%
Heavy Trucks	86.5%	2.7%	10.8%	7.16%

[1] Typical Southern California vehicle mix.

[2] Caltrans 2010 Annual Average Daily Truck Traffic.

7.2 Off-Site Traffic Noise Prediction Model Inputs

The average daily traffic volumes used for the off-site traffic noise prediction model are shown on in Table 7-3, and were taken from the *University Crossings Apartments Traffic Impact Analysis* prepared by Urban Crossroads, Inc. in March 2012[1.] Table 7-3 provides the Average Daily Traffic Volumes used in the noise analysis for the Year 2014 and Year 2035 traffic conditions.

The off-site traffic noise prediction model inputs are used to calculate the reference CNEL dBA noise levels at a distance of 100 feet from the centerline for the 19 off-site study area roadway segments. Noise level contours represent the distance to noise levels of a constant value and are measured from the center of the roadway. In addition, noise level contours do not take into account the effect of any existing noise barriers, intervening buildings or topography.

7.3 On-Site Traffic Noise Prediction Model Inputs

To predict the future on-site noise environment at the Project site, the long-range Year 2035 average daily traffic volumes were used. The traffic volumes shown on Table 7-4 were taken from the *University Crossings Apartments Traffic Impact Analysis* prepared by Urban Crossroads, Inc. in March 2012[1.]

Table 7-3

Off-Site Average Daily Traffic Volumes (1,000s)[1]

Roadway	Segment	Existing	Year 2014		Year 235	
			No Project	With Project	No Project	With Project
California St.	n/o Lugonia Ave.	9.3	9.7	9.8	18.2	18.3
California St.	s/o Lugonia Ave.	14.6	15.2	15.5	26.9	27.2
Nevada St.	n/o Lugonia Ave.	4.3	4.5	4.6	6.5	6.6
Nevada St.	s/o Lugonia Ave.	7.8	8.1	8.4	11.5	11.8
Alabama St.	n/o Lugonia Ave.	16.7	17.4	17.7	37.4	37.7
Alabama St.	s/o Lugonia Ave.	28.1	29.3	29.7	43.3	43.7
Alabama St.	Bridge over I-10	28.9	30.1	30.4	47.2	47.5
Alabama St.	n/o Redlands Blvd.	29.2	30.4	30.6	45.6	45.8
Alabama St.	s/o Redlands Blvd.	16.4	17.1	17.2	26.4	26.5
Lugonia Ave.	e/o California St.	5.3	5.5	6.1	9.3	9.9
Lugonia Ave.	e/o Nevada St.	10.9	11.3	12.4	15.0	16.1
Lugonia Ave.	e/o Alabama St.	17.5	18.2	18.6	24.6	24.9
I-10 EB Ramps	w/o Alabama St.	12.0	12.5	12.5	17.1	17.1
I-10 EB Ramps	e/o Alabama St.	7.8	8.1	8.2	12.2	12.3
I-10 Freeway	w/o Alabama St.	185.3	185.3	185.3	229.0	229.0
I-10 WB Ramps	w/o Alabama St.	10.6	11.1	11.1	15.3	15.3
I-10 WB Ramps	e/o Alabama St.	5.8	6.0	6.2	9.3	9.4
Redland Blvd.	w/o Alabama St.	16.8	17.5	17.5	27.3	27.3
Redland Blvd.	e/o Alabama St.	15.8	16.5	16.6	27.9	28.0

[1] According to the University Crossings Apartments Traffic Impact Analysis by Urban Crossroads Inc. in March 2012.

Table 7-4

On-Site Roadway Parameters[1]

Roadway	Roadway Classification	2035 ADT	Vehicle Speed (MPH)
Lugonia Ave.	Major Arterial Highway	16,100	45
Nevada St.	Secondary Highway	6,600	45
I-10 Freeway	Freeway	229,000	60

[1] According to the University Crossings Apartments Traffic Impact Analysis by Urban Crossroads Inc. in March 2012.

8.0 OFF-SITE TRAFFIC NOISE ANALYSIS

The traffic associated with future operations of the propose Project could potentially cause off-site noise impacts to surrounding off-site noise-sensitive uses. The surrounding off-site land uses consist of a mixture of commercial, agricultural, residential, and open space. To assess the off-site traffic-related noise level impacts associated with the Project, the CNEL levels at a distance of 100 feet from the traffic study area roadway segments were developed for existing, Year 2014 and Year 2035 conditions.

8.1 Off-Site Traffic Noise Contours

To quantify the Project's traffic noise impacts on the surrounding off-site areas, the changes in traffic noise levels on 19 roadway segments surrounding the Proposed Project Site were estimated based on the changes in the average daily traffic volumes. The off-site noise contours were used to assess the Project's incremental off-site traffic-related noise impacts at land uses adjacent to roadways conveying project traffic. Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 55, 60, 65 and 70 dBA noise levels.

The noise contours do not take into account the effect of any existing noise barriers or topography that may affect ambient noise levels. In addition, since the noise contours reflect modeling of vehicular noise along area roadways, they appropriately do not reflect noise contribution from the surrounding commercial and industrial uses or railroad activities within the project study area. Table 8-1 presents the existing noise level contour boundaries. Tables 8-2 and 8-3 present the Year 2014 without and with project noise contours. Tables 8-4 and 8-5 present the Year 2035 without and with project noise contours. The off-site FHWA model printouts are included in Appendix 8.1.

8.2 Off-Site Project Traffic Noise Level Contributions

Based on the significance criteria present in Section 5.0 of this report, a significant off-site traffic noise impact would occur if the Project were to create a noise level increase in the

Table 8-1

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 St.	n/o Lugonia Ave.	62.1	30	64	138	297
California St.	s/o Lugonia Ave.	64.0	40	86	186	401
Nevada St.	n/o Lugonia Ave.	58.4	17	36	78	168
Nevada St.	s/o Lugonia Ave.	61.0	25	54	116	250
Alabama St.	n/o Lugonia Ave.	64.6	44	94	203	438
Alabama St.	s/o Lugonia Ave.	66.9	62	134	288	620
Alabama St.	Bridge over I-10	67.0	63	136	293	632
Alabama St.	n/o Redlands Blvd.	67.1	64	137	295	636
Alabama St.	s/o Redlands Blvd.	64.5	43	93	201	433
Lugonia Ave.	e/o California St.	59.4	20	42	91	196
Lugonia Ave.	e/o Nevada St.	62.5	32	68	147	317
Lugonia Ave.	e/o Alabama St.	64.6	43	94	202	435
I-10 EB Ramps	w/o Alabama St.	62.8	33	71	153	329
I-10 EB Ramps	e/o Alabama St.	60.9	25	53	114	247
I-10 Freeway	w/o Alabama St.	83.7	824	1,776	3,827	8,245
I-10 WB Ramps	w/o Alabama St.	62.2	30	65	140	303
I-10 WB Ramps	e/o Alabama St.	59.6	20	44	94	202
Redland Blvd.	w/o Alabama St.	64.7	44	95	204	440
Redland Blvd.	e/o Alabama St.	64.4	42	91	196	422

Table 8-2

Year 2014 Without Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
California St.	n/o Lugonia Ave.	62.3	31	66	142	305
California St.	s/o Lugonia Ave.	64.2	41	89	191	412
Nevada St.	n/o Lugonia Ave.	58.6	17	37	81	173
Nevada St.	s/o Lugonia Ave.	61.1	26	55	119	257
Alabama St.	n/o Lugonia Ave.	64.8	45	97	209	450
Alabama St.	s/o Lugonia Ave.	67.1	64	137	296	638
Alabama St.	Bridge over I-10	67.2	65	140	301	649
Alabama St.	n/o Redlands Blvd.	67.2	65	141	303	653
Alabama St.	s/o Redlands Blvd.	64.7	45	96	207	445
Lugonia Ave.	e/o California St.	59.5	20	43	93	201
Lugonia Ave.	e/o Nevada St.	62.7	32	70	151	325
Lugonia Ave.	e/o Alabama St.	64.7	45	96	207	446
I-10 EB Ramps	w/o Alabama St.	62.9	34	73	157	338
I-10 EB Ramps	e/o Alabama St.	61.0	25	54	117	253
I-10 Freeway	w/o Alabama St.	83.7	824	1,776	3,827	8,245
I-10 WB Ramps	w/o Alabama St.	62.4	31	67	145	312
I-10 WB Ramps	e/o Alabama St.	59.7	21	45	96	207
Redland Blvd.	w/o Alabama St.	64.8	45	97	210	452
Redland Blvd.	e/o Alabama St.	64.6	43	94	202	435

Table 8-3

Year 2014 With Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
California St.	n/o Lugonia Ave.	62.3	31	66	143	307
California St.	s/o Lugonia Ave.	64.3	42	90	194	417
Nevada St.	n/o Lugonia Ave.	58.7	18	38	82	176
Nevada St.	s/o Lugonia Ave.	61.3	26	57	122	263
Alabama St.	n/o Lugonia Ave.	64.9	46	98	211	456
Alabama St.	s/o Lugonia Ave.	67.1	64	139	299	643
Alabama St.	Bridge over I-10	67.2	65	141	303	653
Alabama St.	n/o Redlands Blvd.	67.3	66	141	305	656
Alabama St.	s/o Redlands Blvd.	64.8	45	96	207	447
Lugonia Ave.	e/o California St.	60.0	22	46	100	215
Lugonia Ave.	e/o Nevada St.	63.1	35	74	160	345
Lugonia Ave.	e/o Alabama St.	64.8	45	98	210	453
I-10 EB Ramps	w/o Alabama St.	62.9	34	73	157	338
I-10 EB Ramps	e/o Alabama St.	61.1	25	55	118	255
I-10 Freeway	w/o Alabama St.	83.7	824	1,776	3,827	8,245
I-10 WB Ramps	w/o Alabama St.	62.4	31	67	145	312
I-10 WB Ramps	e/o Alabama St.	59.9	21	46	98	212
Redland Blvd.	w/o Alabama St.	64.8	45	97	210	452
Redland Blvd.	e/o Alabama St.	64.6	44	94	203	437

Table 8-4

Year 2035 Without Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
California St.	n/o Lugonia Ave.	65.0	46	100	215	464
California St.	s/o Lugonia Ave.	66.7	60	130	280	602
Nevada St.	n/o Lugonia Ave.	60.2	22	48	103	222
Nevada St.	s/o Lugonia Ave.	62.7	32	70	150	324
Alabama St.	n/o Lugonia Ave.	68.1	75	162	348	750
Alabama St.	s/o Lugonia Ave.	68.8	83	178	384	827
Alabama St.	Bridge over I-10	69.1	88	189	407	876
Alabama St.	n/o Redlands Blvd.	69.0	86	184	397	856
Alabama St.	s/o Redlands Blvd.	66.6	59	128	276	595
Lugonia Ave.	e/o California St.	61.8	29	61	132	285
Lugonia Ave.	e/o Nevada St.	63.9	39	84	182	392
Lugonia Ave.	e/o Alabama St.	66.1	55	117	253	545
I-10 EB Ramps	w/o Alabama St.	64.3	42	90	193	416
I-10 EB Ramps	e/o Alabama St.	62.8	33	72	154	332
I-10 Freeway	w/o Alabama St.	84.7	949	2,046	4,407	9,495
I-10 WB Ramps	w/o Alabama St.	63.8	39	83	179	386
I-10 WB Ramps	e/o Alabama St.	61.6	28	60	129	277
Redland Blvd.	w/o Alabama St.	66.8	61	131	282	608
Redland Blvd.	e/o Alabama St.	66.9	62	133	286	617

Table 8-5

Year 2035 Without Project Conditions Noise Contours

Road	Segment	CNEL at 100 Feet (dBA)	Distance to Contour (Feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
California St.	n/o Lugonia Ave.	65.0	47	100	216	466
California St.	s/o Lugonia Ave.	66.7	61	131	282	607
Nevada St.	n/o Lugonia Ave.	60.3	22	48	104	224
Nevada St.	s/o Lugonia Ave.	62.8	33	71	153	330
Alabama St.	n/o Lugonia Ave.	68.2	75	162	350	754
Alabama St.	s/o Lugonia Ave.	68.8	83	179	386	832
Alabama St.	Bridge over I-10	69.2	88	190	408	880
Alabama St.	n/o Redlands Blvd.	69.0	86	185	399	859
Alabama St.	s/o Redlands Blvd.	66.6	60	128	277	596
Lugonia Ave.	e/o California St.	62.1	30	64	138	297
Lugonia Ave.	e/o Nevada St.	64.2	41	89	191	411
Lugonia Ave.	e/o Alabama St.	66.1	55	118	255	550
I-10 EB Ramps	w/o Alabama St.	64.3	42	90	193	416
I-10 EB Ramps	e/o Alabama St.	62.9	33	72	155	334
I-10 Freeway	w/o Alabama St.	84.7	949	2,046	4,407	9,495
I-10 WB Ramps	w/o Alabama St.	63.8	39	83	179	386
I-10 WB Ramps	e/o Alabama St.	61.7	28	60	130	279
Redland Blvd.	w/o Alabama St.	66.8	61	131	282	608
Redland Blvd.	e/o Alabama St.	66.9	62	133	287	619

area adjacent to the roadway segment greater than 3.0 dBA and the resulting noise level exceeds the 60 dBA CNEL exterior noise standard.

As shown on Table 8-6, for Year 2014 conditions, the Project will increase the off-site traffic noise levels from 0.0 to 0.4 dBA CNEL on the 19 off-site roadway segments. For Year 2035 conditions, the Table 8-7 indicates that the Project will increase off-site traffic noise levels from 0.0 to 0.3 dBA CNEL on the 19 off-site roadway segments

8.3 Off-Site Traffic Noise Impact Summary

Based on the traffic noise analysis significance threshold of 3.0 dBA for all project-related traffic noise level increases where the resulting noise levels would be in excess of 60 dBA, as described in Section 5.0, no significant off-site traffic noise impacts would be created by the Project.

Consequently, the Project's traffic noise impacts on the surrounding communities will be less than significant. This analysis shows that the Project will NOT create a substantial permanent increase in traffic-related noise levels or expose persons to noise levels in excess of the exterior noise level standards established by the County of San Bernardino.

Table 8-6

Year 2014 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 St.	n/o Lugonia Ave.	62.3	62.3	0.0	No
California St.	s/o Lugonia Ave.	64.2	64.3	0.1	No
Nevada St.	n/o Lugonia Ave.	58.6	58.7	0.1	No
Nevada St.	s/o Lugonia Ave.	61.1	61.3	0.2	No
Alabama St.	n/o Lugonia Ave.	64.8	64.9	0.1	No
Alabama St.	s/o Lugonia Ave.	67.1	67.1	0.1	No
Alabama St.	Bridge over I-10	67.2	67.2	0.0	No
Alabama St.	n/o Redlands Blvd.	67.2	67.3	0.0	No
Alabama St.	s/o Redlands Blvd.	64.7	64.8	0.0	No
Lugonia Ave.	e/o California St.	59.5	60.0	0.4	No
Lugonia Ave.	e/o Nevada St.	62.7	63.1	0.4	No
Lugonia Ave.	e/o Alabama St.	64.7	64.8	0.1	No
I-10 EB Ramps	w/o Alabama St.	62.9	62.9	0.0	No
I-10 EB Ramps	e/o Alabama St.	61.0	61.1	0.1	No
I-10 Freeway	w/o Alabama St.	83.7	83.7	0.0	No
I-10 WB Ramps	w/o Alabama St.	62.4	62.4	0.0	No
I-10 WB Ramps	e/o Alabama St.	59.7	59.9	0.1	No
Redland Blvd.	w/o Alabama St.	64.8	64.8	0.0	No
Redland Blvd.	e/o Alabama St.	64.6	64.6	0.0	No

[1] A significant impact is considered when noise levels exceed 65 dBA CNEL and the project creates an increase greater than 1.5 dBA.

Table 8-7

Year 2035 Off-Site Project Related Traffic Noise Impacts

Roadway	Segment	CNEL at 100 Feet (dBA)			Potential Significant Impact?[1]
		No Project	With Project	Project Contribution	
California St.	n/o Lugonia Ave.	65.0	65.0	0.0	No
California St.	s/o Lugonia Ave.	66.7	66.7	0.0	No
Nevada St.	n/o Lugonia Ave.	60.2	60.3	0.1	No
Nevada St.	s/o Lugonia Ave.	62.7	62.8	0.1	No
Alabama St.	n/o Lugonia Ave.	68.1	68.2	0.0	No
Alabama St.	s/o Lugonia Ave.	68.8	68.8	0.0	No
Alabama St.	Bridge over I-10	69.1	69.2	0.0	No
Alabama St.	n/o Redlands Blvd.	69.0	69.0	0.0	No
Alabama St.	s/o Redlands Blvd.	66.6	66.6	0.0	No
Lugonia Ave.	e/o California St.	61.8	62.1	0.3	No
Lugonia Ave.	e/o Nevada St.	63.9	64.2	0.3	No
Lugonia Ave.	e/o Alabama St.	66.1	66.1	0.1	No
I-10 EB Ramps	w/o Alabama St.	64.3	64.3	0.0	No
I-10 EB Ramps	e/o Alabama St.	62.8	62.9	0.0	No
I-10 Freeway	w/o Alabama St.	84.7	84.7	0.0	No
I-10 WB Ramps	w/o Alabama St.	63.8	63.8	0.0	No
I-10 WB Ramps	e/o Alabama St.	61.6	61.7	0.0	No
Redland Blvd.	w/o Alabama St.	66.8	66.8	0.0	No
Redland Blvd.	e/o Alabama St.	66.9	66.9	0.0	No

[1] A significant impact is considered when noise levels exceed 65 dBA CNEL and the project creates an increase greater than 1.5 dBA.

9.0 ON-SITE NOISE IMPACT ANALYSIS

An on-site noise impact analysis has been completed to determine the noise exposure and the necessary noise mitigation measures for the proposed University Crossings Apartments. The purpose of this on-site noise impact analysis is to demonstrate compliance with the County of San Bernardino's criteria for residential development. In addition, this analysis provides specific noise mitigation measures to ensure that the noise levels achieve the required standards.

9.1 On-Site Exterior Noise Analysis

Table 9-1 presents a summary of future exterior noise level impacts at the building façade for the University Crossing Apartments. The estimated noise levels at the building façade represent the worst-case combined noise level impacts from Lugonia Avenue and the I-10 Freeway. The on-site traffic noise level impacts indicate that the apartment units will experience long-range Year 2035 unmitigated exterior noise levels approaching 70 dBA CNEL. The on-site exterior noise analysis calculations are provided in Appendix 9.1.

Exterior noise mitigation is generally not provided for multiple-family uses along the major roadways. While the unmitigated exterior noise levels within the on-site multi-family residential areas may exceed 60 dBA CNEL, the County of San Bernardino does not recognize these exterior areas as being noise-sensitive outdoor living spaces. Consequently, noise barriers are not needed for the proposed multi-family residential development. .

9.2 On-Site Interior Noise Analysis

As shown on Table 9-1, an interior noise level reduction of approximately 25.0 dBA CNEL is required to satisfy the County of San Bernardino 45 dBA CNEL interior noise standard. The interior noise level is the difference between the predicted exterior noise level at the building facade and the noise reduction of the structure. Typical building construction will provide a noise reduction of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed."

Table 9-1

On-Site Traffic Noise Level Impacts (dBA CNEL)[1]

Roadway	Distance From Noise Source (Feet)	Noise Level at Façade	Interior Noise Level For Windows		Required Interior Noise Reduction
			Open[2]	Closed[3]	
Lugonia Ave.	60	68.9	56.9	43.9	23.9
I-10 Freeway	1,420	63.7	51.7	38.7	18.7
Combined Exterior Level		70.0	58.0	45.0	25.0

[1] Estimated exterior noise level impacts at building façade.

[2] A minimum of 12 dBA noise reduction is assumed with a windows open condition

[3] A minimum of 25 dBA noise reduction is assumed with a windows closed condition and standard dual-glazed windows with a minimum STC (Sound Transmission Class) rating of 26.

The expected exterior noise levels will trigger a windows closed condition requiring each unit to include a means of mechanical ventilation (e.g. air conditioning), in combination with standard building construction that includes dual-glazed windows. In addition, units facing Lugonia Avenue will require upgraded dual-glazed windows with a minimum Sound Transmission Class (STC) rating of 26. Specific window recommendations will be made once final architectural plans are available and detailed interior noise reduction calculations can be calculated based on actual building assembly details.

A final noise study should be prepared prior to obtaining building permits. This report would finalize the mitigation measures proposed in the preliminary noise study using the precise grading plans and actual building design specifications.

10.0 CONSTRUCTION NOISE ANALYSIS

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

10.1 Construction Related Noise Standards

The County of San Bernardino does not regulate noise levels from construction activities so long as those activities occur between the hours of 7:00 a.m. to 7:00 p.m. except Sundays and Federal holidays.

10.2 Construction Noise Levels

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to noise levels in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 68 dBA measured at 50 feet from the noise source to the receptor would be reduced to 62 dBA at 100 feet from the source to the receptor, and would be further reduced by another 6 dBA to 56 dBA at 200 feet from the source to the receptor.

10.3 Construction Noise Level Impact Analysis

To estimate the construction noise impacts, typical reference construction noise level sources were placed within the project site and then used to estimate the potential noise impacts on the neighboring land uses. Using a drop-off rate of 6 dBA per doubling of distance, noise levels at 100 feet are estimated at 83 dBA Leq, at 200 feet 77 dBA, and at

400 feet 71 dBA. This noise level impact represents a worst-case condition when grading equipment is operating near the project boundaries. To minimize the potential short-term noise impacts during the construction activities for the proposed project, several construction noise reduction measures are identified in the Executive Summary.

11.0 REFERENCES

1. *University Crossings Apartments Traffic Impact Analysis* prepared by Urban Crossroads, Inc. in March 2012.

2. *Technical Noise Supplement – A Technical Supplement to the Traffic Noise Analysis Protocol,* Sacramento, CA: California Department of Transportation Environmental Program, October 1998.

3. *General Plan Noise Element*, County of San Bernardino, CA, April, 2007.

4. *Development Code,* County of San Bernardino April 12, 2007. Sections 83.01.080, 82.18.030.

5. *Highway Traffic Noise Analysis and Abatement Policy and Guidance,* U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch, June 1995.

6. Environmental Protection Agency, "*Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*," Report. No. 550/9-74-004, Washington DC, March 1974.

7. *FHWA Highway Traffic Noise Prediction Model*, FHWA-RD-77-108, December 1978.

APPENDIX 4.1

County of San Bernardino Development Code

83.01.080 Noise

This Section establishes standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses.

(a) Noise measurement. Noise shall be measured:

(1) At the property line of the nearest site that is occupied by, and/or zoned or designated to allow the development of noise-sensitive land uses;

(2) With a sound level meter that meets the standards of the American National Standards Institute (ANSI Section SI4 1979, Type 1 or Type 2);

(3) Using the "A" weighted sound pressure level scale in decibels (ref. pressure = 20 micronewtons per meter squared). The unit of measure shall be designated as dB(A).

(b) Noise impacted areas. Areas within the County shall be designated as "noise-impacted" if exposed to existing or projected future exterior noise levels from mobile or stationary sources exceeding the standards listed in Subsection (d) (Noise standards for stationary noise sources) and Subsection (e) (Noise standards for adjacent mobile noise sources), below. New development of residential or other noise-sensitive land uses shall not be allowed in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels to these standards. Noise-sensitive land uses shall include residential uses, schools, hospitals, nursing homes, religious institutions, libraries, and similar uses.

(c) Noise standards for stationary noise sources.

(1) Noise standards. Table 83-2 (Noise Standards for Stationary Noise Sources) describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties:

Table 83-2
Noise Standards for Stationary Noise Sources

Affected Land Uses (Receiving Noise)	7 am-10 pm Leq	10 pm-7 am Leq
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)

Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically 1, 8 or 24 hours.

dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.

Ldn = (Day-Night Noise Level). The average equivalent A-weighted sound level during a 24-hour day obtained by adding 10 decibels to the hourly noise levels measured during the night (from 10 pm to 7 am). In this way Ldn takes into account the lower tolerance of people for noise during nighttime periods.

(2) Noise limit categories. No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:

(A) The noise standard for the receiving land use as specified in Subsection B (Noise-impacted areas), above, for a cumulative period of more than 30 minutes in any hour.

(B) The noise standard plus 5 dB(A) for a cumulative period of more than 15 minutes in any hour.

(C) The noise standard plus 10 dB(A) for a cumulative period of more than five minutes in any hour.

(D) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour.

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

(d) Noise standards for adjacent mobile noise sources. Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards described in the following Table 83-3 (Noise Standards for Adjacent Mobile Noise Sources).

Table 83-3
Noise Standards for Adjacent Mobile Noise Sources

Land Use		Ldn (or CNEL) dB(A)	
Categories	Uses	Interior (1)	Exterior (2)
Residential	Single and multi-family, duplex, mobile homes	45	60 (3)
Commercial	Hotel, motel, transient housing	45	60 (3)
	Commercial retail, bank, restaurant	50	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65

Notes:

(1) The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.

(2) The outdoor environment shall be limited to:

- Hospital/office building patios
- Hotel and motel recreation areas
- Mobile home parks
- Multi-family private patios or balconies
- Park picnic areas
- Private yard of single-family dwellings
- School playgrounds

(3) An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.

CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7 p.m. to 10 a.m. and 10 decibels to sound levels in the night before 7 a.m. and after 10 p.m.

(e) Increases in allowable noise levels. If the measured ambient level exceeds any of the first four noise limit categories in Subsection (d)(2), above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category in Subsection (d)(2), above, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

(f) Reductions in allowable noise levels. If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in Table 83-2 (Noise Standards for Stationary Noise Sources) shall be reduced by 5 dB(A).

(g) Exempt noise. The following sources of noise shall be exempt from the regulations of this Section:

(1) Motor vehicles not under the control of the commercial or industrial use.

(2) Emergency equipment, vehicles, and devices.

(3) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

(h) Noise standards for other structures. All other structures shall be sound attenuated against the combined input of all present and projected exterior noise to not exceed the criteria.

Table 83-4
Noise Standards for Other Structures

Typical Uses	12-Hour Equivalent Sound Level (Interior) in dBA Ldn
Educational, institutions, libraries, meeting facilities, etc.	45
General office, reception, etc.	50
Retail stores, restaurants, etc.	55
Other areas for manufacturing, assembly, testing, warehousing, etc.	65

In addition, the average of the maximum levels on the loudest of intrusive sounds occurring during a 24-hour period shall not exceed 65 dBA interior.

Adopted Ordinance 4011 (2007)

83.01.090 Vibration

(a) Vibration standard. No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths (0.2) inches per second measured at or beyond the lot line.

(b) Vibration measurement. Vibration velocity shall be measured with a seismograph or other instrument capable of measuring and recording displacement and frequency, particle velocity, or acceleration. Readings shall be made at points of maximum vibration along any lot line next to a parcel within a residential, commercial and industrial land use zoning district.

(c) Exempt vibrations. The following sources of vibration shall be exempt from the regulations of this Section.

(1) Motor vehicles not under the control of the subject use.

(2) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

Adopted Ordinance 4011 (2007)

83.01.100 Waste Disposal

(a) Liquid waste disposal and runoff control. No liquids of any kind shall be discharged into a public or private sewage or drainage system, watercourse, body of water, or into the ground, except in compliance with applicable regulations of the County Code, Title 23 (Waters) of the California Code of Regulations, the California Water Code, and related Federal regulations.

(b) Hazardous waste. Refer to Chapter 84.11 (Hazardous Waste Facilities) for regulations relative to hazardous waste facilities.

(c) Solid waste disposal. Refer to Chapter 84.24 (Solid Waste/Recyclable Materials Storage) for regulations relative to solid waste disposal.

Adopted Ordinance 4011 (2007)

APPENDIX 6.1

Study Area Photos

loading dock wall

rear of store

loading dock

loading dock

project site

project site

project site

project site

project site

project site

project site

project site

project site

project site

project site

project site

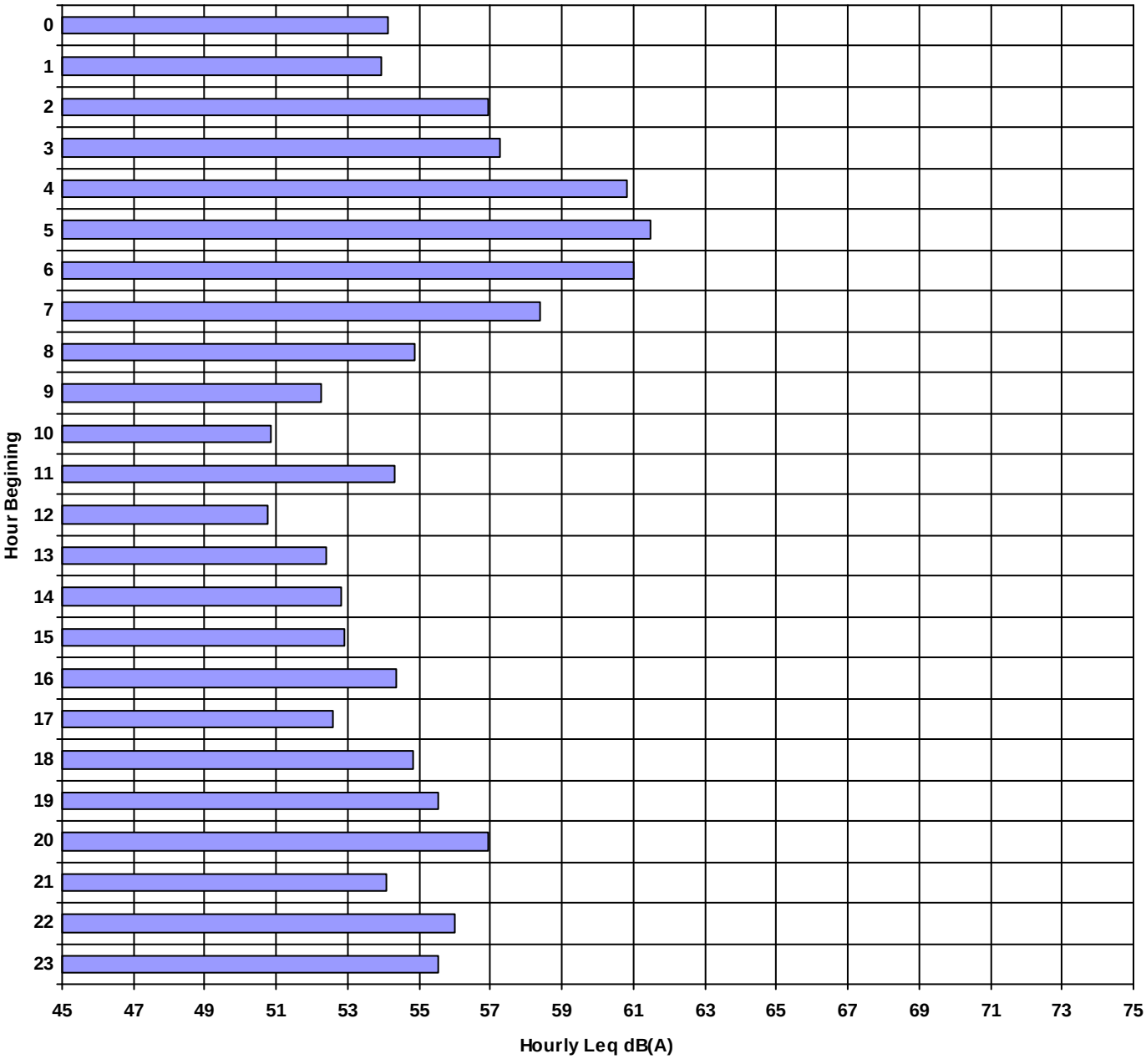
APPENDIX 6.2

Noise Level Measurements

24-Hour Noise Level Measurement Summary

Project Name: University Crossings Apt Noise Study
Job Number: 08140
Location #: L1
Analyst: Dale and Eric
Description: NE Corner Proj Site
Start Date: Tuesday, February 21, 2012

Hourly Leq dB(A) Readings (unadjusted)



Measured Peak Noise Hour: 5

Measured Peak Hour dBA Leq: 61.5

24-Hour Noise Level Measurement Summary

Project Name: University Crossings Apt Noise Study
Job Number: 08140
Location #: L1
Analyst: Dale and Eric
Description: NE Corner Proj Site
Start Date: Tuesday, February 21, 2012

Leq To CNEL Noise Calculations

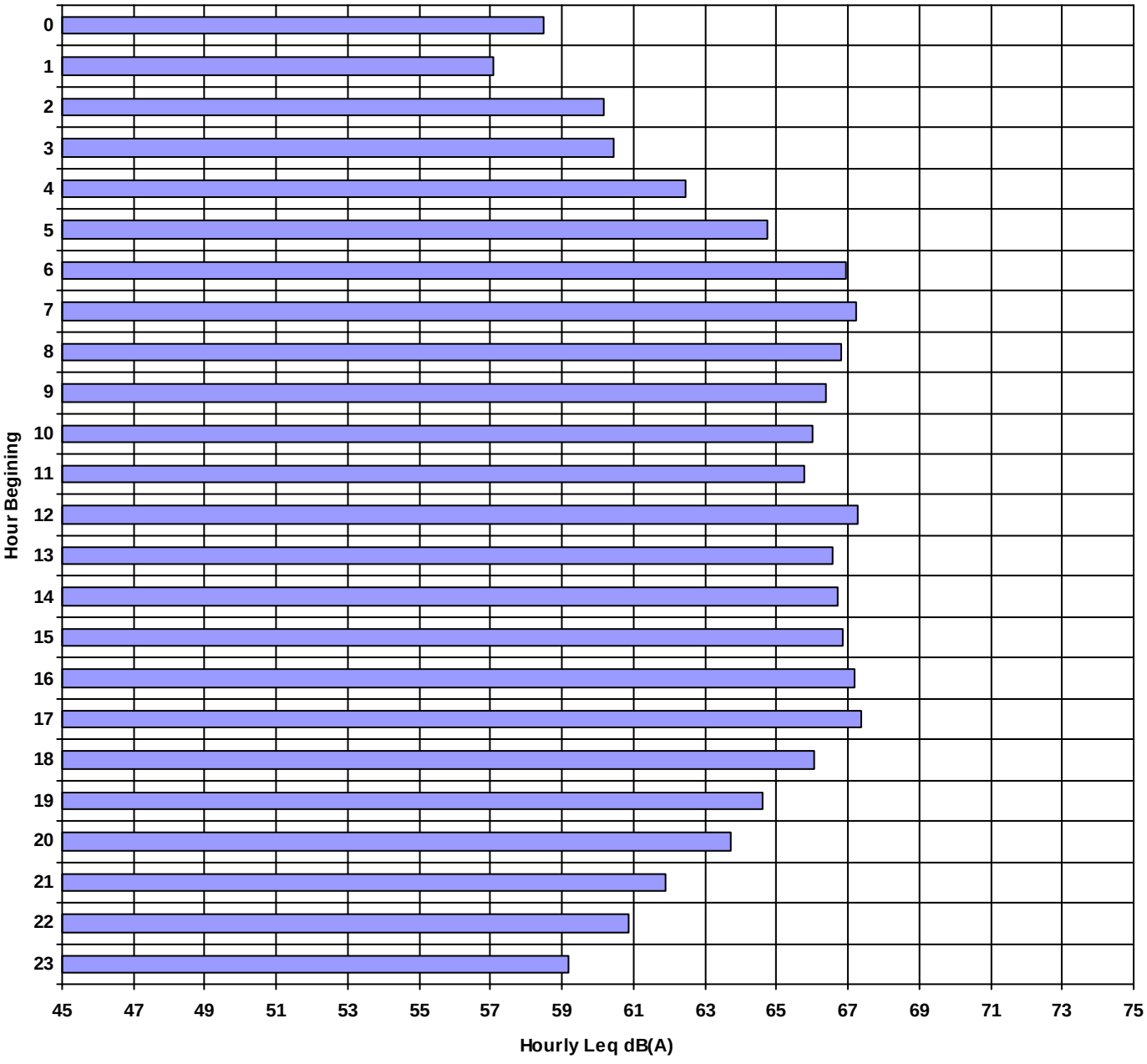
Noise Hour	*Hourly Leq*	*CNEL Penalty*	*Adjusted Hourly Leq*
0	54.1	10	64.1
1	53.9	10	63.9
2	57.0	10	67.0
3	57.3	10	67.3
4	60.8	10	70.8
5	61.5	10	71.5
6	61.0	10	71.0
7	58.4	0	58.4
8	54.9	0	54.9
9	52.2	0	52.2
10	50.9	0	50.9
11	54.3	0	54.3
12	50.7	0	50.7
13	52.4	0	52.4
14	52.8	0	52.8
15	52.9	0	52.9
16	54.3	0	54.3
17	52.6	0	52.6
18	54.8	0	54.8
19	55.5	5	60.5
20	57.0	5	62.0
21	54.1	5	59.1
22	56.0	10	66.0
23	55.5	10	65.5

Calculated CNEL: 64.5

24-Hour Noise Level Measurement Summary

Project Name: University Crossings Apt Noise Study
Job Number: 08140
Location #: L2
Analyst: Dale and Eric
Description: Near Lugonia Ave.
Start Date: Tuesday, February 21, 2012

Hourly Leq dB(A) Readings (unadjusted)



Measured Peak Noise Hour: 17

Measured Peak Hour dBA Leq: 67.4

24-Hour Noise Level Measurement Summary

Project Name: University Crossings Apt Noise Study
Job Number: 08140
Location #: L2
Analyst: Dale and Eric
Description: Near Lugonia Ave.
Start Date: Tuesday, February 21, 2012

Leq To CNEL Noise Calculations

Noise Hour	*Hourly Leq*	*CNEL Penalty*	*Adjusted Hourly Leq*
0	58.5	10	68.5
1	57.1	10	67.1
2	60.2	10	70.2
3	60.4	10	70.4
4	62.4	10	72.4
5	64.7	10	74.7
6	67.0	10	77.0
7	67.2	0	67.2
8	66.8	0	66.8
9	66.4	0	66.4
10	66.0	0	66.0
11	65.8	0	65.8
12	67.3	0	67.3
13	66.6	0	66.6
14	66.7	0	66.7
15	66.9	0	66.9
16	67.2	0	67.2
17	67.4	0	67.4
18	66.1	0	66.1
19	64.6	5	69.6
20	63.7	5	68.7
21	61.9	5	66.9
22	60.9	10	70.9
23	59.2	10	69.2

Calculated CNEL: 69.8

APPENDIX 8.1

Off-Site Traffic Noise Contours

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: California St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	930 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.27	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.50	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.46	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.8	58.9	57.2	51.1	59.7	60.3
Medium Trucks:	54.6	53.1	46.7	45.2	53.6	53.9
Heavy Trucks:	55.4	54.0	45.0	46.2	54.6	54.7
Vehicle Noise:	62.7	60.9	57.8	53.1	61.6	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	60	128	277
CNEL:	30	64	138	297

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: California St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,460 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.31	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.55	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.50	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.8	60.9	59.1	53.1	61.7	62.3
Medium Trucks:	56.5	55.0	48.7	47.1	55.6	55.8
Heavy Trucks:	57.4	56.0	46.9	48.2	56.5	56.7
Vehicle Noise:	64.6	62.9	59.7	55.0	63.6	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	37	80	173	374
CNEL:	40	86	186	401

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Nevada St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	430 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	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:	68.46	-5.62	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-22.85	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-26.81	-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:	57.1	55.2	53.5	47.4	56.0	56.6
Medium Trucks:	50.9	49.4	43.0	41.5	49.9	50.2
Heavy Trucks:	51.7	50.3	41.3	42.5	50.9	51.0
Vehicle Noise:	59.0	57.2	54.1	49.4	57.9	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	168

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Nevada St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	780 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	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:	68.46	-3.03	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-20.27	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.22	-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:	59.7	57.8	56.0	50.0	58.6	59.2
Medium Trucks:	53.5	52.0	45.6	44.1	52.5	52.7
Heavy Trucks:	54.3	52.9	43.9	45.1	53.5	53.6
Vehicle Noise:	61.5	59.8	56.7	52.0	60.5	61.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	50	108	233
CNEL:	25	54	116	250

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Alabama St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,670 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.28	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.96	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.92	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.4	61.5	59.7	53.6	62.3	62.9
Medium Trucks:	57.1	55.6	49.2	47.7	56.2	56.4
Heavy Trucks:	58.0	56.5	47.5	48.8	57.1	57.2
Vehicle Noise:	65.2	63.5	60.3	55.6	64.2	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	88	190	409
CNEL:	44	94	203	438

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Alabama St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,810 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.54	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.70	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.66	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	63.7	62.0	55.9	64.5	65.1
Medium Trucks:	59.4	57.9	51.5	50.0	58.4	58.7
Heavy Trucks:	60.2	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	67.5	65.7	62.6	57.9	66.4	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	268	578
CNEL:	62	134	288	620

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Alabama St.
Road Segment: Bridge over I-10

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,890 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.66	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.58	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.54	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	63.8	62.1	56.0	64.6	65.3
Medium Trucks:	59.5	58.0	51.6	50.1	58.5	58.8
Heavy Trucks:	60.3	58.9	49.9	51.1	59.5	59.6
Vehicle Noise:	67.6	65.8	62.7	58.0	66.6	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	127	273	589
CNEL:	63	136	293	632

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Alabama St.
Road Segment: n/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,920 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.70	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.54	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.49	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.8	63.9	62.1	56.1	64.7	65.3
Medium Trucks:	59.5	58.0	51.7	50.1	58.6	58.8
Heavy Trucks:	60.4	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	67.6	65.9	62.7	58.1	66.6	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	128	275	593
CNEL:	64	137	295	636

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Alabama St.
Road Segment: s/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,640 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.20	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.04	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.00	-4.17	-1.20	*-5.16*	0.000	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	57.2
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	404
CNEL:	43	93	201	433

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Lugonia Ave.
Road Segment: e/o California St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	530 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.71	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-21.95	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.90	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.1	56.2	54.5	48.4	57.0	57.6
Medium Trucks:	51.9	50.4	44.0	42.5	50.9	51.2
Heavy Trucks:	52.7	51.3	42.3	43.5	51.9	52.0
Vehicle Noise:	60.0	58.2	55.1	50.4	58.9	59.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	18	39	85	183
CNEL:	20	42	91	196

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Lugonia Ave.
Road Segment: e/o Nevada St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

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:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.58	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.82	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.77	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.2	59.4	57.6	51.5	60.2	60.8
Medium Trucks:	55.0	53.5	47.1	45.6	54.1	54.3
Heavy Trucks:	55.9	54.4	45.4	46.6	55.0	55.1
Vehicle Noise:	63.1	61.3	58.2	53.5	62.1	62.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	64	137	295
CNEL:	32	68	147	317

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Lugonia Ave.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,750 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.48	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.76	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.71	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.3	61.4	59.6	53.6	62.2	62.8
Medium Trucks:	57.1	55.6	49.2	47.6	56.1	56.3
Heavy Trucks:	57.9	56.5	47.5	48.7	57.1	57.2
Vehicle Noise:	65.1	63.4	60.2	55.6	64.1	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	87	188	405
CNEL:	43	94	202	435

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: I-10 EB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,200 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.16	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.40	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.35	-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:	61.5	59.6	57.8	51.8	60.4	61.0
Medium Trucks:	55.2	53.7	47.4	45.8	54.3	54.5
Heavy Trucks:	56.1	54.7	45.6	46.9	55.2	55.4
Vehicle Noise:	63.3	61.6	58.4	53.8	62.3	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	66	142	306
CNEL:	33	71	153	329

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: I-10 EB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	780 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.03	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-20.27	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.22	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.6	57.7	56.0	49.9	58.5	59.1
Medium Trucks:	53.4	51.9	45.5	44.0	52.4	52.7
Heavy Trucks:	54.2	52.8	43.8	45.0	53.4	53.5
Vehicle Noise:	61.5	59.7	56.6	51.9	60.4	60.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	23	50	107	230
CNEL:	25	53	114	247

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: I-10 Freeway
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	85,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	18,530 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	142 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.00%
Medium Trucks:	84.8%	4.9%	10.3%	4.84%
Heavy Trucks:	86.5%	2.7%	10.8%	7.16%

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:	70.597
Medium Trucks:	70.472
Heavy Trucks:	70.484

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	9.04	-2.35	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	83.68	-3.56	-2.34	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-1.86	-2.34	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	78.7	76.8	75.0	69.0	77.6	78.2
Medium Trucks:	76.6	75.1	68.7	67.2	75.6	75.9
Heavy Trucks:	81.9	80.5	71.5	72.7	81.1	81.2
Vehicle Noise:	84.4	82.8	77.3	75.0	83.5	83.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	791	1,703	3,670	7,906
CNEL:	824	1,776	3,827	8,245

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: I-10 WB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,060 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.70	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.94	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.89	-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:	60.9	59.0	57.3	51.2	59.8	60.5
Medium Trucks:	54.7	53.2	46.8	45.3	53.8	54.0
Heavy Trucks:	55.6	54.1	45.1	46.3	54.7	54.8
Vehicle Noise:	62.8	61.0	57.9	53.2	61.8	62.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	61	131	282
CNEL:	30	65	140	303

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: I-10 WB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	580 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.32	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-21.56	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.51	-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:	58.3	56.4	54.7	48.6	57.2	57.8
Medium Trucks:	52.1	50.6	44.2	42.7	51.1	51.4
Heavy Trucks:	52.9	51.5	42.5	43.7	52.1	52.2
Vehicle Noise:	60.2	58.4	55.3	50.6	59.1	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	19	41	88	189
CNEL:	20	44	94	202

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Redland Blvd.
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,680 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.30	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.94	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.89	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.4	61.5	59.7	53.7	62.3	62.9
Medium Trucks:	57.1	55.6	49.3	47.7	56.2	56.4
Heavy Trucks:	58.0	56.6	47.5	48.8	57.1	57.3
Vehicle Noise:	65.2	63.5	60.3	55.7	64.2	64.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	88	190	410
CNEL:	44	95	204	440

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Conditions
Road Name: Redland Blvd.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,580 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.04	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.20	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.16	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.1	61.2	59.5	53.4	62.0	62.6
Medium Trucks:	56.9	55.4	49.0	47.5	55.9	56.2
Heavy Trucks:	57.7	56.3	47.3	48.5	56.9	57.0
Vehicle Noise:	65.0	63.2	60.1	55.4	63.9	64.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	85	183	394
CNEL:	42	91	196	422

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: California St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	970 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.08	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.32	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.28	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.0	59.1	57.3	51.3	59.9	60.5
Medium Trucks:	54.8	53.3	46.9	45.3	53.8	54.0
Heavy Trucks:	55.6	54.2	45.1	46.4	54.8	54.9
Vehicle Noise:	62.8	61.1	57.9	53.3	61.8	62.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	61	132	284
CNEL:	31	66	142	305

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: California St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,520 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.13	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.37	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.33	-4.17	-1.20	*-5.16*	0.000	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	48.8	47.3	55.8	56.0
Heavy Trucks:	57.6	56.1	47.1	48.3	56.7	56.8
Vehicle Noise:	64.8	63.0	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: Year 2014 No Project
Road Name: Nevada St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	450 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	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:	68.46	-5.42	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-22.66	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-26.61	-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:	57.3	55.4	53.7	47.6	56.2	56.8
Medium Trucks:	51.1	49.6	43.2	41.7	50.1	50.4
Heavy Trucks:	51.9	50.5	41.5	42.7	51.1	51.2
Vehicle Noise:	59.2	57.4	54.3	49.6	58.1	58.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	35	75	162
CNEL:	17	37	81	173

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Nevada St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

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

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	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:	68.46	-2.87	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-20.10	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.06	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

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

Centerline Distance to Noise Contour (in feet)

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

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Alabama St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,740 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.45	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.78	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.74	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.5	61.6	59.9	53.8	62.4	63.0
Medium Trucks:	57.3	55.8	49.4	47.9	56.3	56.6
Heavy Trucks:	58.1	56.7	47.7	48.9	57.3	57.4
Vehicle Noise:	65.4	63.6	60.5	55.8	64.3	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	195	420
CNEL:	45	97	209	450

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Alabama St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,930 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.72	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.52	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.48	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.8	63.9	62.1	56.1	64.7	65.3
Medium Trucks:	59.6	58.1	51.7	50.1	58.6	58.8
Heavy Trucks:	60.4	59.0	49.9	51.2	59.6	59.7
Vehicle Noise:	67.6	65.9	62.7	58.1	66.6	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	128	276	594
CNEL:	64	137	296	638

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Alabama St.
Road Segment: Bridge over I-10

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,010 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.83	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.40	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.36	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.9	64.0	62.3	56.2	64.8	65.4
Medium Trucks:	59.7	58.2	51.8	50.3	58.7	59.0
Heavy Trucks:	60.5	59.1	50.1	51.3	59.7	59.8
Vehicle Noise:	67.8	66.0	62.9	58.2	66.7	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	130	281	605
CNEL:	65	140	301	649

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Alabama St.
Road Segment: n/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,040 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.88	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.36	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.32	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.0	64.1	62.3	56.2	64.9	65.5
Medium Trucks:	59.7	58.2	51.8	50.3	58.8	59.0
Heavy Trucks:	60.6	59.1	50.1	51.4	59.7	59.8
Vehicle Noise:	67.8	66.1	62.9	58.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	131	283	609
CNEL:	65	141	303	653

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Alabama St.
Road Segment: s/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,710 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.38	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.86	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.82	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.5	61.6	59.8	53.7	62.4	63.0
Medium Trucks:	57.2	55.7	49.4	47.8	56.3	56.5
Heavy Trucks:	58.1	56.6	47.6	48.9	57.2	57.3
Vehicle Noise:	65.3	63.6	60.4	55.7	64.3	64.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	89	193	415
CNEL:	45	96	207	445

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Lugonia Ave.
Road Segment: e/o California St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	550 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.55	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-21.79	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.74	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.3	56.4	54.6	48.6	57.2	57.8
Medium Trucks:	52.0	50.5	44.2	42.6	51.1	51.3
Heavy Trucks:	52.9	51.5	42.4	43.7	52.0	52.2
Vehicle Noise:	60.1	58.4	55.2	50.5	59.1	59.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	19	40	87	187
CNEL:	20	43	93	201

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Lugonia Ave.
Road Segment: e/o Nevada St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,130 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.42	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.66	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.61	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.4	59.5	57.7	51.7	60.3	60.9
Medium Trucks:	55.2	53.7	47.3	45.7	54.2	54.4
Heavy Trucks:	56.0	54.6	45.6	46.8	55.2	55.3
Vehicle Noise:	63.2	61.5	58.4	53.7	62.2	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	65	140	303
CNEL:	32	70	151	325

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Lugonia Ave.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,820 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.65	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.59	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.54	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.5	61.6	59.8	53.8	62.4	63.0
Medium Trucks:	57.2	55.7	49.4	47.8	56.3	56.5
Heavy Trucks:	58.1	56.7	47.6	48.9	57.2	57.4
Vehicle Noise:	65.3	63.6	60.4	55.7	64.3	64.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	193	416
CNEL:	45	96	207	446

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: I-10 EB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.98	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.22	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.18	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.7	59.8	58.0	51.9	60.6	61.2
Medium Trucks:	55.4	53.9	47.6	46.0	54.5	54.7
Heavy Trucks:	56.3	54.8	45.8	47.1	55.4	55.5
Vehicle Noise:	63.5	61.8	58.6	53.9	62.5	62.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	68	146	315
CNEL:	34	73	157	338

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: I-10 EB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	810 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.87	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-20.10	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.06	-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:	59.8	57.9	56.1	50.1	58.7	59.3
Medium Trucks:	53.5	52.0	45.7	44.1	52.6	52.8
Heavy Trucks:	54.4	53.0	43.9	45.2	53.5	53.7
Vehicle Noise:	61.6	59.9	56.7	52.0	60.6	61.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	51	109	236
CNEL:	25	54	117	253

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: I-10 Freeway
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	85,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	18,530 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	142 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.00%
Medium Trucks:	84.8%	4.9%	10.3%	4.84%
Heavy Trucks:	86.5%	2.7%	10.8%	7.16%

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:	70.597
Medium Trucks:	70.472
Heavy Trucks:	70.484

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	9.04	-2.35	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	83.68	-3.56	-2.34	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-1.86	-2.34	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	78.7	76.8	75.0	69.0	77.6	78.2
Medium Trucks:	76.6	75.1	68.7	67.2	75.6	75.9
Heavy Trucks:	81.9	80.5	71.5	72.7	81.1	81.2
Vehicle Noise:	84.4	82.8	77.3	75.0	83.5	83.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	791	1,703	3,670	7,906
CNEL:	824	1,776	3,827	8,245

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: I-10 WB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,110 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.50	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.74	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.69	-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:	61.1	59.2	57.5	51.4	60.1	60.7
Medium Trucks:	54.9	53.4	47.0	45.5	54.0	54.2
Heavy Trucks:	55.8	54.3	45.3	46.5	54.9	55.0
Vehicle Noise:	63.0	61.2	58.1	53.4	62.0	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	135	291
CNEL:	31	67	145	312

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: I-10 WB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	600 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.17	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-21.41	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.36	-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	48.8	57.4	58.0
Medium Trucks:	52.2	50.7	44.4	42.8	51.3	51.5
Heavy Trucks:	53.1	51.7	42.6	43.9	52.2	52.4
Vehicle Noise:	60.3	58.6	55.4	50.7	59.3	59.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	19	42	90	193
CNEL:	21	45	96	207

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Redland Blvd.
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,750 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.48	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.76	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.71	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.6	61.7	59.9	53.8	62.5	63.1
Medium Trucks:	57.3	55.8	49.5	47.9	56.4	56.6
Heavy Trucks:	58.2	56.7	47.7	49.0	57.3	57.4
Vehicle Noise:	65.4	63.7	60.5	55.8	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	91	196	422
CNEL:	45	97	210	452

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 No Project
Road Name: Redland Blvd.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,650 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.22	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.01	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.97	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.3	61.4	59.6	53.6	62.2	62.8
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.3
Heavy Trucks:	57.9	56.5	47.5	48.7	57.1	57.2
Vehicle Noise:	65.1	63.4	60.3	55.6	64.1	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	87	188	405
CNEL:	43	94	202	435

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: California St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	980 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.04	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.28	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.23	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.0	59.1	57.4	51.3	59.9	60.6
Medium Trucks:	54.8	53.3	46.9	45.4	53.8	54.1
Heavy Trucks:	55.6	54.2	45.2	46.4	54.8	54.9
Vehicle Noise:	62.9	61.1	58.0	53.3	61.9	62.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	62	133	286
CNEL:	31	66	143	307

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: California St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,550 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.05	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.29	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.24	-4.17	-1.20	*-5.16*	0.000	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	59.4	53.3	61.9	62.5
Medium Trucks:	56.8	55.3	48.9	47.4	55.8	56.1
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	64.9	63.1	60.0	55.3	63.8	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	84	180	389
CNEL:	42	90	194	417

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Nevada St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	460 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	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:	68.46	-5.32	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-22.56	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-26.52	-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:	57.4	55.5	53.8	47.7	56.3	56.9
Medium Trucks:	51.2	49.7	43.3	41.8	50.2	50.5
Heavy Trucks:	52.0	50.6	41.6	42.8	51.2	51.3
Vehicle Noise:	59.3	57.5	54.4	49.7	58.2	58.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	16	35	76	164
CNEL:	18	38	82	176

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Nevada St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	840 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	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:	68.46	-2.71	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.95	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.90	-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:	60.0	58.1	56.4	50.3	58.9	59.5
Medium Trucks:	53.8	52.3	45.9	44.4	52.8	53.1
Heavy Trucks:	54.6	53.2	44.2	45.4	53.8	53.9
Vehicle Noise:	61.9	60.1	57.0	52.3	60.8	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	25	53	114	245
CNEL:	26	57	122	263

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Alabama St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,770 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.53	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.71	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.67	-4.17	-1.20	*-5.16*	0.000	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:	57.4	55.9	49.5	48.0	56.4	56.6
Heavy Trucks:	58.2	56.8	47.8	49.0	57.4	57.5
Vehicle Noise:	65.4	63.7	60.6	55.9	64.4	64.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	92	197	425
CNEL:	46	98	211	456

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Alabama St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,970 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.78	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.46	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.42	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.9	64.0	62.2	56.1	64.8	65.4
Medium Trucks:	59.6	58.1	51.7	50.2	58.7	58.9
Heavy Trucks:	60.5	59.0	50.0	51.3	59.6	59.7
Vehicle Noise:	67.7	66.0	62.8	58.1	66.7	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	60	129	278	600
CNEL:	64	139	299	643

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Alabama St.
Road Segment: Bridge over I-10

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,040 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.88	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.36	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.32	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.0	64.1	62.3	56.2	64.9	65.5
Medium Trucks:	59.7	58.2	51.8	50.3	58.8	59.0
Heavy Trucks:	60.6	59.1	50.1	51.4	59.7	59.8
Vehicle Noise:	67.8	66.1	62.9	58.2	66.8	67.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	131	283	609
CNEL:	65	141	303	653

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Alabama St.
Road Segment: n/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,060 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.91	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.33	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.29	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.0	64.1	62.3	56.3	64.9	65.5
Medium Trucks:	59.7	58.2	51.9	50.3	58.8	59.0
Heavy Trucks:	60.6	59.2	50.1	51.4	59.7	59.9
Vehicle Noise:	67.8	66.1	62.9	58.3	66.8	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	132	284	612
CNEL:	66	141	305	656

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Alabama St.
Road Segment: s/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,720 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.40	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.83	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.79	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.5	61.6	59.8	53.8	62.4	63.0
Medium Trucks:	57.2	55.7	49.4	47.8	56.3	56.5
Heavy Trucks:	58.1	56.7	47.6	48.9	57.2	57.4
Vehicle Noise:	65.3	63.6	60.4	55.8	64.3	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	90	193	417
CNEL:	45	96	207	447

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Lugonia Ave.
Road Segment: e/o California St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	610 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.10	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-21.34	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.29	-4.43	-1.20	*-5.16*	0.000	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:	52.5	51.0	44.6	43.1	51.5	51.8
Heavy Trucks:	53.3	51.9	42.9	44.1	52.5	52.6
Vehicle Noise:	60.6	58.8	55.7	51.0	59.5	60.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	20	43	93	201
CNEL:	22	46	100	215

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Lugonia Ave.
Road Segment: e/o Nevada St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,240 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.02	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.26	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.21	-4.43	-1.20	*-5.16*	0.000	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: Year 2014 With Project
Road Name: Lugonia Ave.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,860 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.74	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.49	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.45	-4.43	-1.20	*-5.16*	0.000	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	57.4
Vehicle Noise:	65.4	63.7	60.5	55.8	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	91	196	422
CNEL:	45	98	210	453

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: I-10 EB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,250 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.98	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.22	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.18	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.7	59.8	58.0	51.9	60.6	61.2
Medium Trucks:	55.4	53.9	47.6	46.0	54.5	54.7
Heavy Trucks:	56.3	54.8	45.8	47.1	55.4	55.5
Vehicle Noise:	63.5	61.8	58.6	53.9	62.5	62.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	68	146	315
CNEL:	34	73	157	338

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: I-10 EB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	820 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.81	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-20.05	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.01	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.8	57.9	56.2	50.1	58.7	59.3
Medium Trucks:	53.6	52.1	45.7	44.2	52.6	52.9
Heavy Trucks:	54.4	53.0	44.0	45.2	53.6	53.7
Vehicle Noise:	61.7	59.9	56.8	52.1	60.6	61.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	24	51	110	238
CNEL:	25	55	118	255

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: I-10 Freeway
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	85,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	18,530 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	142 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.00%
Medium Trucks:	84.8%	4.9%	10.3%	4.84%
Heavy Trucks:	86.5%	2.7%	10.8%	7.16%

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:	70.597
Medium Trucks:	70.472
Heavy Trucks:	70.484

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	9.04	-2.35	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	83.68	-3.56	-2.34	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-1.86	-2.34	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	78.7	76.8	75.0	69.0	77.6	78.2
Medium Trucks:	76.6	75.1	68.7	67.2	75.6	75.9
Heavy Trucks:	81.9	80.5	71.5	72.7	81.1	81.2
Vehicle Noise:	84.4	82.8	77.3	75.0	83.5	83.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	791	1,703	3,670	7,906
CNEL:	824	1,776	3,827	8,245

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: I-10 WB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,110 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.50	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.74	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.69	-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:	61.1	59.2	57.5	51.4	60.1	60.7
Medium Trucks:	54.9	53.4	47.0	45.5	54.0	54.2
Heavy Trucks:	55.8	54.3	45.3	46.5	54.9	55.0
Vehicle Noise:	63.0	61.2	58.1	53.4	62.0	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	63	135	291
CNEL:	31	67	145	312

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: I-10 WB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	620 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-4.03	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-21.27	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.22	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.6	56.7	55.0	48.9	57.5	58.1
Medium Trucks:	52.4	50.9	44.5	43.0	51.4	51.7
Heavy Trucks:	53.2	51.8	42.8	44.0	52.4	52.5
Vehicle Noise:	60.5	58.7	55.6	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	197
CNEL:	21	46	98	212

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Redland Blvd.
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,750 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.48	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.76	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.71	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.6	61.7	59.9	53.8	62.5	63.1
Medium Trucks:	57.3	55.8	49.5	47.9	56.4	56.6
Heavy Trucks:	58.2	56.7	47.7	49.0	57.3	57.4
Vehicle Noise:	65.4	63.7	60.5	55.8	64.4	64.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	42	91	196	422
CNEL:	45	97	210	452

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Year 2014 With Project
Road Name: Redland Blvd.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,660 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.25	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.99	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.94	-4.17	-1.20	*-5.16*	0.000	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	59.7	53.6	62.2	62.8
Medium Trucks:	57.1	55.6	49.2	47.7	56.1	56.4
Heavy Trucks:	57.9	56.5	47.5	48.7	57.1	57.2
Vehicle Noise:	65.2	63.4	60.3	55.6	64.1	64.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	41	88	189	407
CNEL:	44	94	203	437

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: California St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,820 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.65	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.59	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.54	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.7	61.8	60.1	54.0	62.6	63.2
Medium Trucks:	57.5	56.0	49.6	48.1	56.5	56.8
Heavy Trucks:	58.3	56.9	47.9	49.1	57.5	57.6
Vehicle Noise:	65.6	63.8	60.7	56.0	64.5	65.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	93	201	433
CNEL:	46	100	215	464

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: California St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,690 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.35	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.89	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.85	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.4	63.5	61.8	55.7	64.3	64.9
Medium Trucks:	59.2	57.7	51.3	49.8	58.2	58.5
Heavy Trucks:	60.0	58.6	49.6	50.8	59.2	59.3
Vehicle Noise:	67.3	65.5	62.4	57.7	66.2	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	121	261	561
CNEL:	60	130	280	602

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Nevada St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	650 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	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:	68.46	-3.82	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-21.06	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-25.02	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.9	57.0	55.3	49.2	57.8	58.4
Medium Trucks:	52.7	51.2	44.8	43.3	51.7	52.0
Heavy Trucks:	53.5	52.1	43.1	44.3	52.7	52.8
Vehicle Noise:	60.8	59.0	55.9	51.2	59.7	60.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	21	45	96	207
CNEL:	22	48	103	222

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Nevada St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

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:	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:	68.46	-1.34	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.58	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.54	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.4	59.5	57.7	51.7	60.3	60.9
Medium Trucks:	55.2	53.6	47.3	45.7	54.2	54.4
Heavy Trucks:	56.0	54.6	45.5	46.8	55.1	55.3
Vehicle Noise:	63.2	61.5	58.3	53.7	62.2	62.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	30	65	140	302
CNEL:	32	70	150	324

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Alabama St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,740 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.78	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-13.46	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.42	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.2	57.1	65.8	66.4
Medium Trucks:	60.6	59.1	52.7	51.2	59.7	59.9
Heavy Trucks:	61.5	60.0	51.0	52.3	60.6	60.7
Vehicle Noise:	68.7	67.0	63.8	59.1	67.7	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	325	699
CNEL:	75	162	348	750

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Alabama St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,330 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.41	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-12.82	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.78	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	61.3	59.7	53.4	51.8	60.3	60.5
Heavy Trucks:	62.1	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	69.3	67.6	64.4	59.8	68.3	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	77	166	358	771
CNEL:	83	178	384	827

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Alabama St.
Road Segment: Bridge over I-10

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,720 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.79	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-12.45	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.41	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.0	64.2	58.2	66.8	67.4
Medium Trucks:	61.6	60.1	53.8	52.2	60.7	60.9
Heavy Trucks:	62.5	61.1	52.0	53.3	61.6	61.8
Vehicle Noise:	69.7	68.0	64.8	60.1	68.7	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	82	176	379	817
CNEL:	88	189	407	876

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Alabama St.
Road Segment: n/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,560 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.64	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-12.60	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.56	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.1	58.0	66.6	67.2
Medium Trucks:	61.5	60.0	53.6	52.1	60.5	60.8
Heavy Trucks:	62.3	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	69.6	67.8	64.7	60.0	68.5	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	80	172	370	798
CNEL:	86	184	397	856

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Alabama St.
Road Segment: s/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,640 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.27	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.97	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.93	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	63.5	61.7	55.6	64.3	64.9
Medium Trucks:	59.1	57.6	51.2	49.7	58.2	58.4
Heavy Trucks:	60.0	58.5	49.5	50.7	59.1	59.2
Vehicle Noise:	67.2	65.4	62.3	57.6	66.2	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	119	257	554
CNEL:	59	128	276	595

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Lugonia Ave.
Road Segment: e/o California St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	930 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.27	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.50	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.46	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.6	58.7	56.9	50.8	59.5	60.1
Medium Trucks:	54.3	52.8	46.4	44.9	53.4	53.6
Heavy Trucks:	55.2	53.7	44.7	46.0	54.3	54.4
Vehicle Noise:	62.4	60.7	57.5	52.8	61.4	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	27	57	123	266
CNEL:	29	61	132	285

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Lugonia Ave.
Road Segment: e/o Nevada St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

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:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.19	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.43	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.38	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.6	60.7	59.0	52.9	61.5	62.1
Medium Trucks:	56.4	54.9	48.5	47.0	55.4	55.7
Heavy Trucks:	57.2	55.8	46.8	48.0	56.4	56.5
Vehicle Noise:	64.5	62.7	59.6	54.9	63.4	63.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	37	79	170	366
CNEL:	39	84	182	392

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Lugonia Ave.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,460 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.96	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-15.28	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.24	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.8	62.9	61.1	55.1	63.7	64.3
Medium Trucks:	58.5	57.0	50.7	49.1	57.6	57.8
Heavy Trucks:	59.4	58.0	48.9	50.2	58.5	58.7
Vehicle Noise:	66.6	64.9	61.7	57.1	65.6	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	51	110	236	508
CNEL:	55	117	253	545

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: I-10 EB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,710 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.38	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.86	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.82	-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:	63.0	61.1	59.4	53.3	61.9	62.5
Medium Trucks:	56.8	55.3	48.9	47.4	55.8	56.1
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	64.9	63.1	60.0	55.3	63.8	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	84	180	388
CNEL:	42	90	193	416

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: I-10 EB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,220 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.09	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.33	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.28	-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:	61.6	59.7	57.9	51.8	60.5	61.1
Medium Trucks:	55.3	53.8	47.4	45.9	54.4	54.6
Heavy Trucks:	56.2	54.7	45.7	47.0	55.3	55.4
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	310
CNEL:	33	72	154	332

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: I-10 Freeway
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	22,900 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	142 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.00%
Medium Trucks:	84.8%	4.9%	10.3%	4.84%
Heavy Trucks:	86.5%	2.7%	10.8%	7.16%

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:	70.597
Medium Trucks:	70.472
Heavy Trucks:	70.484

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	9.96	-2.35	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	83.68	-2.64	-2.34	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-0.94	-2.34	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	79.6	77.7	76.0	69.9	78.5	79.1
Medium Trucks:	77.5	76.0	69.6	68.1	76.6	76.8
Heavy Trucks:	82.8	81.4	72.4	73.6	82.0	82.1
Vehicle Noise:	85.3	83.8	78.2	75.9	84.4	84.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	910	1,962	4,226	9,105
CNEL:	949	2,046	4,407	9,495

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: I-10 WB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,530 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.10	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.34	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.30	-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:	62.5	60.6	58.9	52.8	61.4	62.0
Medium Trucks:	56.3	54.8	48.4	46.9	55.3	55.6
Heavy Trucks:	57.1	55.7	46.7	47.9	56.3	56.4
Vehicle Noise:	64.4	62.6	59.5	54.8	63.3	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	78	167	360
CNEL:	39	83	179	386

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: I-10 WB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	930 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.27	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.50	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.46	-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:	60.4	58.5	56.7	50.7	59.3	59.9
Medium Trucks:	54.1	52.6	46.3	44.7	53.2	53.4
Heavy Trucks:	55.0	53.6	44.5	45.8	54.1	54.3
Vehicle Noise:	62.2	60.5	57.3	52.6	61.2	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	26	56	120	259
CNEL:	28	60	129	277

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Redland Blvd.
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,730 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.41	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.83	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.78	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.3	57.7	51.4	49.8	58.3	58.5
Heavy Trucks:	60.1	58.7	49.6	50.9	59.2	59.4
Vehicle Noise:	67.3	65.6	62.4	57.8	66.3	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	122	263	567
CNEL:	61	131	282	608

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout No Project
Road Name: Redland Blvd.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,790 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.51	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.73	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.69	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	63.7	61.9	55.9	64.5	65.1
Medium Trucks:	59.3	57.8	51.5	49.9	58.4	58.6
Heavy Trucks:	60.2	58.8	49.7	51.0	59.3	59.5
Vehicle Noise:	67.4	65.7	62.5	57.9	66.4	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	124	267	575
CNEL:	62	133	286	617

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: California St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,830 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.67	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.56	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.52	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.8	61.9	60.1	54.0	62.7	63.3
Medium Trucks:	57.5	56.0	49.6	48.1	56.6	56.8
Heavy Trucks:	58.4	56.9	47.9	49.2	57.5	57.6
Vehicle Noise:	65.6	63.9	60.7	56.0	64.6	65.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	43	94	202	434
CNEL:	47	100	216	466

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: California St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,200 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,720 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.39	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.84	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.80	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.2	57.7	51.4	49.8	58.3	58.5
Heavy Trucks:	60.1	58.7	49.6	50.9	59.2	59.4
Vehicle Noise:	67.3	65.6	62.4	57.7	66.3	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	122	263	566
CNEL:	61	131	282	607

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Nevada St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	660 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	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:	68.46	-3.76	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-20.99	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-24.95	-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:	59.0	57.1	55.3	49.3	57.9	58.5
Medium Trucks:	52.7	51.2	44.9	43.3	51.8	52.0
Heavy Trucks:	53.6	52.2	43.1	44.4	52.7	52.9
Vehicle Noise:	60.8	59.1	55.9	51.3	59.8	60.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	21	45	97	209
CNEL:	22	48	104	224

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Nevada St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,180 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	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:	68.46	-1.23	-4.52	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.47	-4.51	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.43	-4.51	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.5	59.6	57.8	51.8	60.4	61.0
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.5
Heavy Trucks:	56.1	54.7	45.7	46.9	55.3	55.4
Vehicle Noise:	63.3	61.6	58.5	53.8	62.3	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	66	143	307
CNEL:	33	71	153	330

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Alabama St.
Road Segment: n/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,770 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	3.81	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-13.43	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-17.38	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	60.7	59.1	52.8	51.2	59.7	59.9
Heavy Trucks:	61.5	60.1	51.0	52.3	60.6	60.8
Vehicle Noise:	68.7	67.0	63.8	59.2	67.7	68.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	151	326	703
CNEL:	75	162	350	754

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Alabama St.
Road Segment: s/o Lugonia Ave.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,370 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.45	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-12.78	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.74	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.5	65.6	63.9	57.8	66.4	67.0
Medium Trucks:	61.3	59.8	53.4	51.9	60.3	60.6
Heavy Trucks:	62.1	60.7	51.7	52.9	61.3	61.4
Vehicle Noise:	69.4	67.6	64.5	59.8	68.3	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	78	167	360	776
CNEL:	83	179	386	832

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Alabama St.
Road Segment: Bridge over I-10

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,750 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.82	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-12.42	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.38	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.9	66.0	64.2	58.2	66.8	67.4
Medium Trucks:	61.7	60.1	53.8	52.2	60.7	60.9
Heavy Trucks:	62.5	61.1	52.0	53.3	61.7	61.8
Vehicle Noise:	69.7	68.0	64.8	60.2	68.7	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	82	177	381	820
CNEL:	88	190	408	880

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Alabama St.
Road Segment: n/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,800 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,580 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	4.66	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-12.58	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-16.54	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.1	58.0	66.6	67.3
Medium Trucks:	61.5	60.0	53.6	52.1	60.5	60.8
Heavy Trucks:	62.3	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	69.6	67.8	64.7	60.0	68.6	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	80	172	372	801
CNEL:	86	185	399	859

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Alabama St.
Road Segment: s/o Redlands Blvd.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,500 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,650 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.28	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.96	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.91	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.4	63.5	61.7	55.6	64.3	64.9
Medium Trucks:	59.1	57.6	51.3	49.7	58.2	58.4
Heavy Trucks:	60.0	58.5	49.5	50.8	59.1	59.2
Vehicle Noise:	67.2	65.5	62.3	57.6	66.2	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	120	258	556
CNEL:	60	128	277	596

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Lugonia Ave.
Road Segment: e/o California St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	990 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.99	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.23	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.19	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.8	58.9	57.2	51.1	59.7	60.3
Medium Trucks:	54.6	53.1	46.7	45.2	53.6	53.9
Heavy Trucks:	55.4	54.0	45.0	46.2	54.6	54.7
Vehicle Noise:	62.7	60.9	57.8	53.1	61.6	62.1

Centerline Distance to Noise Contour (in feet)

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

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Lugonia Ave.
Road Segment: e/o Nevada St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

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:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.12	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.12	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.08	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.9	61.0	59.3	53.2	61.8	62.5
Medium Trucks:	56.7	55.2	48.8	47.3	55.7	56.0
Heavy Trucks:	57.5	56.1	47.1	48.3	56.7	56.8
Vehicle Noise:	64.8	63.0	59.9	55.2	63.8	64.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	38	83	178	383
CNEL:	41	89	191	411

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Lugonia Ave.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,900 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,490 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	97.206
Medium Trucks:	97.115
Heavy Trucks:	97.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.01	-4.43	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-15.23	-4.43	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-19.18	-4.43	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.8	62.9	61.2	55.1	63.7	64.3
Medium Trucks:	58.6	57.1	50.7	49.2	57.6	57.9
Heavy Trucks:	59.4	58.0	49.0	50.2	58.6	58.7
Vehicle Noise:	66.7	64.9	61.8	57.1	65.6	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	51	110	238	513
CNEL:	55	118	255	550

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: I-10 EB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,100 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,710 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.38	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-16.86	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.82	-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:	63.0	61.1	59.4	53.3	61.9	62.5
Medium Trucks:	56.8	55.3	48.9	47.4	55.8	56.1
Heavy Trucks:	57.6	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	64.9	63.1	60.0	55.3	63.8	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	39	84	180	388
CNEL:	42	90	193	416

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: I-10 EB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

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:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.05	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-18.29	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-22.25	-4.61	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	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	53.9	62.4	62.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	31	67	145	311
CNEL:	33	72	155	334

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: I-10 Freeway
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	229,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	22,900 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	142 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.00%
Medium Trucks:	84.8%	4.9%	10.3%	4.84%
Heavy Trucks:	86.5%	2.7%	10.8%	7.16%

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:	70.597
Medium Trucks:	70.472
Heavy Trucks:	70.484

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	9.96	-2.35	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	83.68	-2.64	-2.34	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-0.94	-2.34	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	79.6	77.7	76.0	69.9	78.5	79.1
Medium Trucks:	77.5	76.0	69.6	68.1	76.6	76.8
Heavy Trucks:	82.8	81.4	72.4	73.6	82.0	82.1
Vehicle Noise:	85.3	83.8	78.2	75.9	84.4	84.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	910	1,962	4,226	9,105
CNEL:	949	2,046	4,407	9,495

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: I-10 WB Ramps
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,530 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.10	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-17.34	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.30	-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:	62.5	60.6	58.9	52.8	61.4	62.0
Medium Trucks:	56.3	54.8	48.4	46.9	55.3	55.6
Heavy Trucks:	57.1	55.7	46.7	47.9	56.3	56.4
Vehicle Noise:	64.4	62.6	59.5	54.8	63.3	63.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	36	78	167	360
CNEL:	39	83	179	386

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: I-10 WB Ramps
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	940 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	12 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	99.945
Medium Trucks:	99.856
Heavy Trucks:	99.865

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-2.22	-4.62	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-19.46	-4.61	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-23.41	-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:	60.4	58.5	56.8	50.7	59.3	59.9
Medium Trucks:	54.2	52.7	46.3	44.8	53.2	53.5
Heavy Trucks:	55.0	53.6	44.6	45.8	54.2	54.3
Vehicle Noise:	62.3	60.5	57.4	52.7	61.2	61.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	26	56	121	260
CNEL:	28	60	130	279

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Redland Blvd.
Road Segment: w/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,730 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.41	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.83	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.78	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	63.6	61.8	55.8	64.4	65.0
Medium Trucks:	59.3	57.7	51.4	49.8	58.3	58.5
Heavy Trucks:	60.1	58.7	49.6	50.9	59.2	59.4
Vehicle Noise:	67.3	65.6	62.4	57.8	66.3	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	122	263	567
CNEL:	61	131	282	608

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Buildout With Project
Road Name: Redland Blvd.
Road Segment: e/o Alabama St.

Project Name: Unviveristy Crossings
Job Number: 8140
Analyst: T. Brawner

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,800 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	72 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	93.429
Medium Trucks:	93.334
Heavy Trucks:	93.344

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.52	-4.18	-1.20	*-4.77*	0.000	0.000
Medium Trucks:	79.45	-14.72	-4.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-18.67	-4.17	-1.20	*-5.16*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	63.7	61.9	55.9	64.5	65.1
Medium Trucks:	59.4	57.9	51.5	49.9	58.4	58.6
Heavy Trucks:	60.2	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	67.4	65.7	62.5	57.9	66.4	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	124	268	577
CNEL:	62	133	287	619

APPENDIX 9.1

Off-Site Exterior Noise Analysis Calculations

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 2/22/11

Scenario: First Floor With Wall
Road Name: Lugonia Ave.
Lot No: Building 11

Project Name: University Crossings
Job Number: 8140
Analyst: B Lawson

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:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.5 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	48.314
Medium Trucks:	48.107
Heavy Trucks:	48.065

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	0.12	0.12	-1.20	*-5.14*	0.000	0.000
Medium Trucks:	77.62	-17.12	0.15	-1.20	*-5.34*	0.000	0.000
Heavy Trucks:	82.14	-21.08	0.15	-1.20	*-5.85*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	66.5	64.7	58.7	67.3	67.9
Medium Trucks:	59.4	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	60.0	58.6	49.6	50.8	59.2	59.3
Vehicle Noise:	69.4	67.6	65.0	59.8	68.4	68.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	66.5	64.7	58.7	67.3	67.9
Medium Trucks:	59.4	57.9	51.6	50.0	58.5	58.7
Heavy Trucks:	60.0	58.6	49.6	50.8	59.2	59.3
Vehicle Noise:	69.4	67.6	65.0	59.8	68.4	68.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 2/22/11

Scenario: First Floor With Wall
Road Name: Nevada St.
Lot No: Building 11

Project Name: University Crossings
Job Number: 8140
Analyst: B Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,600 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	660 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	700.0 feet
Centerline Dist. to Observer:	700.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.5 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	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:	699.790
Medium Trucks:	699.776
Heavy Trucks:	699.773

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	69.34	-3.76	-17.29	-1.20	*-5.36*	0.000	0.000
Medium Trucks:	77.62	-20.99	-17.29	-1.20	*-5.38*	0.000	0.000
Heavy Trucks:	82.14	-24.95	-17.29	-1.20	*-5.42*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	47.1	45.2	43.4	37.4	46.0	46.6
Medium Trucks:	38.1	36.6	30.3	28.7	37.2	37.4
Heavy Trucks:	38.7	37.3	28.2	29.5	37.8	38.0
Vehicle Noise:	48.1	46.3	43.8	38.5	47.1	47.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	47.1	45.2	43.4	37.4	46.0	46.6
Medium Trucks:	38.1	36.6	30.3	28.7	37.2	37.4
Heavy Trucks:	38.7	37.3	28.2	29.5	37.8	38.0
Vehicle Noise:	48.1	46.3	43.8	38.5	47.1	47.6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 2/22/11

Scenario: First Floor With Wall
Road Name: I-10 Freeway
Lot No: Building 11

Project Name: University Crossings
Job Number: 8140
Analyst: B Lawson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	22,900 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	142 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	1,420.0 feet
Centerline Dist. to Observer:	1,420.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.5 feet
Road Elevation:	0.0 feet
Barrier Elevation:	0.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.00%
Medium Trucks:	84.8%	4.9%	10.3%	4.84%
Heavy Trucks:	86.5%	2.7%	10.8%	7.16%

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:	1,418.235
Medium Trucks:	1,418.228
Heavy Trucks:	1,418.226

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.19	9.96	-21.90	-1.20	*-5.37*	0.000	0.000
Medium Trucks:	80.82	-2.64	-21.90	-1.20	*-5.38*	0.000	0.000
Heavy Trucks:	84.54	-0.94	-21.90	-1.20	*-5.40*	0.000	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	51.3	60.0	60.6
Medium Trucks:	55.1	53.6	47.2	45.7	54.1	54.4
Heavy Trucks:	60.5	59.1	50.0	51.3	59.7	59.8
Vehicle Noise:	64.3	62.7	58.5	54.9	63.4	63.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.1	59.2	57.4	51.3	60.0	60.6
Medium Trucks:	55.1	53.6	47.2	45.7	54.1	54.4
Heavy Trucks:	60.5	59.1	50.0	51.3	59.7	59.8
Vehicle Noise:	64.3	62.7	58.5	54.9	63.4	63.7