Keller Crossing Specific Plan

NOISE IMPACT ANALYSIS

COUNTY OF RIVERSIDE

PREPARED BY

William A. Maddux, INCE
bmaddux@urbanxroads.com
(619) 778-1971

Noah Johnson
njohnson@urbanxroads.com

MAY 20, 2025

16056-05

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **III**
APPENDICES ..... **IV**
LIST OF EXHIBITS ..... **V**
LIST OF TABLES ..... **V**
LIST OF ABBREVIATED TERMS ..... **VI**
EXECUTIVE SUMMARY **1**
Off-Site Traffic Noise Analysis 1
On-Site Traffic Noise Analysis 2
Construction Noise Analysis 3
Construction Vibration Analysis 4
1 INTRODUCTION **7**
1.1 Site Location 7
1.2 Project Description 7
2 FUNDAMENTALS **11**
2.1 Range of Noise 11
2.2 Noise Descriptors 12
2.3 Sound Propagation 12
2.4 Noise Control 13
2.5 Noise Barrier Attenuation 13
2.6 Land Use Compatibility With Noise 14
2.7 Community Response to Noise 14
2.8 Vibration 15
3 REGULATORY SETTING **17**
3.1 State of California Noise Requirements 17
3.2 County of Riverside General Plan Noise Element 18
3.3 Construction Noise Standards 21
3.4 Construction Vibration Standards 23
4 SIGNIFICANCE CRITERIA **24**
4.1 Noise Level Increases (Threshold A) 24
4.2 Vibration (Threshold B) 26
4.3 CEQA Guidelines Not Further Analyzed (Threshold C) 26
4.4 Significance Criteria Summary 26
5 EXISTING NOISE LEVEL MEASUREMENTS **28**
5.1 Measurement Procedure and Criteria 28
5.2 Noise Measurement Locations 28
5.3 Noise Measurement Results 29
6 TRAFFIC NOISE METHODS AND PROCEDURES **31**
6.1 FHWA Traffic Noise Prediction Model 31
7 OFF-SITE TRAFFIC NOISE ANALYSIS **37**
7.1 Noise Contours 37
7.2 Existing (2024) Project Traffic Noise Level Increases 37

7.3 EA Growth plus Cumulative (EAC) (2030) Project Traffic Noise Level Increases 42
7.4 Off-Site Traffic Noise Mitigation 42
8 ON-SITE TRAFFIC NOISE ANALYSIS 47
8.1 Exterior Noise Analysis 47
8.2 Interior Noise Analysis 49
9 SENSITIVE RECEIVER LOCATIONS 53
10 OPERATIONAL NOISE IMPACTS 57
10.1 Operational Noise Sources 57
10.2 Reference Noise Levels 57
10.3 CadnaA Noise Prediction Model 59
10.4 Project Operational Noise Level Compliance 60
10.5 Project Operational Noise Level Increases 61
11 CONSTRUCTION IMPACTS 65
11.1 Construction Noise Levels 65
11.2 Construction Reference Noise Levels 65
11.3 Construction Noise Analysis 70
11.4 Construction Noise Level Compliance 70
11.5 Temporary Construction Noise Level Increases 71
11.6 Construction Noise Level Increase Mitigation 72
11.7 Off-Site Construction Noise Analysis 73
11.8 Construction Vibration Impacts 73
11.9 Construction Vibration Impacts Mitigation 74
11.10 Off-Site Construction Vibration Analysis 76
12 REFERENCES 77
13 CERTIFICATION 79

APPENDICES

APPENDIX 3.1: COUNTY OF RIVERSIDE MUNICIPAL CODE
APPENDIX 5.1: STUDY AREA PHOTOS
APPENDIX 5.2: NOISE LEVEL MEASUREMENT WORKSHEETS
APPENDIX 7.1: OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS
APPENDIX 8.1: ON-SITE TRAFFIC NOISE LEVEL CALCULATIONS
APPENDIX 10.1: CADNAA OPERATIONAL NOISE MODEL INPUTS
APPENDIX 11.1: CADNAA ON-SITE CONSTRUCTION NOISE MODEL INPUTS
APPENDIX 11.2: CADNAA OFF-SITE CONSTRUCTION NOISE MODEL INPUTS

LIST OF EXHIBITS

EXHIBIT ES-A: SUMMARY OF NOISE MITIGATION MEASURES 5
EXHIBIT 1-A: LOCATION MAP 8
EXHIBIT 1-B: PRELIMINARY LAND USE PLAN 9
EXHIBIT 2-A: TYPICAL NOISE LEVELS 11
EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION 15
EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION 16
EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS 30
EXHIBIT 9-A: RECEIVER LOCATION 55
EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS 58
EXHIBIT 11-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS 66
EXHIBIT 11-B: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS 67

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS 1
TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY 27
TABLE 5-1: AMBIENT NOISE LEVEL MEASUREMENTS 29
TABLE 6-1: OFF-SITE ROADWAY PARAMETERS 32
TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES 33
TABLE 6-3: TIME OF DAY VEHICLE SPLITS 34
TABLE 6-4: TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX) 34
TABLE 6-5: ON-SITE ROADWAY PARAMETERS 35
TABLE 7-1: EXISTING (2024) NOISE LEVEL CONTOURS 38
TABLE 7-2: EXISTING (2024) WITH PROJECT NOISE LEVEL CONTOURS 39
TABLE 7-3: EAC (2030) NOISE LEVEL CONTOURS 40
TABLE 7-4: EACP (2030) NOISE LEVEL CONTOURS 41
TABLE 7-5: EXISTING (2024) PROJECT TRAFFIC NOISE LEVEL INCREASES 43
TABLE 7-6: EAC (2030) PROJECT TRAFFIC NOISE LEVEL INCREASES 44
TABLE 8-1: UNMITIGATED EXTERIOR NOISE LEVELS 47
TABLE 8-2: MITIGATED FUTURE EXTERIOR NOISE LEVELS 48
TABLE 8-3: FIRST-FLOOR INTERIOR NOISE LEVELS (CNEL) 51
TABLE 8-4: SECOND-FLOOR INTERIOR NOISE LEVELS (CNEL) 51
TABLE 10-1: REFERENCE NOISE LEVELS 59
TABLE 10-2: OPERATIONAL NOISE LEVEL COMPLIANCE 61
TABLE 10-3: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES 62
TABLE 10-4: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES 63
TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS 68
TABLE 11-2: ON-SITE CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY 70
TABLE 11-3: CONSTRUCTION NOISE LEVEL COMPLIANCE 71
TABLE 11-4: DAYTIME CONSTRUCTION NOISE LEVEL INCREASES -- UNMITIGATED 72
TABLE 11-5: DAYTIME CONSTRUCTION NOISE LEVEL INCREASES -- MITIGATED 72
TABLE 11-6: OFF-SITE CONSTRUCTION NOISE ANALYSIS 73
TABLE 11-7: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT 74
TABLE 11-8: PROJECT CONSTRUCTION VIBRATION LEVELS 75
TABLE 11-9: MITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS 75

LIST OF ABBREVIATED TERMS

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

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the Keller Crossing Specific Plan development ("Project"). The Project site is located on the northwest corner of Winchester Road (SR-79) and Keller Road in the County of Riverside. The Project is to consist of a total of 365 single-family detached residential dwelling units, 230 multifamily (low-rise) residential dwelling units, 80 detached senior housing units, and a 7.62-acre sports park/active park. This noise study has been prepared to satisfy the applicable County of Riverside noise standards and significance criteria based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

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

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings		
		Unmitigated	Mitigated	Mitigation Measure
Off-Site Traffic Noise	7	*Potentially Significant*	*Less Than Significant*	*NOI-1*
On-Site Traffic Noise[1]	8	*Potentially Significant*	*Less Than Significant*	*NOI-2, NOI-3*
Operational Noise	10	*Less Than Significant*	-	-
Construction Noise	11	*Less Than Significant*	*Less Than Significant*	*NOI-4*
Construction Vibration		*Potentially Significant*	*Less Than Significant*	*NOI-5*

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases in the surrounding off-site areas, the changes in traffic noise levels on 24 roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *Keller Crossing Specific Plan Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2)

The results of this analysis show that one of the 24 study area roadway segments will experience a *significant* off-site traffic noise level increase on Keller Road east of Leon Road (Segment #22). MM NOI-1 is identified below for existing and future noise-sensitive land uses adjacent to the potentially impacted off-site roadway segments:

MM NOI-1: OFF-SITE TRAFFIC EXTERIOR NOISE MITIGATION

To reduce the *significant* Project-related off-site traffic noise level impacts at existing noise-sensitive land uses, Rubberized Hot-Mix Asphalt (RHMA) or Open-Graded Friction Course (OGFC)

pavement is recommended as mitigation for Keller Road east of Leon Road (Segment #22) and Keller Road east of Pourroy Road (Segment #23), as shown in Exhibit ES-A. Paving this segment with RHMA or OGFC pavement, would reduce the Project-related off-site traffic noise level increases to *less than significant*.

ON-SITE TRAFFIC NOISE ANALYSIS

An on-site exterior noise impact analysis has been completed to determine the traffic noise exposure and to identify potential necessary noise mitigation measures for the Keller Crossing Specific Plan Project. It is expected that the primary source of noise impacts on the Project site will be traffic noise from Winchester Road (SR-79) and Keller Road. The on-site exterior noise analysis shows that unmitigated traffic noise levels will exceed County of Riverside 65 dBA CNEL exterior noise level standards for the noise-sensitive residential land use and represent a *potentially significant* impact.

MM NOI-2: ON-SITE TRAFFIC EXTERIOR NOISE MITIGATION

To reduce the *potentially significant* on-site traffic noise level impacts, the construction of 6-foot-high noise barriers is required for the outdoor living areas (backyards) of single-family residential uses in Planning Area 3 facing Keller Road. With the mitigation measures detailed in the Executive Summary and shown in Exhibit ES-A, the on-site exterior traffic noise levels would be reduced to *less than significant.*

The recommended noise control barrier shall be constructed so that the top of the wall extends to the recommended height above the pad elevation of the lot it is shielding. When the road is elevated above the pad elevation, the barrier shall extend to the recommended height above the highest point between the residential home and the road. The barrier shall provide a weight of at least 4 pounds per square foot of surface area, or have a minimum transmission loss of 20 dBA, with no decorative cutouts or line-of-sight openings between shielded areas and the roadways. (3) The barrier must present a solid face from top to bottom, and all gaps (except for weep holes) should be filled with grout or caulking.

MM NOI-3: ON-SITE TRAFFIC INTERIOR NOISE MITIGATION

To reduce the *potentially significant* on-site interior traffic noise level impacts, all land uses will require a windows-closed condition and a means of mechanical ventilation (e.g., air conditioning). In addition, the multi-family residential (HDR) land uses in the southern and northern sections of Planning Area 4 facing Winchester Road (SR-79) will require upgraded windows and sliding glass doors with minimum STC ratings of 33 and 29 respectively and the multi-family residential (HDR) in Planning Area 5 facing Winchester Road (SR-79) will require upgraded second floor windows and sliding glass doors with minimum STC ratings of 32. With the mitigation measures detailed in the Executive Summary and shown in Exhibit ES-A, the on-site interior traffic noise levels would be reduced to *less than significant.*

- Windows/Sliding Glass Doors: All residential units require windows and sliding glass doors that have well-fitted, well-weather-stripped assemblies, and the following sound transmission class (STC) ratings:

1. Residential land uses in South Planning Area 4 will require upgraded windows and sliding glass doors with a minimum STC Rating of 33 (all floors), North Planning Area 4 will require upgraded windows and sliding glass doors with a minimum STC Rating of 29 (all floors), and Planning Area 5 require upgraded windows and sliding glass doors with minimum STC ratings of 32 (second floor);
2. All other residential lots require windows and sliding glass doors with minimum sound transmission class (STC) ratings of 27.

- Exterior Doors (Non-Glass): All exterior doors shall be well weather-stripped and have well-sealed perimeter gaps around the doors to achieve the STC ratings recommended below: (4)
    1. Residential land uses in South Planning Area 4 will require upgraded doors with a minimum STC Rating of 33 (all floors), North Planning Area 4 will require upgraded doors with a minimum STC Rating of 29 (all floors), and Planning Area 5 require upgraded doors with minimum STC ratings of 32 (second floor);
    2. All other residential lots require doors with minimum sound transmission class (STC) ratings of 27.
- Exterior Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- Ventilation:
    1. Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.
- Future Noise Studies: final noise studies shall be prepared for future residential uses within Planning Areas 1, 2, 3, 4, and 5 prior to obtaining building permits for the project. This report would finalize the mitigation measures described in this study using the precise grading plans and actual building design specifications, and may include additional mitigation, if necessary, to meet the interior noise level standards for residential (45 dBA CNEL) land uses. These noise studies would utilize any recommendations identified in this study and use the precise grading plans and actual building design specifications to identify any additional mitigation, such as exterior noise barriers and/or building materials (e.g., sound transmission class ratings for windows and doors), if necessary, based on the site-specific noise impacts within these planning areas.

CONSTRUCTION NOISE ANALYSIS

A construction noise impact analysis has been completed to determine the noise level increase at nearby structures due to construction and to identify potential mitigation measures to reduce noise level increases to acceptable levels. It is expected that the construction noise levels will exceed the Caltrans 12 dBA L_{eq} noise level increase threshold at nearby existing structures represented by receivers R4 and R5, which represents a *significant* impact.

MM NOI-4: CONSTRUCTION NOISE MITIGATION

To reduce construction noise at Receivers R4 and R5, the contractor shall install an 8-foot-high noise barrier (temporary or permanent) at the southern Project site boundary for the duration of construction activities. The limits of the noise barrier are shown in Exhibit ES-A. The noise control barrier shall include the following:

1. The noise control barriers must present a solid face from top to bottom.
2. The noise barriers shall be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired.
3. The temporary noise barrier shall be constructed using one of the following materials with no decorative cutouts or line-of-sight openings between shielded areas and the noise source:
    - An acoustical blanket (e.g. vinyl acoustic curtains, quilted blankets, or equivalent) attached to the construction site perimeter fence or equivalent temporary fence posts.

CONSTRUCTION VIBRATION ANALYSIS

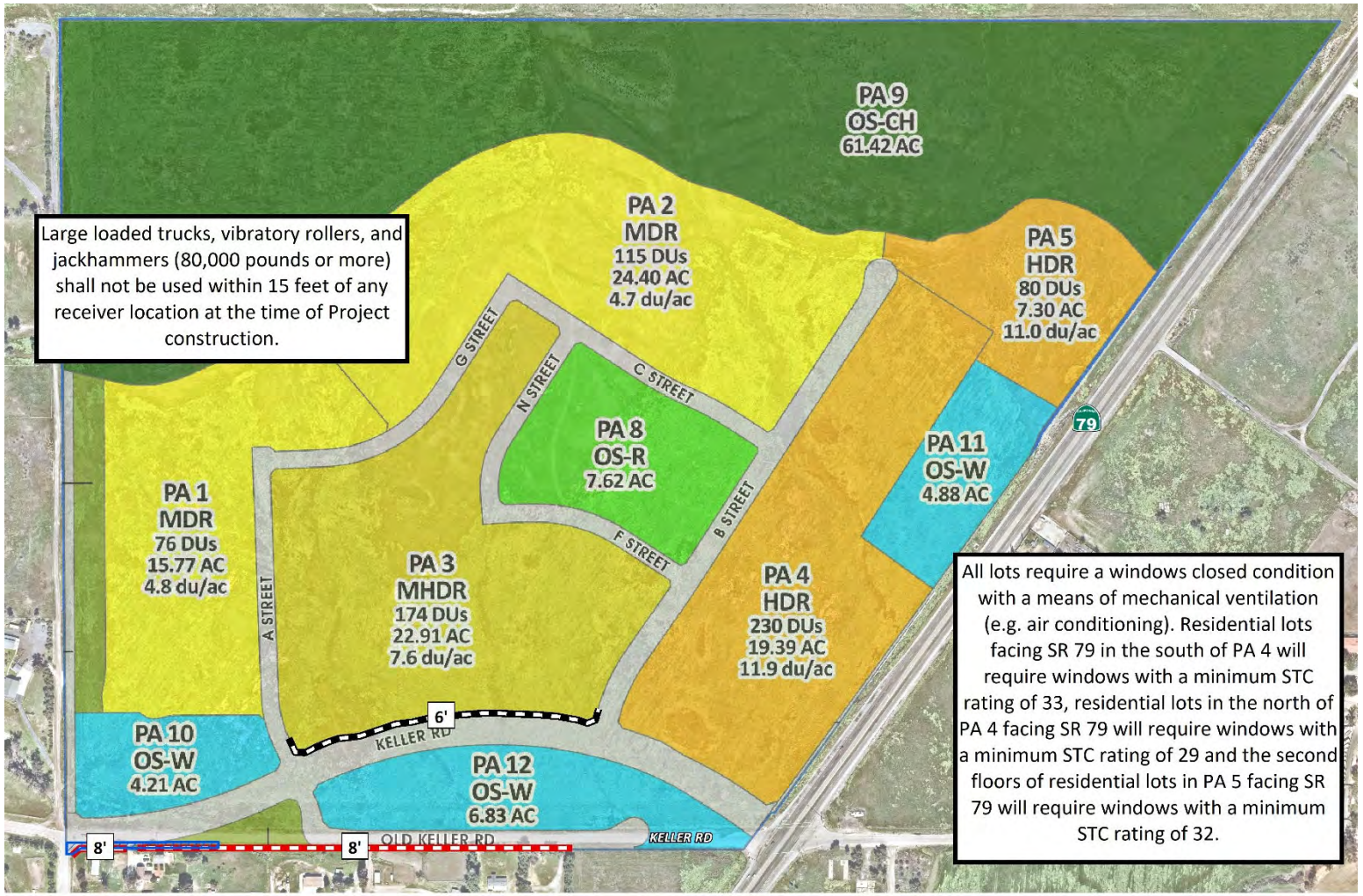
A construction-related vibration impact analysis has been completed to determine the vibration exposure of nearby structures and to identify potential necessary mitigation measures for the Keller Crossing Specific Plan Project. It is expected that the construction-related vibration impacts will exceed the County of Riverside 0.30 PPV (in/sec) threshold for nearby existing structures represented by receiver R4 and represents a *significant* impact.

MM NOI-5: CONSTRUCTION VIBRATION MITIGATION

To reduce the *potentially significant* vibration-related impact, a 15-foot heavy construction equipment exclusion zone is required to restrict the use of vibratory rollers within 15 feet of occupied sensitive receiver locations at R4. With the mitigation measure identified in this analysis and shown in ES-A, the vibration-related impacts will be reduced to *less than significant*.

It is worth noting that vibration levels at the site of the nearest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter. Moreover, construction at the Project site will be restricted to the daytime hours between 6:00 a.m. and 6:00 p.m. during the months of June through September and 7:00 a.m. and 6:00 p.m. during the months of October through May, consistent with County of Riverside requirements, thereby eliminating potential vibration impacts during the sensitive evening and nighttime hours.

EXHIBIT ES-A: SUMMARY OF NOISE MITIGATION MEASURES



This page intentionally left blank

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the Keller Crossing Specific Plan ("Project"). This noise and vibration analysis briefly describes the Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for noise analysis, evaluates the future exterior noise environment, potential off-site traffic impacts, the Project-related long-term stationary-source operational noise, and Project-related short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The Project is located on the northwest corner of Winchester Road (SR-79) and Keller Road in the County of Riverside, as shown in Exhibit 1-A. The area surrounding the Project Site consists mostly of rural residential homes.

1.2 PROJECT DESCRIPTION

A preliminary land use plan for the Project is shown in Exhibit 1-B. The Project is proposing to amend the Specific Plan with a mix of residential uses, as described below:

- Phase 1 (Opening Year of 2028) is anticipated to include the development of 179 single-family detached residential dwelling units and 98 multifamily (low-rise) residential dwelling units.
- Project Buildout (Buildout year of 2030) is anticipated to include a total of 365 single-family detached residential dwelling units, 230 multifamily (low-rise) residential dwelling units, 80 senior housing (detached) units, a 7.62-acre sports park/active park.

EXHIBIT 1-A: LOCATION MAP

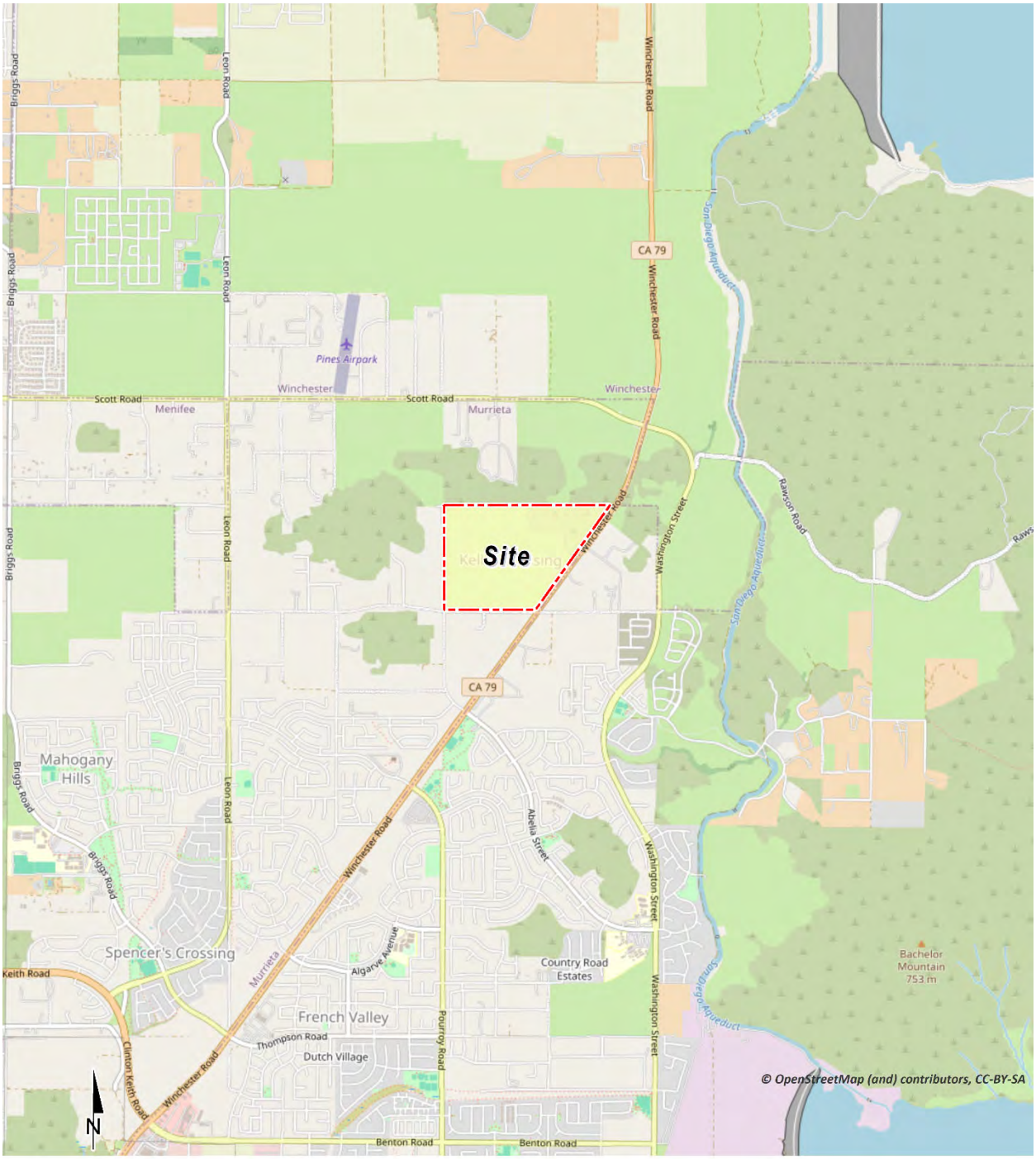
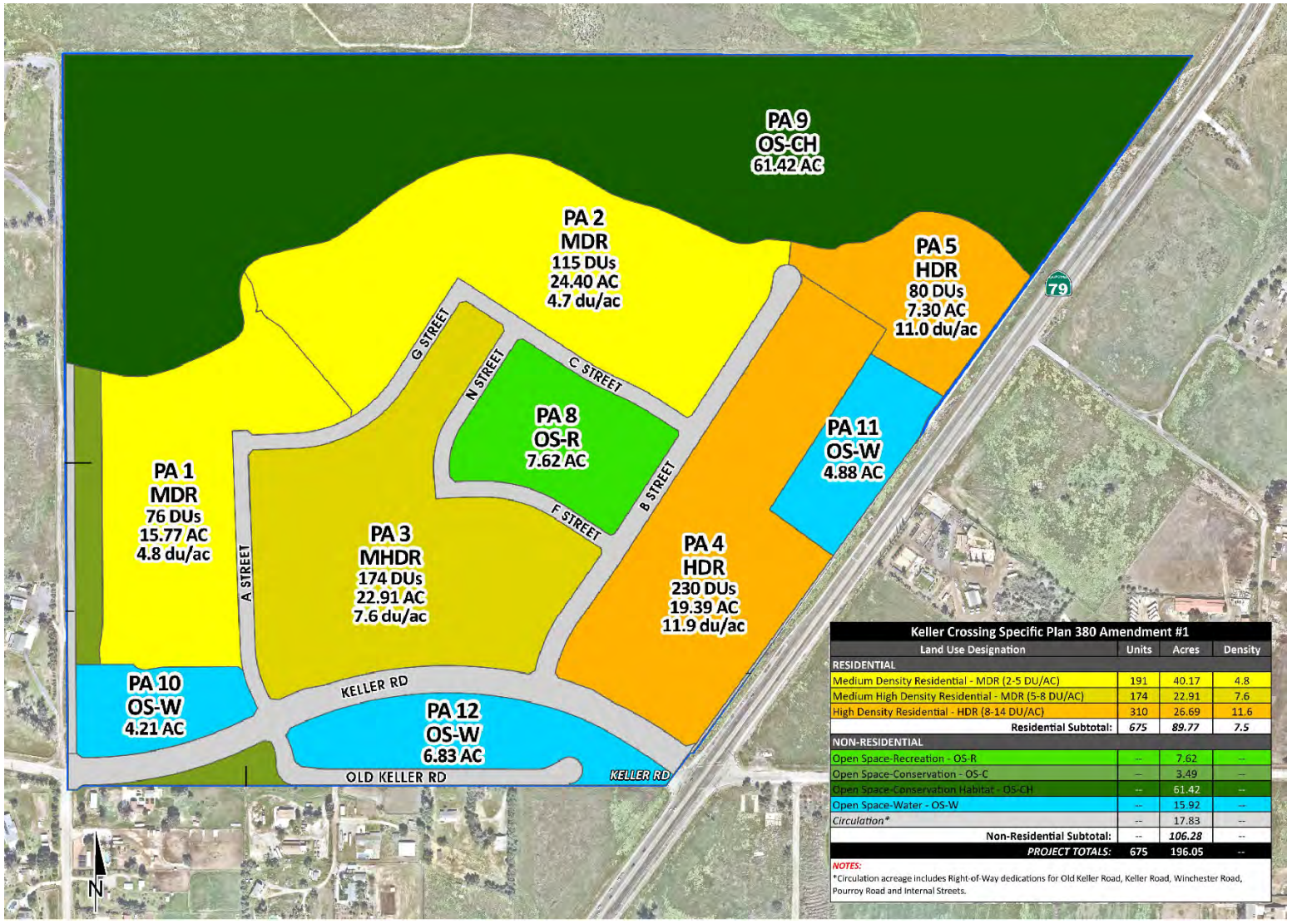


EXHIBIT 1-B: PRELIMINARY LAND USE PLAN



Keller Crossing Specific Plan 380 Amendment #1

Land Use Designation	Units	Acres	Density
RESIDENTIAL			
Medium Density Residential - MDR (2-5 DU/AC)	191	40.17	4.8
Medium High Density Residential - MDR (5-8 DU/AC)	174	22.91	7.6
High Density Residential - HDR (8-14 DU/AC)	310	26.69	11.6
Residential Subtotal:	***675***	***89.77***	***7.5***
NON-RESIDENTIAL			
Open Space-Recreation - OS-R	--	7.62	--
Open Space-Conservation - OS-C	--	3.49	--
Open Space-Conservation Habitat - OS-CH	--	61.42	--
Open Space-Water - OS-W	--	15.92	--
*Circulation**	--	17.83	--
Non-Residential Subtotal:	--	***106.28***	--
PROJECT TOTALS:	**675**	**196.05**	--

NOTES:
*Circulation acreage includes Right-of-Way dedications for Old Keller Road, Keller Road, Winchester Road, Pourroy Road and Internal Streets.

This page intentionally left blank

2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (5) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort. (6) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages rather than instantaneous noise levels. The most used metric is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady-state sound level containing the same total energy as a time-varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

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

2.3 SOUND PROPAGATION

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

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (5)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (7)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors, such as air temperature, humidity, and turbulence, can also have significant effects. (5)

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. (7) Noise barriers, however, do have limitations. For a noise barrier to work, it must block the line-of-sight path of sound from the noise source.

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop, and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (8)

2.7 COMMUNITY RESPONSE TO NOISE

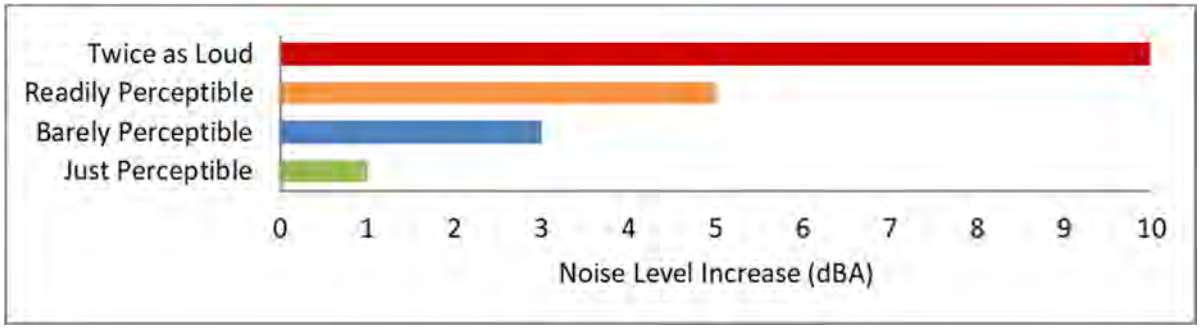
Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance, including:

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

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise, not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments. (9 pp. 8-6) Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (10) According to research originally published in the Noise Effects Handbook (9), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed at around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels, as shown in Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (7)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



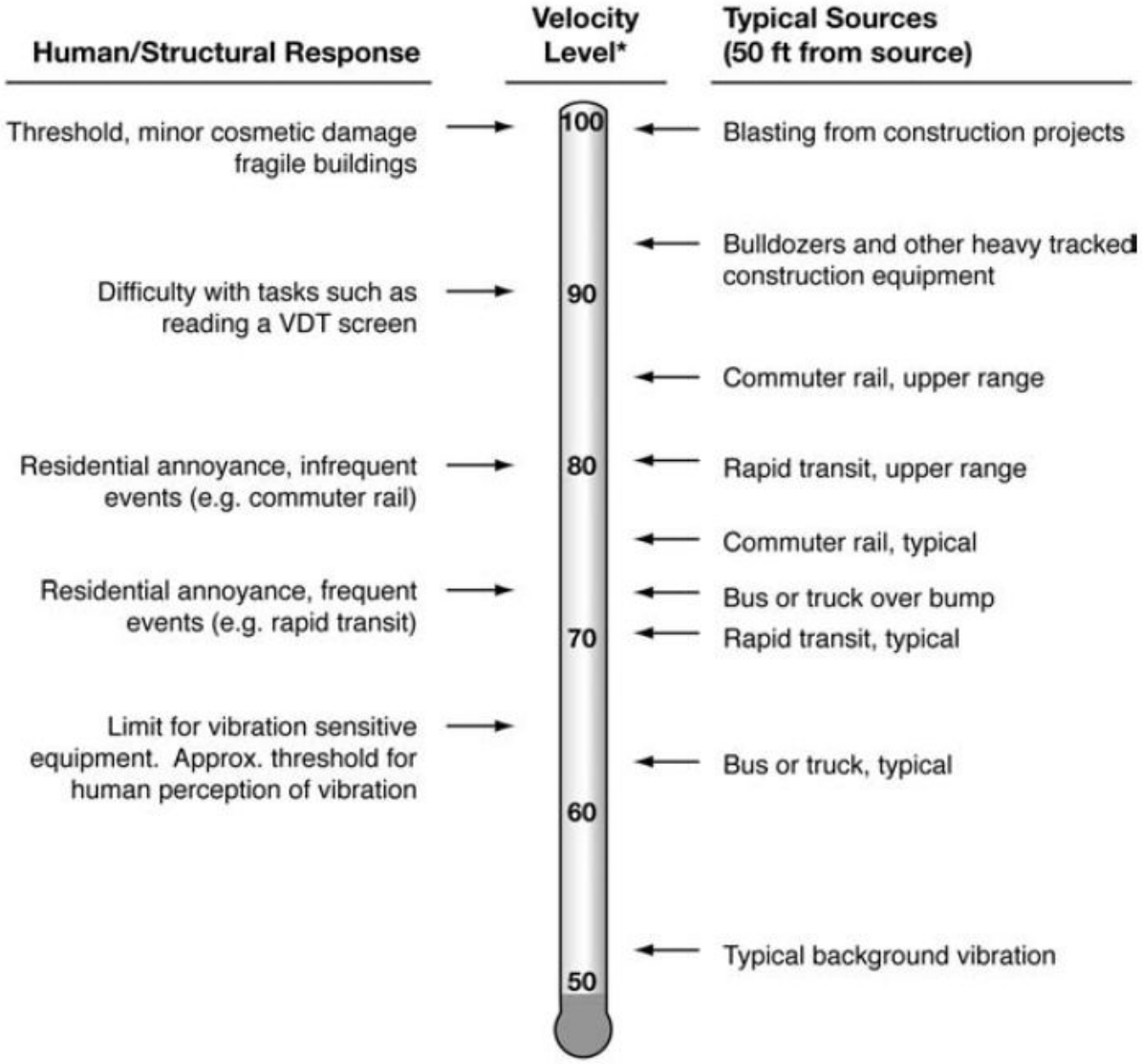
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (10) , vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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

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



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

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

3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (11) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.1.1 RESIDENTIAL CONSTRUCTION

The State of California's noise insulation standards for all residential units are codified in the California Code of Regulations (CCR), Title 24, Building Standards Administrative Code, Chapter 12, Section 1206. These noise standards are applied to new construction that contains dwelling units or sleeping units, such as residential and hotel or motel uses, in California to control interior noise levels resulting from exterior noise sources. For new buildings, the acceptable interior noise limit is 45 dBA CNEL in habitable rooms (12).

3.1.2 NON-RESIDENTIAL CONSTRUCTION

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (13) These noise standards are applied to new construction in California to control interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other noise sources. If the development falls within an airport or freeway 65 dBA CNEL noise contour, buildings shall be constructed to provide an interior noise level environment attributable to exterior sources that do not exceed an hourly equivalent level of 50 dBA L_{eq} in occupied areas during any hour of operation.

3.2 COUNTY OF RIVERSIDE GENERAL PLAN NOISE ELEMENT

The County of Riverside has adopted a Noise Element of the General Plan to control and abate environmental noise and protect the citizens of the County of Riverside from excessive exposure to noise. (14) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the Noise Element identifies several policies to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect County of Riverside residents from excessive noise, the Noise Element contains the following policies related to the Project:

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

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

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

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

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

a. 45 dBA 9-minute L_{eq} between 10:00 p.m. and 7:00 a.m.;

b. 65 dBA 9-minute L_{eq} between 7:00 a.m. and 10:00 p.m.

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

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

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

i. Temporary noise attenuation fences;

ii. Preferential location and equipment; and

iii. Use of current noise suppression technology and equipment.

N 14.1 Enforce the California Building Standards that sets standards for building construction to mitigate interior noise levels to the tolerable 45 CNEL limit. These standards are utilized in conjunction with the Uniform Building Code by the County's Building Department to

ensure that noise protection is provided to the public. Some design features may include extra-dense insulation, double-paned windows, and dense construction materials.

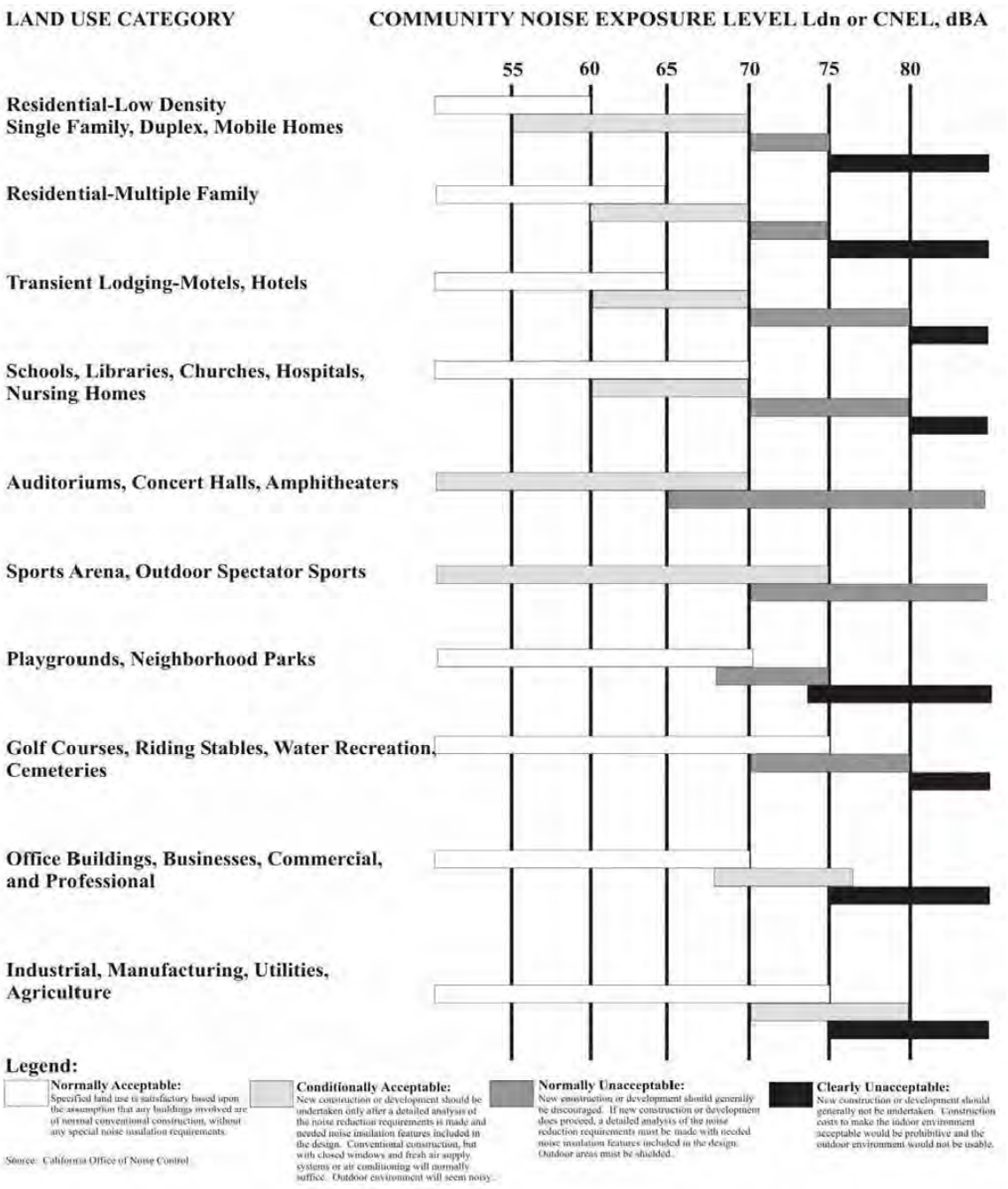
N 16.3 Prohibit exposure of residential dwellings to perceptible ground vibration from passing trains as perceived at the ground or second floor. Perceptible motion shall be presumed to be a motion velocity of 0.01 inches/second over a range of 1 to 100 Hz.

To ensure noise-sensitive land uses are protected from high levels of noise (N 1.1), Table N-1 of the Noise Element identifies guidelines to evaluate proposed developments based on exterior and interior noise level limits for land uses and requires a noise analysis to determine needed mitigation measures if necessary. The Noise Element identifies residential uses as noise-sensitive land uses (N 1.3) and discourages new development in areas with transportation-related levels of 65 dBA CNEL or greater existing ambient noise levels. To prevent and mitigate noise impacts for its residents (N 1.5), County of Riverside requires exterior noise attenuation measures for sensitive land use exposed to transportation-related noise levels higher than 65 dBA CNEL. In addition, the County of Riverside had adopted an interior noise level limit of 45 dBA CNEL (N 14.1).

Policy N 4.1 of the Noise Element sets a stationary-source exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m. and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. To prevent high levels of construction noise from impacting noise-sensitive land uses, policies N 13.1 through 13.3 identify construction noise mitigation requirements for new developments located near existing noise-sensitive land uses. Policy 16.3 establishes the vibration perception threshold for rail-related vibration levels, used in this analysis as a threshold for determining potential vibration impacts due to Project construction. (14)

3.2.1 LAND USE COMPATIBILITY GUIDELINES

The noise criteria identified in the County of Riverside Noise Element (Table N-1) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown in Exhibit 3-A, provide the County with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels. The *Land Use Compatibility for Community Noise Exposure* matrix describes categories of compatibility and not specific noise standards. The Project's single-family residential land use within Planning Areas 1 to 5 is considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, *conditionally acceptable* with exterior noise levels of up to 70 dBA CNEL, and *normally unacceptable* with exterior noise levels of up to 75 dBA CNEL. The Project's multi-family residential land use within Planning Area 6 is considered *normally acceptable* with exterior noise levels below 65 dBA CNEL, *conditionally acceptable* with exterior noise levels of up to 70 dBA CNEL, and *normally unacceptable* with exterior noise levels of up to 75 dBA CNEL. Exhibit 3-A: Land Use Compatibility for Community Noise Exposure



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

3.2.2 COUNTY OF RIVERSIDE STATIONARY NOISE STANDARDS

The County of Riverside has set hourly average L_{eq} exterior noise limits to control the stationary source associated with the Project development. The County considers noise generated using motor vehicles to be a stationary noise source when operated on private property, such as at a loading dock. These facility-related noises, as projected to any portion of any surrounding property containing a *habitable dwelling, hospital, school, library, or nursing home*, must not exceed the following worst-case noise levels. Policy N 4.1 of the County of Riverside General Plan Noise Element sets a stationary-source average L_{eq} exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L_{eq} for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. (14)

The County of Riverside Code Section 9.52.040 *General sound level standards* identify lower, more restrictive exterior noise level standards, which for the purpose of this report, are used to evaluate potential Project-related operational noise level limits instead of the higher the General Plan exterior noise level standards previously identified. The County of Riverside Municipal Code identifies exterior noise level limits of 55 dBA L_{eq} during the daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L_{eq} during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. for noise-sensitive uses. (15) The County of Riverside Municipal Code Noise Section is included in Appendix 3.1.

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

3.3 CONSTRUCTION NOISE STANDARDS

The County of Riverside does not establish quantitative construction noise standards; instead, the County has established limits to the hours of construction activities. Riverside County Ordinance No. 847 Regulating Noise Section 2i (Code Section 9.52.020[I]) indicates that noise associated with any private construction activity located within one-quarter of a mile from an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May. (15) Neither the County's General Plan nor the County Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes.

Previously approved County of Riverside noise impact analysis reports prepared by Urban Crossroads, Inc. relied on a less restrictive 85 dBA L_{eq} construction noise level threshold adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (16) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (16)

To prevent long periods of exposure to high noise levels, the Occupational Safety and Health Administration (OSHA) requires hearing protection be provided by employers in workplaces where the noise levels may, endanger the hearing of their employees, such as construction equipment operators. Standard 29 CFR, Part 1910 indicates the noise levels under which a hearing conservation program is required to be provided to workers exposed to high noise levels. (17) The noise analysis prepared by Urban Crossroads, Inc. does not evaluate the noise exposure of construction workers within the Project site based on CEQA requirements, and instead, evaluates the Project-related construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (18) Therefore, Urban Crossroads, Inc. continues to evaluate other agencies construction noise level limits to find a more appropriate threshold for assessing environmental impacts.

According to Caltrans guidance, which is often cited as reference in CEQA documents, construction noise impacts shall not exceed 86 dBA L_{max} at 50 feet from the job site activities between the hours of 9:00 p.m. to 6:00 a.m. (19) Equipment and operations are usually at or less than that level, except for blasting, pile drivers (impact or vibratory), hoe rams, pavement breakers for crack-and-seat operations, and other impact equipment. (5) The Caltrans guidance also suggests that detailed discussions of typical construction equipment noise levels are probably not necessary unless the project involves unusually sensitive receptors or nighttime work or if the project is controversial. (5) Since this limitation is only associated with nighttime activities and does not address the noise level at the point of concern, e.g., a residence, Caltrans construction criteria was similarly not considered as the appropriate threshold for environmental review.

Further research indicated U.S. Department of Transportation guidance for construction published by the Federal Transit Administration (FTA) is appropriate and based on well documented studies of the effects of construction noise. According to the FTA *Transit Noise and Vibration Impact Assessment Manual,* local noise ordinances are typically not very useful in evaluating construction noise impacts. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction

activities, the duration of the construction, and the adjacent land use. (20 p. 172) Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessments. The FTA identifies two types of construction noise assessment criteria, general and detailed. For general construction noise assessments, the analysis is limited to the two noisiest pieces of equipment with an hourly daytime exterior noise level threshold for residential land use of 90 dBA $L_{eq(1hr)}$. (20 p. 179) However, for long-term construction projects that would expose sensitive receivers to noise for extended periods of time, the FTA considers a daytime 8-hour average exterior construction noise level of 80 dBA $L_{eq(8hr)}$. The absolute FTA thresholds are intended to account for reasonable expectations regarding construction noise during the daytime hours and are intended to protect human health.

Therefore, to evaluate whether the Project will generate potentially significant short-term noise levels at nearby noise sensitive residential receiver locations, a daytime exterior construction noise level of 80 dBA L_{eq} is used as a reasonable threshold to assess construction noise level impacts based on the FTA detailed analysis construction noise criteria with a nighttime exterior construction noise level of 70 dBA L_{eq}. (20 p. 179)

3.4 CONSTRUCTION VIBRATION STANDARDS

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. (20) To analyze vibration impacts originating from the operation and construction of the Keller Crossing Specific Plan, vibration-generating activities are appropriately evaluated against standards established under the Municipal Code if such standards exist. However, the County of Riverside does not identify specific construction vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (21 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as “older residential structures” with a maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec).

4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.1 NOISE LEVEL INCREASES (THRESHOLD A)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (22) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. The *ambient noise level* is the composite of noise from all sources, excluding the alleged offensive noise. In this context, it represents the normal or existing level of environmental noise at a given location for a specified time of day or night.

4.1.1 TRANSPORTATION NOISE (SUBSTANTIAL PERMANENT NOISE LEVEL INCREASE)

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes that there is no single noise increase that renders the noise impact significant. (22) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called ambient environment.

4.1.1 NOISE SENSITIVE RECEIVERS (SUBSTANTIAL PERMANENT NOISE LEVEL INCREASE)

The Federal Interagency Committee on Noise (FICON) (23) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level.

The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (Leq). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will typically be judged.

As previously stated, the approach used in this noise study recognizes that there is no single noise increase that renders a noise impact significant, based on a 2008 California Court of Appeal ruling on *Gray v. County of Madera*. (22) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a readily perceptible 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA barely perceptible noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or readily perceptible, 3 dBA or barely perceptible, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (7) and Caltrans (24).

4.1.3 CONSTRUCTION NOISE (SUBSTANTIAL TEMPORARY NOISE LEVEL INCREASE)

To control the noise-generating construction activities, the temporary noise level increases over the existing ambient conditions must be considered under CEQA Significance Threshold A. Therefore, the Caltrans *Traffic Noise Analysis Protocol* 12 dBA L_{eq} *substantial* noise level increase threshold is used in this analysis to assess temporary noise level increases. (25) In California a substantial noise increase is considered to occur when the project's predicted noise level exceeds the existing noise level by 12 dBA or more. The use of 12 dB was established in California many years ago and is based on the concept that a 10 dB increase generally is perceived as a doubling of loudness. (25) Therefore, if the Project-related construction noise levels generate a temporary noise level increase above the existing ambient noise levels of up to 12 dBA L_{eq}, then the Project construction noise level increases will be considered a potentially significant impact.

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.5, the vibration impacts originating from the construction of the Keller Crossing Specific Plan, vibration-generating activities are appropriately evaluated using standards established by the Caltrans *Transportation and Construction Vibration Guidance Manual*, Table 19. The Caltrans' vibration thresholds for building damage are used in this noise study to assess potential operational and temporary construction-related impacts at adjacent building locations. A maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec) is used to describe the nearest residential buildings adjacent to the Project site.

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or airstrips and focuses on land use compatibility of the Project to nearby airports and airstrips. The Project site is not located within two miles of an airport or airstrip. The closest major airport is the French Valley Airport, located roughly 3.5 miles southwest of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Appendix G to the CEQA Guidelines, Noise Threshold C.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the development. Table 4-1 shows the significance criteria summary matrix that includes the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Condition(s)	Significance Criteria	
		Daytime	**Nighttime**
Off-Site Traffic[1]	If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
	If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
	If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
On-Site Traffic[2]	Exterior Noise Level Criteria	65 dBA CNEL	
	Interior Noise Level Standard	45 dBA CNEL	
Operational	Exterior Noise Level Standards[3]	55 dBA L_{eq}	45 dBA L_{eq}
	If ambient is < 60 dBA Leq[1]	≥ 5 dBA L_{eq} Project increase	
	If ambient is 60 - 65 dBA Leq[1]	≥ 3 dBA L_{eq} Project increase	
	If ambient is > 65 dBA Leq[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction	Noise Level Threshold[4]	80 dBA L_{eq}	
	Noise Level Increase	20 dBA L_{eq}	
	Vibration Level Threshold[5]	0.03 PPV (in/sec)	

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

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at six locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, September 18, 2024. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the equivalent daytime and nighttime hourly noise levels. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (26)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (5) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (10)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence because each receiver measurement represents a group of buildings that share acoustical equivalence. (10) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

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

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the equivalent or the hourly energy average sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location.

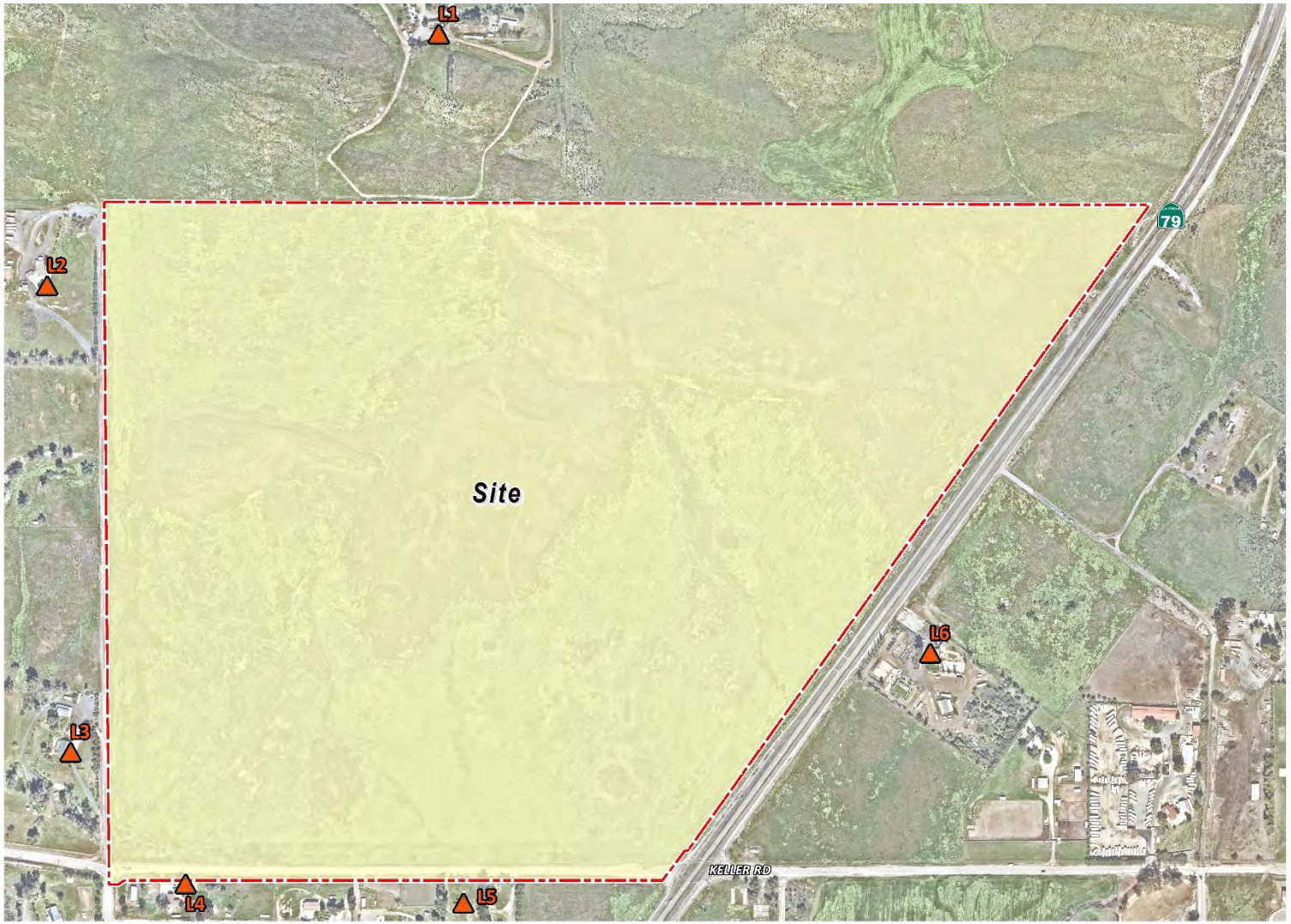
TABLE 5-1: AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]	
		Daytime	Nighttime
L1	Located north of the site near the residence at 33250 Ashford Ln	54.8	46.1
L2	Located west of the site near the residence at 33525 Pourroy Rd	54.1	41.1
L3	Located west of the site near the residence at 33975 Pourroy Rd	53.8	41.0
L4	Located south of the site near the residence at 32025 Keller Rd	47.4	36.8
L5	Located south of the site near the residence at 32187 Keller Rd	46.8	37.2
L6	Located east of the site near the retail building at 33900 Winchester Rd	64.2	57.7

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

Table 5-1 provides the equivalent noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each of the daytime and nighttime hours.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



6 TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment. Consistent with the County of Riverside *Land Use Compatibility for Community Noise Exposure* guidelines outline in Exhibit 3-A, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (27) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California, the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (28) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major, or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (29) This methodology is consistent with the County of Riverside Office of Industrial Hygiene *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures*, which specifically requires the FHWA RD-77-108 model to be used in analysis within the County's jurisdiction. (30)

6.1.1 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 25 off-site study area roadway segments, the distance from the centerline to adjacent receiving land use based on the functional roadway classifications per the County of Riverside General Plan Circulation Element and the vehicle speeds. The ADT volumes used in this study are presented in Table 6-2 and are based on the *Keller Crossing Specific Plan Traffic Impact Analysis* prepared by Urban Crossroads, Inc. for the following traffic scenarios:

1. Existing (2024) Conditions Without Project
2. Existing (2024) Conditions With Project (Project Buildout)
3. Existing plus Ambient Growth plus Cumulative (EAC) (2030) Without Project
4. Existing plus Ambient Growth plus Cumulative (EAC) (2030) With Project (Project Buildout)

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Classification[2]	Centerline Distance to Receiving Land Use[3]	Vehicle Speed (mph)
1	Menifee Rd.	n/o Scott Rd.	Sensitive	Arterial	64'	50
2	Whitewood Rd.	n/o Clinton Keith Rd.	Sensitive	Major	50'	45
3	Whitewood Rd.	s/o Clinton Keith Rd.	Sensitive	Major	50'	45
4	Leon Rd.	s/o Scott Rd.	Sensitive	Major	59'	55
5	Leon Rd.	s/o Keller Rd.	Sensitive	Major	59'	50
6	Leon Rd.	n/o Jean Nichols Rd.	Sensitive	Major	59'	50
7	Leon Rd.	s/o Jean Nichols Rd.	Sensitive	Major	59'	50
8	Winchester Rd. (SR-79)	n/o Domenigoni Pkwy.	Sensitive	Expressway	110'	45
9	Winchester Rd. (SR-79)	s/o Domenigoni Pkwy.	Sensitive	Expressway	110'	65
10	Winchester Rd. (SR-79)	n/o Scott Rd.	Sensitive	Expressway	110'	65
11	Winchester Rd. (SR-79)	s/o Scott Rd.	Sensitive	Expressway	110'	60
12	Winchester Rd. (SR-79)	n/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	Expressway	110'	60
13	Winchester Rd. (SR-79)	s/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	Expressway	110'	60
14	Winchester Rd. (SR-79)	n/o Thompson Rd.	Sensitive	Expressway	110'	60
15	Winchester Rd. (SR-79)	s/o Thompson Rd.	Sensitive	Expressway	110'	60
16	Winchester Rd. (SR-79)	n/o Via Maira Mosa/Audl Rd.	Sensitive	Expressway	110'	60
17	Winchester Rd. (SR-79)	n/o La Alba Dr./Sparkman Wy.	Sensitive	Expressway	110'	60
18	Winchester Rd. (SR-79)	s/o La Alba Dr./Sparkman Wy.	Sensitive	Expressway	110'	60
19	Scott Rd.	w/o Menifee Rd.	Sensitive	Urban Arterial	76'	55
20	Scott Rd.	e/o Menifee Rd.	Sensitive	Urban Arterial	76'	55
21	Scott Rd.	w/o Leon Rd.	Sensitive	Urban Arterial	76'	55
22	Keller Rd.	e/o Leon Rd.	Sensitive	Secondary	50'	50
23	Keller Rd.	e/o Pourroy Rd	Sensitive	Secondary	50'	50
24	Clinton Keith Rd.	w/o Whitewood Rd.	Sensitive	Urban Arterial	67'	50
25	Clinton Keith Rd.	e/o Whitewood Rd.	Sensitive	Urban Arterial	67'	50

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

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]			
			Existing (2024)		EAC (2030)	
			Without Project	With Project Buildout	Without Project	With Project Buildout
1	Menifee Rd.	n/o Scott Rd.	10,933	11,231	17,388	17,686
2	Whitewood Rd.	n/o Clinton Keith Rd.	18,578	18,578	20,922	20,922
3	Whitewood Rd.	s/o Clinton Keith Rd.	17,616	17,616	19,839	19,839
4	Leon Rd.	s/o Scott Rd.	8,047	10,135	9,063	11,151
5	Leon Rd.	s/o Keller Rd.	7,792	8,986	8,775	9,969
6	Leon Rd.	n/o Jean Nichols Rd.	8,766	9,960	10,183	11,377
7	Leon Rd.	s/o Jean Nichols Rd.	10,762	11,956	12,510	13,704
8	Winchester Rd. (SR-79)	n/o Domenigoni Pkwy.	18,712	19,608	21,075	21,971
9	Winchester Rd. (SR-79)	s/o Domenigoni Pkwy.	35,428	36,622	40,104	41,298
10	Winchester Rd. (SR-79)	n/o Scott Rd.	36,195	37,389	40,761	41,955
11	Winchester Rd. (SR-79)	s/o Scott Rd.	22,693	23,887	25,556	26,750
12	Winchester Rd. (SR-79)	n/o Whispering Heights Pkwy./Pourroy Rd.	26,199	27,393	29,505	30,699
13	Winchester Rd. (SR-79)	s/o Whispering Heights Pkwy./Pourroy Rd.	25,579	26,593	28,806	29,820
14	Winchester Rd. (SR-79)	n/o Thompson Rd.	26,455	27,469	29,793	30,807
15	Winchester Rd. (SR-79)	s/o Thompson Rd.	25,457	26,471	28,668	29,682
16	Winchester Rd. (SR-79)	n/o Via Maira Mosa/Audl Rd.	37,814	38,708	42,585	43,479
17	Winchester Rd. (SR-79)	n/o La Alba Dr./Sparkman Wy.	40,054	40,650	45,107	45,703
18	Winchester Rd. (SR-79)	s/o La Alba Dr./Sparkman Wy.	43,122	43,718	48,562	49,158
19	Scott Rd.	w/o Menifee Rd.	26,626	28,118	55,695	57,187
20	Scott Rd.	e/o Menifee Rd.	25,737	27,527	58,282	60,072
21	Scott Rd.	w/o Leon Rd.	14,110	16,198	15,890	17,978
22	Keller Rd.	e/o Leon Rd.	1,449	4,731	1,632	4,914
23	Keller Rd.	e/o Pourroy Rd	1,096	4,974	1,234	5,112
24	Clinton Keith Rd.	w/o Whitewood Rd.	34,868	36,062	39,267	40,461
25	Clinton Keith Rd.	e/o Whitewood Rd.	34,003	35,197	38,293	39,487

[1] Keller Crossing Traffic Analysis, Urban Crossroads, Inc.

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. In addition, the off-site traffic noise analysis maintains a peak hour to average daily traffic (peak-to-daily) relationship of approximately 8.08%. The *County of Riverside General Plan Noise Element* (14) requires that future on-site traffic noise impacts be assessed using the maximum capacity design standard for highways and major roads. However, this analysis relies on a comparative analysis of the off-site traffic noise impacts, without and with project ADT traffic volumes from the Project traffic study. The use of the maximum capacity design standards is typically reserved for determining the future long-range on-site traffic noise impacts, not the comparative contributions associated with the off-site Project traffic noise level impacts.

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

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

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

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

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

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

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

6.1.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-5 presents the on-site roadway parameters, including the ADT volumes used for this study. The on-site roadway parameters are based on the County of Riverside General Plan Circulation Element roadway classifications, which are consistent with the County of Riverside office of Industrial Hygiene guidance: *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures*. (30)

The maximum two-way traffic volumes at a level of service C, shown in Table 6-5, were obtained from Figure C-3 of the 2008 County of Riverside General Plan Circulation Element (31) and reflect future long-range traffic conditions needed to assess the on-site traffic noise environment and to identify the appropriate noise mitigation measures that address the worst-case future noise conditions. Consistent with the County of Riverside Office of Industrial Hygiene noise study requirements, hard site conditions were used to analyze the potential on-site traffic noise impacts for the Project study area. (30) Hard site conditions account for the sound propagation loss over a reflective surface between the source and the receiver.

TABLE 6-5: ON-SITE ROADWAY PARAMETERS

Location	Roadway Segment	Classification[1]	Lanes	Average Daily Traffic Volume[2]	Speed Limit (mph)[2]	Site Conditions[2]
PA 1, PA 3 & PA 4	Keller Rd.	Secondary	4	20,700	40	Hard
PA 4 & PA 5	Winchester Pkwy. (SR-79)	Expressway	8	65,400	40	Hard

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

This page intentionally left blank

7 OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site transportation CNEL noise level impacts associated with the development of the Project, noise contours were developed based on *Keller Crossing Specific Plan Traffic Impact Analysis*. (2) Noise contour boundaries represent equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at receiving land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate traffic noise levels. In addition, because the noise contours reflect the modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area.

Tables 7-1 through 7-4 present a summary of the exterior dBA CNEL traffic noise levels, without barrier attenuation, for the 25 study area roadway segments analyzed from the without Project to the with Project conditions in each of the following conditions:

1. Existing (2024) Without Project
2. Existing (2024) With Project (Project Buildout)
3. Existing plus Ambient Growth plus Cumulative (EAC) (2030) Without Project
4. Existing plus Ambient Growth plus Cumulative (EAC) (2030) With Project (Project Buildout)

Appendix 7.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

7.2 EXISTING (2024) PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the Project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the *Keller Crossing Specific Plan Traffic Impact Analysis* prepared by Urban Crossroads, Inc. However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the Project scenario will not actually occur since the Project would not be fully constructed and operational until future conditions when the Project is built and fully occupied. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without-Project exterior noise levels range from 58.6 to 73.6 dBA CNEL without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions range from 64.6 to 73.7 dBA CNEL. Table 7-5 shows that the Project off-site traffic noise level increases range from less than 0.1 to 6.6 dBA CNEL on the study area roadway segments.

TABLE 7-1: EXISTING (2024) NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Menifee Rd.	n/o Scott Rd.	Sensitive	67.3	RW	91	195
2	Whitewood Rd.	n/o Clinton Keith Rd.	Sensitive	70.5	54	116	249
3	Whitewood Rd.	s/o Clinton Keith Rd.	Sensitive	70.2	52	112	240
4	Leon Rd.	s/o Scott Rd.	Sensitive	67.6	RW	88	189
5	Leon Rd.	s/o Keller Rd.	Sensitive	66.4	RW	73	158
6	Leon Rd.	n/o Jean Nichols Rd.	Sensitive	66.9	RW	79	171
7	Leon Rd.	s/o Jean Nichols Rd.	Sensitive	67.8	RW	91	196
8	Winchester Rd. (SR-79)	n/o Domenigoni Pkwy.	Sensitive	64.4	RW	RW	216
9	Winchester Rd. (SR-79)	s/o Domenigoni Pkwy.	Sensitive	72.4	159	343	738
10	Winchester Rd. (SR-79)	n/o Scott Rd.	Sensitive	72.5	161	348	749
11	Winchester Rd. (SR-79)	s/o Scott Rd.	Sensitive	69.6	RW	222	479
12	Winchester Rd. (SR-79)	n/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.2	113	244	527
13	Winchester Rd. (SR-79)	s/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.1	112	241	518
14	Winchester Rd. (SR-79)	n/o Thompson Rd.	Sensitive	70.2	114	246	530
15	Winchester Rd. (SR-79)	s/o Thompson Rd.	Sensitive	70.1	111	240	517
16	Winchester Rd. (SR-79)	n/o Via Maira Mosa/Audl Rd.	Sensitive	71.8	145	312	673
17	Winchester Rd. (SR-79)	n/o La Alba Dr./Sparkman Wy.	Sensitive	72.0	151	324	699
18	Winchester Rd. (SR-79)	s/o La Alba Dr./Sparkman Wy.	Sensitive	72.4	158	341	734
19	Scott Rd.	w/o Menifee Rd.	Sensitive	71.6	97	208	448
20	Scott Rd.	e/o Menifee Rd.	Sensitive	71.4	94	203	438
21	Scott Rd.	w/o Leon Rd.	Sensitive	68.8	RW	136	293
22	Keller Rd.	e/o Leon Rd.	Sensitive	59.8	RW	RW	RW
23	Keller Rd.	e/o Pourroy Rd	Sensitive	58.6	RW	RW	RW
24	Clinton Keith Rd.	w/o Whitewood Rd.	Sensitive	73.6	116	250	538
25	Clinton Keith Rd.	e/o Whitewood Rd.	Sensitive	73.5	114	246	529

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING (2024) WITH PROJECT NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Menifee Rd.	n/o Scott Rd.	Sensitive	67.4	RW	92	199
2	Whitewood Rd.	n/o Clinton Keith Rd.	Sensitive	70.5	54	116	249
3	Whitewood Rd.	s/o Clinton Keith Rd.	Sensitive	70.2	52	112	240
4	Leon Rd.	s/o Scott Rd.	Sensitive	68.6	RW	103	221
5	Leon Rd.	s/o Keller Rd.	Sensitive	67.0	RW	81	174
6	Leon Rd.	n/o Jean Nichols Rd.	Sensitive	67.5	RW	86	186
7	Leon Rd.	s/o Jean Nichols Rd.	Sensitive	68.3	RW	98	210
8	Winchester Rd. (SR-79)	n/o Domenigoni Pkwy.	Sensitive	64.6	RW	RW	223
9	Winchester Rd. (SR-79)	s/o Domenigoni Pkwy.	Sensitive	72.5	163	350	755
10	Winchester Rd. (SR-79)	n/o Scott Rd.	Sensitive	72.6	165	355	765
11	Winchester Rd. (SR-79)	s/o Scott Rd.	Sensitive	69.8	RW	230	495
12	Winchester Rd. (SR-79)	n/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.4	117	252	543
13	Winchester Rd. (SR-79)	s/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.3	115	247	532
14	Winchester Rd. (SR-79)	n/o Thompson Rd.	Sensitive	70.4	117	252	544
15	Winchester Rd. (SR-79)	s/o Thompson Rd.	Sensitive	70.2	114	246	530
16	Winchester Rd. (SR-79)	n/o Via Maira Mosa/Audl Rd.	Sensitive	71.9	147	317	683
17	Winchester Rd. (SR-79)	n/o La Alba Dr./Sparkman Wy.	Sensitive	72.1	152	328	706
18	Winchester Rd. (SR-79)	s/o La Alba Dr./Sparkman Wy.	Sensitive	72.4	160	344	741
19	Scott Rd.	w/o Menifee Rd.	Sensitive	71.8	100	216	465
20	Scott Rd.	e/o Menifee Rd.	Sensitive	71.7	99	213	458
21	Scott Rd.	w/o Leon Rd.	Sensitive	69.4	RW	149	322
22	Keller Rd.	e/o Leon Rd.	Sensitive	64.9	RW	RW	107
23	Keller Rd.	e/o Pourroy Rd	Sensitive	65.2	RW	RW	110
24	Clinton Keith Rd.	w/o Whitewood Rd.	Sensitive	73.7	119	256	551
25	Clinton Keith Rd.	e/o Whitewood Rd.	Sensitive	73.6	117	251	542

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

TABLE 7-3: EAC (2030) NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Menifee Rd.	n/o Scott Rd.	Sensitive	69.3	RW	124	266
2	Whitewood Rd.	n/o Clinton Keith Rd.	Sensitive	71.0	58	125	269
3	Whitewood Rd.	s/o Clinton Keith Rd.	Sensitive	70.7	56	121	260
4	Leon Rd.	s/o Scott Rd.	Sensitive	68.1	RW	95	205
5	Leon Rd.	s/o Keller Rd.	Sensitive	66.9	RW	79	171
6	Leon Rd.	n/o Jean Nichols Rd.	Sensitive	67.6	RW	88	189
7	Leon Rd.	s/o Jean Nichols Rd.	Sensitive	68.5	RW	100	216
8	Winchester Rd. (SR-79)	n/o Domenigoni Pkwy.	Sensitive	64.9	RW	RW	234
9	Winchester Rd. (SR-79)	s/o Domenigoni Pkwy.	Sensitive	72.9	173	372	802
10	Winchester Rd. (SR-79)	n/o Scott Rd.	Sensitive	73.0	175	376	811
11	Winchester Rd. (SR-79)	s/o Scott Rd.	Sensitive	70.1	112	240	518
12	Winchester Rd. (SR-79)	n/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.7	123	265	570
13	Winchester Rd. (SR-79)	s/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.6	121	260	561
14	Winchester Rd. (SR-79)	n/o Thompson Rd.	Sensitive	70.8	124	266	574
15	Winchester Rd. (SR-79)	s/o Thompson Rd.	Sensitive	70.6	121	260	559
16	Winchester Rd. (SR-79)	n/o Via Maira Mosa/Audl Rd.	Sensitive	72.3	157	338	728
17	Winchester Rd. (SR-79)	n/o La Alba Dr./Sparkman Wy.	Sensitive	72.6	163	351	757
18	Winchester Rd. (SR-79)	s/o La Alba Dr./Sparkman Wy.	Sensitive	72.9	171	369	795
19	Scott Rd.	w/o Menifee Rd.	Sensitive	74.8	158	340	733
20	Scott Rd.	e/o Menifee Rd.	Sensitive	75.0	163	351	755
21	Scott Rd.	w/o Leon Rd.	Sensitive	69.3	RW	147	318
22	Keller Rd.	e/o Leon Rd.	Sensitive	60.3	RW	RW	52
23	Keller Rd.	e/o Pourroy Rd	Sensitive	59.1	RW	RW	RW
24	Clinton Keith Rd.	w/o Whitewood Rd.	Sensitive	74.1	126	270	583
25	Clinton Keith Rd.	e/o Whitewood Rd.	Sensitive	74.0	123	266	573

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

TABLE 7-4: EACP (2030) NOISE LEVEL CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Nearest Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Menifee Rd.	n/o Scott Rd.	Sensitive	69.4	RW	125	269
2	Whitewood Rd.	n/o Clinton Keith Rd.	Sensitive	71.0	58	125	269
3	Whitewood Rd.	s/o Clinton Keith Rd.	Sensitive	70.7	56	121	260
4	Leon Rd.	s/o Scott Rd.	Sensitive	69.0	RW	109	235
5	Leon Rd.	s/o Keller Rd.	Sensitive	67.5	RW	86	186
6	Leon Rd.	n/o Jean Nichols Rd.	Sensitive	68.1	RW	94	203
7	Leon Rd.	s/o Jean Nichols Rd.	Sensitive	68.9	RW	107	230
8	Winchester Rd. (SR-79)	n/o Domenigoni Pkwy.	Sensitive	65.1	RW	111	240
9	Winchester Rd. (SR-79)	s/o Domenigoni Pkwy.	Sensitive	73.1	176	380	818
10	Winchester Rd. (SR-79)	n/o Scott Rd.	Sensitive	73.1	178	384	827
11	Winchester Rd. (SR-79)	s/o Scott Rd.	Sensitive	70.3	115	248	534
12	Winchester Rd. (SR-79)	n/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.9	126	272	585
13	Winchester Rd. (SR-79)	s/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.8	124	267	574
14	Winchester Rd. (SR-79)	n/o Thompson Rd.	Sensitive	70.9	126	272	587
15	Winchester Rd. (SR-79)	s/o Thompson Rd.	Sensitive	70.7	123	266	572
16	Winchester Rd. (SR-79)	n/o Via Maira Mosa/Audl Rd.	Sensitive	72.4	159	343	738
17	Winchester Rd. (SR-79)	n/o La Alba Dr./Sparkman Wy.	Sensitive	72.6	164	354	763
18	Winchester Rd. (SR-79)	s/o La Alba Dr./Sparkman Wy.	Sensitive	72.9	173	372	801
19	Scott Rd.	w/o Menifee Rd.	Sensitive	74.9	161	346	746
20	Scott Rd.	e/o Menifee Rd.	Sensitive	75.1	166	358	771
21	Scott Rd.	w/o Leon Rd.	Sensitive	69.9	RW	160	345
22	Keller Rd.	e/o Leon Rd.	Sensitive	65.1	RW	51	109
23	Keller Rd.	e/o Pourroy Rd	Sensitive	65.3	RW	52	112
24	Clinton Keith Rd.	w/o Whitewood Rd.	Sensitive	74.2	128	276	594
25	Clinton Keith Rd.	e/o Whitewood Rd.	Sensitive	74.1	126	271	585

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

Based on the significance criteria for off-site traffic noise presented in Table 4-1, existing noise-sensitive uses on the following study area roadway segments are shown to experience *significant* off-site traffic noise level increases due to the Project traffic under Existing with Project conditions.

- Keller Road east of Leon Road (Segment #22)
- Keller Road east of Pourroy Road (Segment #23)

Section 7.5 describes the off-site traffic noise mitigation measures considered in this analysis. All other roadway segments would not experience noise level increases under Existing with Project conditions that would exceed the established thresholds of significance.

7.3 EA GROWTH PLUS CUMULATIVE (EAC) (2030) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the EAC (2030) without Project conditions CNEL noise levels. The EAC (2030) without Project exterior noise levels range from 59.1 to 75.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the EAC (2030) with Project conditions ranging from 65.1 to 75.1 dBA CNEL. Table 7-6 shows that the Project off-site traffic noise level increases range from less than 0.1 to 6.2 dBA CNEL.Gr Based on the significance criteria for off-site traffic noise presented in Table 4-1, existing noise-sensitive uses on the following study area roadway segment are shown to experience *significant* off-site traffic noise level increases due to the Project traffic under EACP 2030 with Project conditions.

- Keller Road east of Leon Road (Segment #22).
- Keller Road east of Pourroy Road (Segment #23)

7.4 OFF-SITE TRAFFIC NOISE MITIGATION

To reduce the *significant* Project traffic noise level increases on the study area roadway segment, potential noise mitigation measures are considered in this analysis. Potential mitigation measures discussed below include rubberized asphalt hot mix pavement and off-site noise barriers for the existing residential uses adjacent to impacted roadway segments.

7.4.1 OFF-SITE NOISE BARRIERS

Existing and future noise-sensitive receiving land uses are located adjacent to the impacted roadway segments in the Project study area that will experience substantial permanent traffic noise level increases. Therefore, off-site noise barriers were considered as a potential traffic noise mitigation measure to reduce the impacts. Off-site noise barriers are estimated to provide a *readily perceptible* 5 dBA reduction, which, according to the FHWA, is *simple* to attain when blocking the line of sight from the noise source to the receiver. (7)

TABLE 7-5: EXISTING (2024) PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Menifee Rd.	n/o Scott Rd.	Sensitive	67.3	67.4	0.1	Yes	1.5	No
2	Whitewood Rd.	n/o Clinton Keith Rd.	Sensitive	70.5	70.5	0.0	Yes	1.5	No
3	Whitewood Rd.	s/o Clinton Keith Rd.	Sensitive	70.2	70.2	0.0	Yes	1.5	No
4	Leon Rd.	s/o Scott Rd.	Sensitive	67.6	68.6	1.0	Yes	1.5	No
5	Leon Rd.	s/o Keller Rd.	Sensitive	66.4	67.0	0.6	Yes	1.5	No
6	Leon Rd.	n/o Jean Nichols Rd.	Sensitive	66.9	67.5	0.6	Yes	1.5	No
7	Leon Rd.	s/o Jean Nichols Rd.	Sensitive	67.8	68.3	0.5	Yes	1.5	No
8	Winchester Rd. (SR-79)	n/o Domenigoni Pkwy.	Sensitive	64.4	64.6	0.2	Yes	3.0	No
9	Winchester Rd. (SR-79)	s/o Domenigoni Pkwy.	Sensitive	72.4	72.5	0.1	Yes	1.5	No
10	Winchester Rd. (SR-79)	n/o Scott Rd.	Sensitive	72.5	72.6	0.1	Yes	1.5	No
11	Winchester Rd. (SR-79)	s/o Scott Rd.	Sensitive	69.6	69.8	0.2	Yes	1.5	No
12	Winchester Rd. (SR-79)	n/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.2	70.4	0.2	Yes	1.5	No
13	Winchester Rd. (SR-79)	s/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.1	70.3	0.2	Yes	1.5	No
14	Winchester Rd. (SR-79)	n/o Thompson Rd.	Sensitive	70.2	70.4	0.2	Yes	1.5	No
15	Winchester Rd. (SR-79)	s/o Thompson Rd.	Sensitive	70.1	70.2	0.1	Yes	1.5	No
16	Winchester Rd. (SR-79)	n/o Via Maira Mosa/Audl Rd.	Sensitive	71.8	71.9	0.1	Yes	1.5	No
17	Winchester Rd. (SR-79)	n/o La Alba Dr./Sparkman Wy.	Sensitive	72.0	72.1	0.1	Yes	1.5	No
18	Winchester Rd. (SR-79)	s/o La Alba Dr./Sparkman Wy.	Sensitive	72.4	72.4	0.0	Yes	1.5	No
19	Scott Rd.	w/o Menifee Rd.	Sensitive	71.6	71.8	0.2	Yes	1.5	No
20	Scott Rd.	e/o Menifee Rd.	Sensitive	71.4	71.7	0.3	Yes	1.5	No
21	Scott Rd.	w/o Leon Rd.	Sensitive	68.8	69.4	0.6	Yes	1.5	No
22	Keller Rd.	e/o Leon Rd.	Sensitive	59.8	64.9	5.1	Yes	5.0	**Yes**
23	Keller Rd.	e/o Pourroy Rd	Sensitive	58.6	65.2	6.6	Yes	5.0	**Yes**
24	Clinton Keith Rd.	w/o Whitewood Rd.	Sensitive	73.6	73.7	0.1	Yes	1.5	No
25	Clinton Keith Rd.	e/o Whitewood Rd.	Sensitive	73.5	73.6	0.1	Yes	1.5	No

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

TABLE 7-6: EAC (2030) PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition		Limit	Exceeded?
1	Menifee Rd.	n/o Scott Rd.	Sensitive	69.3	69.4	0.1	Yes	1.5	No
2	Whitewood Rd.	n/o Clinton Keith Rd.	Sensitive	71.0	71.0	0.0	Yes	1.5	No
3	Whitewood Rd.	s/o Clinton Keith Rd.	Sensitive	70.7	70.7	0.0	Yes	1.5	No
4	Leon Rd.	s/o Scott Rd.	Sensitive	68.1	69.0	0.9	Yes	1.5	No
5	Leon Rd.	s/o Keller Rd.	Sensitive	66.9	67.5	0.6	Yes	1.5	No
6	Leon Rd.	n/o Jean Nichols Rd.	Sensitive	67.6	68.1	0.5	Yes	1.5	No
7	Leon Rd.	s/o Jean Nichols Rd.	Sensitive	68.5	68.9	0.4	Yes	1.5	No
8	Winchester Rd. (SR-79)	n/o Domenigoni Pkwy.	Sensitive	64.9	65.1	0.2	Yes	3.0	No
9	Winchester Rd. (SR-79)	s/o Domenigoni Pkwy.	Sensitive	72.9	73.1	0.2	Yes	1.5	No
10	Winchester Rd. (SR-79)	n/o Scott Rd.	Sensitive	73.0	73.1	0.1	Yes	1.5	No
11	Winchester Rd. (SR-79)	s/o Scott Rd.	Sensitive	70.1	70.3	0.2	Yes	1.5	No
12	Winchester Rd. (SR-79)	n/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.7	70.9	0.2	Yes	1.5	No
13	Winchester Rd. (SR-79)	s/o Whispering Heights Pkwy./Pourroy Rd.	Sensitive	70.6	70.8	0.2	Yes	1.5	No
14	Winchester Rd. (SR-79)	n/o Thompson Rd.	Sensitive	70.8	70.9	0.1	Yes	1.5	No
15	Winchester Rd. (SR-79)	s/o Thompson Rd.	Sensitive	70.6	70.7	0.1	Yes	1.5	No
16	Winchester Rd. (SR-79)	n/o Via Maira Mosa/Audl Rd.	Sensitive	72.3	72.4	0.1	Yes	1.5	No
17	Winchester Rd. (SR-79)	n/o La Alba Dr./Sparkman Wy.	Sensitive	72.6	72.6	0.0	Yes	1.5	No
18	Winchester Rd. (SR-79)	s/o La Alba Dr./Sparkman Wy.	Sensitive	72.9	72.9	0.0	Yes	1.5	No
19	Scott Rd.	w/o Menifee Rd.	Sensitive	74.8	74.9	0.1	Yes	1.5	No
20	Scott Rd.	e/o Menifee Rd.	Sensitive	75.0	75.1	0.1	Yes	1.5	No
21	Scott Rd.	w/o Leon Rd.	Sensitive	69.3	69.9	0.6	Yes	1.5	No
22	Keller Rd.	e/o Leon Rd.	Sensitive	60.3	65.1	4.8	Yes	3.0	**Yes**
23	Keller Rd.	e/o Pourroy Rd	Sensitive	59.1	65.3	6.2	Yes	5.0	**Yes**
24	Clinton Keith Rd.	w/o Whitewood Rd.	Sensitive	74.1	74.2	0.1	Yes	1.5	No
25	Clinton Keith Rd.	e/o Whitewood Rd.	Sensitive	74.0	74.1	0.1	Yes	1.5	No

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

However, noise barriers are not considered feasible as barriers would require openings for driveway access to individual residential lots fronting the road, thus greatly reducing their effectiveness. As such, off-site noise barriers would not lower the off-site traffic noise levels below a level of significance, and therefore, noise barriers are not proposed as mitigation for the Project.

7.4.2 QUIET PAVEMENT

The application of quieter pavement reduces traffic noise levels at the tire-pavement interface, which has been shown to be the primary source of traffic noise when vehicles travel faster than about 30 mph. (32) Additionally, quieter pavement does not have the same physical site limitations as barriers and typically has a lower upfront cost. The noise performance of quieter pavement can degrade over time, typically 10 years, resulting in increased maintenance and rehabilitation needs for purposes of noise reduction. Rubberized Hot-Mix Asphalt (RHMA) or Open-Graded Friction Course (OGFC) pavement is considered as a mitigation measure for the Project-related roadway improvements associated with Project construction. To reduce traffic noise levels at the noise source, research has shown that rubberized asphalt can provide noise attenuation of approximately ranging from 3 to 8 dBA for automobile traffic noise levels. (32) Changing the pavement type of a roadway has been shown to reduce the amount of tire/pavement noise produced at the source under both near-term and long-term conditions. Traffic noise is generated primarily by the interaction of the tires and pavement, the engine, and exhaust systems. For automobiles noise, as much as 75 to 90-percent of traffic noise is generated by the interaction of the tires and pavement, especially when traveling at higher and constant speeds. (5) According to research conducted by Caltrans (33) and the Canadian Ministry of Transportation and Highways (34) a 4 to 6 dBA reduction in tire/pavement noise is attainable using rubberized asphalt under typical operating conditions.

To reduce the off-site traffic noise impacts at adjacent existing noise-sensitive land uses, rubberized asphalt mitigation is required for roadway Segment #22, Keller Road east of Leon Road, and Segment #23, Keller Road east of Pourroy Road, as shown in Exhibit ES-A. The use of RHMA or PGFC by the Project would serve to reduce the noise level increases at neighboring noise-sensitive land uses along these locations by at least 4 dBA. Therefore, the greatest increase of 5.0 CNEL under Existing with Project conditions would be reduced to 1.4 CNEL, and the 6.2 dBA CENL increases under the 2030 EAC conditions would be reduced to 2.2 dBA CNEL. The recommended quiet pavement mitigation measure, MM NOI-1, is outlined below and in the Executive Summary of this report.

7.4.3 RECOMMEND OFF-SITE TRAFFIC NOISE MITIGATION

With the noise reduction provided by the quiet pavement mitigation, outlined below for MM NOI-1, Project-related off-site traffic noise level increases would be reduced to *less than significant* levels.

MM NOI-1: OFF-SITE TRAFFIC EXTERIOR NOISE MITIGATION

To reduce the *significant* Project-related off-site traffic noise level impacts at existing noise-sensitive land uses, Rubberized Hot-Mix Asphalt (RHMA) or Open-Graded Friction Course (OGFC) pavement is recommended as mitigation for Keller Road east of Leon Road (Segment #22) and Keller Road east of Pourroy Road (Segment #23), as shown in Exhibit ES-A. Paving this segment with RHMA or OGFC pavement, would reduce the Project-related off-site traffic noise level increases to *less than significant*.

8 ON-SITE TRAFFIC NOISE ANALYSIS

An on-site exterior noise impact analysis has been completed to determine the noise exposure levels that would result from adjacent transportation noise sources in the Project study area and to identify potential noise mitigation measures that would achieve acceptable Project exterior and interior noise levels. The primary source of transportation noise affecting the Project site is anticipated to be from Winchester Road (SR-79) and Keller Road. The Project would also be exposed to nominal traffic noise from the Project's internal roads. However, due to the distance, topography, and low traffic volume/speed, traffic noise from these roads will not make a substantive contribution to ambient noise conditions. The section of Planning Area 4 south of Planning Area 11 is referred to as South PA 4 (SR-79) and the remaining northern section of Planning Area 4 to the west of Planning Area 11 is referred to as North PA 4 (SR-79) for the purposes of this analysis.

8.1 EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model and the parameters outlined in Tables 6-3 to 6-5, the expected future exterior noise levels for the on-site Project land uses were estimated. Table 8-1 presents a summary of future on-site exterior traffic noise levels. The on-site traffic noise analysis calculations are provided in Appendix 8.1. All future residential uses will require detailed analysis as a component of noise studies that evaluate the implementing projects within each planning area. These final noise studies would utilize any recommendations identified in this study in combination with precise grading plans and actual building design specifications to identify any additional noise abatement measures, such as exterior noise barriers and/or building materials (e.g., sound transmission class ratings for windows and doors), if necessary. The final noise study requirements are detailed in the Executive Summary.

TABLE 8-1: UNMITIGATED EXTERIOR NOISE LEVELS

Planning Area	Land Use[1]	Noise-Sensitive Land Use?	Unmitigated Exterior Noise Level (dBA CNEL)[2]	Land Use Compatibility[3]
PA 1	Single-Family Residential (MDR)	Yes	63.3	*Conditionally Acceptable*
PA 3	Single-Family Residential (MHDR)	Yes	67.9	*Conditionally Acceptable*
PA 4 (Keller Rd.)	Multi-Family Residential (HDR)	Yes	68.4	*Conditionally Acceptable*
South PA 4 (SR-79)	Multi-Family Residential (HDR)	Yes	75.4	*Clearly Unacceptable*
North PA 4 (SR-79)	Multi-Family Residential (HDR)	Yes	71.4	*Normally Unacceptable*
PA 5	Multi-Family Residential (HDR)	Yes	69.6	*Conditionally Acceptable*

[1] Project land uses as shown in Exhibit 1-A.
[2] Exterior on-site traffic noise level calculations are included in Appendix 8.1.
[3] Based on the General Plan land use compatibility guidelines as shown in Exhibit 3-A.

8.1.1 SINGLE-FAMILY RESIDENTIAL LAND USE (MDR/MHDR)

The on-site exterior traffic noise analysis indicates that the noise-sensitive outdoor living areas (backyards) for single-family residential land uses in Planning Areas 1 and 3 will experience unmitigated exterior noise levels from Keller Road ranging from 63.3 to 67.9 dBA CNEL. Based on County of Riverside *Land Use Compatibility for Community Noise Exposure* shown in Exhibit 3-A, the single-family land uses within Planning Areas 1 and 3 are considered *conditionally acceptable* with unmitigated exterior noise levels of less than 70 dBA CNEL. For *conditionally acceptable* exterior noise levels, *new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice*.

To satisfy the County of Riverside 65 dBA CNEL exterior noise level standards for the noise-sensitive residential land use, the construction of 6-foot-high noise barriers are recommended for the outdoor living areas (backyards) of single-family residential uses in Planning Area 3 facing Keller Road. With the recommended noise barriers shown in Exhibit ES-A, Table 8-2 shows that the mitigated future exterior noise levels at the outdoor living areas (backyards) of single-family residential uses in Planning Area 3 will be reduced to 57.7 dBA CNEL. This noise analysis shows that with the recommended 6-foot-high noise barriers, the Project will satisfy the County of Riverside 65 dBA CNEL exterior noise level standards for single-family residential use.

TABLE 8-2: MITIGATED FUTURE EXTERIOR NOISE LEVELS

Planning Area	Land Use[1]	Noise-Sensitive Land Use?	Mitigated Exterior Noise Level (dBA CNEL)[2]	Barrier Height (Feet)
PA 1	Single-Family Residential (MDR)	Yes	--	-
PA 3	Single-Family Residential (MHDR)	Yes	57.7	6'
PA 4 (Keller Rd.)	Multi-Family Residential (HDR)	Yes	-[3]	-[3]
South PA 4 (SR-79)	Multi-Family Residential (HDR)	Yes	-[3]	-[3]
North PA 4 (SR-79)	Multi-Family Residential (HDR)	Yes	-[3]	-[3]
PA 5	Multi-Family Residential (HDR)	Yes	-[3]	-[3]

[1] Project land uses as shown in Exhibit 1-A.
[2] Exterior on-site traffic noise level calculations are included in Appendix 8.1.
[3] Exterior noise mitigation is generally limited to single-family private outdoor living areas (backyards).
[4] Non-noise sensitive land use. No exterior noise mitigation is required.

8.1.2 MULTI-FAMILY RESIDENTIAL (HDR)

No exterior noise mitigation is required to satisfy the County of Riverside *Land Use Compatibility for Community Noise Exposure* guidelines for multi-family residential uses. Exterior noise mitigation is generally limited to noise-sensitive private outdoor living areas (backyards) for single-family residential land uses. As shown in Table 8-1, the planned multi-family residential

land use within the section of Planning Area 4, south of Planning Area 11, near Winchester Road (SR-79), will experience clearly unacceptable exterior noise levels of up to 75.4 dBA CNEL. For *clearly unacceptable* exterior noise levels, the *Land Use Compatibility for Community Noise Exposure* guidelines indicate that *new construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be cost prohibitive and the outside use areas would be unusable*. However, as shown in this analysis, the interior noise level standards can be met, and the outdoor use areas would be shielded by the buildings to reduce noise levels.

The planned multi-family residential land use in the northern section of Planning Area 4 along Winchester Road (SR-79) will experience normally unacceptable exterior noise levels of 71.4 dBA CNEL. *For normally unacceptable exterior noise levels, the Land Use Compatibility for Community Noise Exposure guidelines indicate that new construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.*

The planned multi-family residential land use in Planning Area 5 near Winchester Road (SR-79) will experience *conditionally acceptable* exterior noise levels of 69.6 dBA CNEL. For *conditionally acceptable* exterior noise levels*, the Land Use Compatibility for Community Noise Exposure guidelines* indicate that *New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.*

To demonstrate that the Project satisfies these guidelines, additional interior noise analysis is provided in this noise study to demonstrate that the Project will satisfy the General Plan Noise Element interior noise level standards. Section 8.2 presents the interior noise analysis results for the planned multi-family residential land uses.

8.1.4 EXTERIOR TRAFFIC NOISE LEVEL COMPLIANCE

Table 8-2 shows that the mitigated on-site traffic noise levels will not exceed County of Riverside 65 dBA CNEL exterior noise level standards for the noise-sensitive residential land use and represent a *less than significant* impact.

8.2 INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the interior noise level standards, future exterior noise levels were calculated at the estimated at the first and second floor building façade locations for planned residential home locations.

8.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building façade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (7) (25) However, sound leaks, cracks, and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: [1] weather-stripped solid core exterior doors; [2] upgraded dual-glazed windows; [3] mechanical ventilation/air conditioning; and [4] exterior wall/roof assemblies free of cutouts or openings.

8.2.2 INTERIOR NOISE LEVEL ASSESSMENT

To provide the necessary interior noise level reduction, Tables 8-3 and 8-4 indicate that the Project land uses along Winchester Road (SR-79) and Keller Road will require a windows-closed condition and a means of mechanical ventilation (e.g., air conditioning). Tables 8-3 and 8-4 show that the future unmitigated noise levels at the first and second-floor building façades are expected to range from 56.4 to 75.4 dBA CNEL. The interior noise assessment shows that to satisfy the interior noise level standard of 45 dBA CNEL for residential land uses in the southern section of Planning Area 4, facing Winchester Road (SR-79), upgraded windows and sliding glass doors that have minimum STC ratings of 32 should be provided to both first- and second-floor locations. Similarly, in the northern section of Planning Area 4, facing Winchester Road (SR-79), the first and second floor locations should be provided with upgraded windows and sliding glass doors with minimum STC ratings of 28. Finally, at second-floor locations in Planning Area 5, facing Winchester Road (SR-79), should be provided with upgraded windows and sliding glass doors that have a minimum STC rating of 32.

8.2.3 INTERIOR TRAFFIC NOISE LEVEL COMPLIANCE

Tables 8-3 and 8-4 show that unmitigated on-site interior traffic noise levels will exceed the County of Riverside 45 dBA CNEL interior noise level standard for residential development represents a *potentially significant* impact.

MM NOI-3: ON-SITE TRAFFIC INTERIOR NOISE ABATEMENT

To reduce the on-site interior traffic noise levels, all land uses should be provided a means of mechanical ventilation (e.g., air conditioning). In addition, the first- and second-floor units of the multi-family residential land uses in the southern and northern sections of Planning Area 4 should have upgraded windows and sliding glass doors with minimum STC ratings of 32 and 28, respectively. The second-floor units of the multi-family residential land uses in Planning Area 5 should have upgraded windows and sliding glass doors with minimum STC ratings of 32. With the mitigation measures detailed in the Executive Summary and shown in Exhibit ES-A, the on-site interior traffic noise levels would be reduced to *less than significant.*

TABLE 8-3: FIRST-FLOOR INTERIOR NOISE LEVELS (CNEL)

Planning Area	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Estimated Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold[6]	Threshold Exceeded?	Recommended STC Rating
PA 1	63.1	18.1	25	No	38.1	45.0	No	27
PA 3	56.4	11.4	25	No	31.4	45.0	No	27
PA 4 (Keller Rd.)	68.4	23.4	25	No	43.4	45.0	No	27
South PA 4 (SR-79)	75.4	30.4	25	Yes	50.4	45.0	Yes	32
North PA 4 (SR-79)	71.4	26.4	25	Yes	46.4	45.0	Yes	28
PA 5	69.6	24.6	25	Yes	44.6	45.0	No	27

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning). See Appendix 8.1.
[2] Noise reduction to satisfy the interior noise level threshold.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows?
[5] Estimated interior noise level with minimum STC 27 rating for all windows.
[6] Interior noise level threshold: 45 dBA CNEL for residential use (California Code of Regulations, Title 24, Building Standards Administrative Code) and 50 dBA CNEL for commercial uses (Based on the California Green Building Standards Code, Section 5.507.4.2).

TABLE 8-4: SECOND-FLOOR INTERIOR NOISE LEVELS (CNEL)

Planning Area	Noise Level at Façade[1]	Required Interior Noise Reduction[2]	Estimated Interior Noise Reduction[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold[6]	Threshold Exceeded?	Recommended STC Rating
PA 1	63.1	18.1	25	No	38.1	45	No	27
PA 3	65.4	20.4	25	No	40.4	45	No	27
PA 4 (Keller Rd.)	59.3	14.3	25	No	34.3	45	No	27
South PA 4 (SR-79)	75.4	30.4	25	Yes	50.4	45	Yes	32
North PA 4 (SR-79)	71.4	26.4	25	Yes	46.4	45	Yes	28
PA 5	75.0	30.0	25	Yes	50.0	45	Yes	32

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g., air conditioning). See Appendix 8.1.
[2] Noise reduction to satisfy the interior noise level threshold.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows?
[5] Estimated interior noise level with minimum STC 27 rating for all windows.
[6] Interior noise level threshold: 45 dBA CNEL for residential use (California Code of Regulations, Title 24, Building Standards Administrative Code) and 50 dBA CNEL for commercial uses (Based on the California Green Building Standards Code, Section 5.507.4.2).

This page intentionally left blank

9 SENSITIVE RECEIVER LOCATIONS

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

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

R1: Location R1 represents the existing noise sensitive residence at 33250 Ashford Lane, approximately 668 feet north of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 33525 Pourroy Road, approximately 227 feet west of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R2 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 33975 Pourroy Road, approximately 145 feet west of the Project site. R3 is placed at the private outdoor living areas (backyard) facing the Project site. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

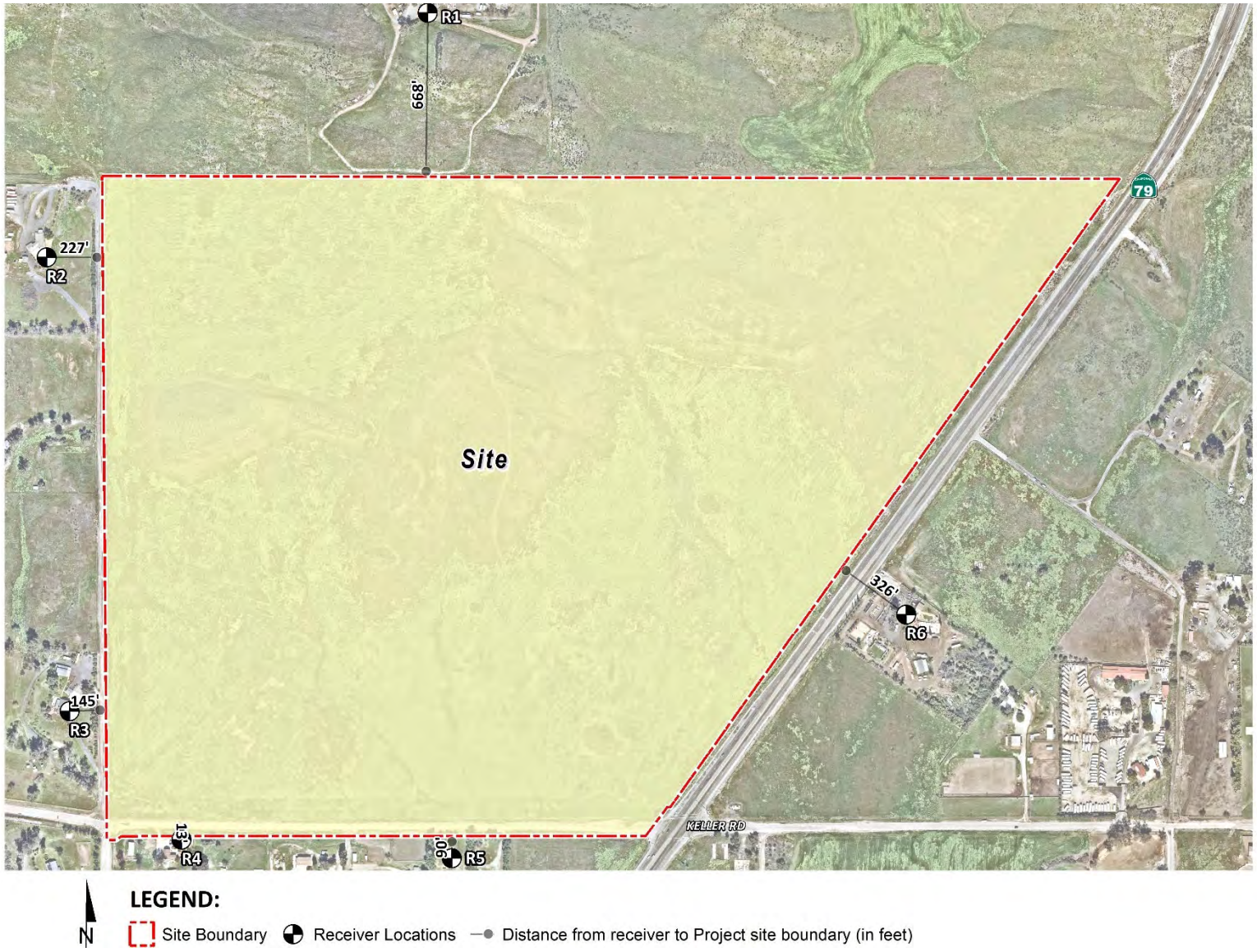
R4: Location R4 represents the existing noise sensitive residence at 32025 Keller Road, approximately 13 feet south of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R4 is placed at the residential building façade. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

R5: Location R5 represents the existing noise sensitive residence at 32187 Keller Road, approximately 90 feet south of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R5 is placed at the residential building façade. A 24-hour noise measurement near this location, L5, is used to describe the existing ambient noise environment.

R6: Location R6 represents the existing noise sensitive residence at 33900 Winchester Road, approximately 326 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R6 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L6, to describe the existing ambient noise environment.

.

EXHIBIT 9-A: RECEIVER LOCATION



This page intentionally left blank

10 OPERATIONAL NOISE IMPACTS

The Project is considered a noise-sensitive receiving land use and is not expected to include any specific type of operational noise levels beyond those typically associated with residential land uses in the Project study area. Additionally, Section 21085 of the California Public Resources Code states in part, "…for residential projects, the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment." (35) A review of the legislative record indicates the author's intent for Section 21085 was to "remove the potential for litigants to challenge residential development based on the speculation that the new residents will create unwanted noises. It would also reestablish existing precedent that minor and intermittent noise nuisances, such as from unamplified human voices, be addressed through local nuisance ordinances and not via CEQA." Consequently, activities solely associated with occupants and guests, such as the swimming pool/spa activities, dog park activities, and outdoor activities in common spaces, are not considered part of this operational noise analysis for CEQA. Based on the intent of the author of Section 21085, the operational noise sources are limited to the mechanical and non-verbal noise sources that occur onsite, including air conditioning units, trash enclosure activities, and parking lot vehicle movements.

Therefore, this section analyzes the potential operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from the operation of air conditioning units, trash enclosure activities, and parking lot vehicle movements within surface parking lots. Exhibit 10-A identifies the noise source locations used to assess the equivalent L_{eq} operational noise levels consistent with the County of Riverside General Plan Noise Element Policy N 4.1.

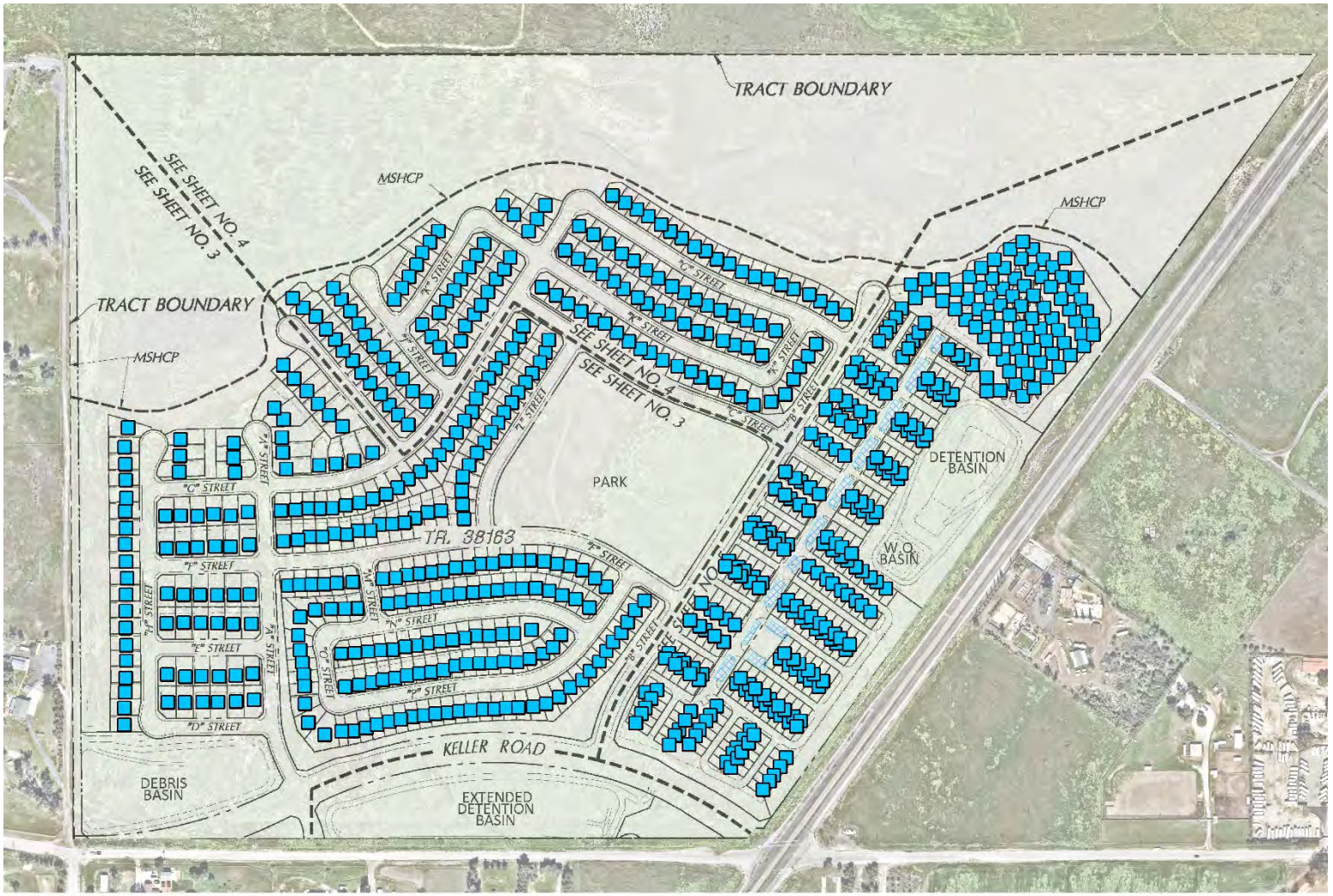
10.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical daytime and nighttime residential activities at the Project site. The operational noise sources of concern would be the air conditioning units associated with each dwelling unit are evaluated against standards established in the City of Riverside Municipal Code, Section 9.52.040, and the relative increase in noise levels at each existing sensitive receiver.

10.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities or taken from manufactures' specification sheets to represent the noise levels expected with the development of the Project. This section provides a detailed description of the reference noise levels shown in Table 9-1 used to estimate the Project's operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the air conditioning units, trash enclosure activities, and parking lot vehicle movements all operating at the same time. These sources of noise activity will likely vary throughout the day.

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS



10.2.1 MEASUREMENT PROCEDURES

Unless noted in the following descriptions, the reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precision sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, which was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (26)

TABLE 10-1: REFERENCE NOISE LEVELS

Noise Source	Noise Source Height (Feet)	Min./Hour[3]			Sound Power Level (dBA)
		Day	Night	@ 50 Feet	
Air Conditioning Units[1]	3'	45	30	44.4	76.0
Parking Lot Vehicle Movements[2]	0'	60	30	31.4	63.0

[1] Carrier 50VR-A air conditioning unit, Appendix 10.2.
[2] Based on number of parking spaces assuming 2 movements per hour multiplied by 63 Lw/meter2.
[3] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site.
"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

10.2.2 AIR CONDITIONING UNITS

To assess the noise levels created by the air conditioning units, reference noise levels were taken from equipment specifications for a 3- to 5-ton residential packaged air conditioning unit (Carrier 50VR-A). The manufacturer's specifications are included in Appendix 10.2. At a uniform reference distance of 50 feet, the units would generate a reference noise level of 44.4 dBA L_{eq}. The air conditioning units were modeled 3 feet above the roof level, operating 45 minutes per hour during the daytime and 30 minutes at nighttime, which represents the typical maximum operating time for properly sized AC systems.

10.2.3 PARKING LOT VEHICLE MOVEMENTS

Parking activities are based on the area of the parking spaces. The Project includes approximately 105 new spaces, which are assumed to have up to 2 movements per hour for a total of 210 events in an hour. Based on studies conducted in Europe and Australia, the average parking procedure, which included movement associated with either entering or exiting the parking area, parking the vehicles, and opening and closing doors, resulted in a sound power level of approximately 63 dBA Lw/square meter per event (36) (37).

10.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement)

computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613-2 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613-2 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces.

10.4 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the County of Riverside exterior noise level standards at the nearest noise-sensitive receiver locations. Based on the CadnaA noise prediction model results, which account for the noise attenuation due to distance from the noise source activities. Table 10-2 shows that the Project operational noise levels at the off-site receiver locations are expected to range from 30.3 to 34.8 dBA L_{eq} during the daytime hours, and the Project operational noise levels during the nighttime hours are expected to range from 27.5 to 32.1 dBA L_{eq}. Appendix 10.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

Table 10-4 shows that the operational noise levels associated with the Project will satisfy the County of Riverside 55 dBA L_{eq} daytime and 45 dBA L_{eq} nighttime exterior noise level standards at the nearest receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearest noise-sensitive receiver locations.

TABLE 10-2: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA L_{max})		Exterior Noise Level Standards (dBA L_{max})[2]		Noise Level Standards Exceeded?[3]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	30.3	27.5	55	45	No	No
R2	30.9	28.2	55	45	No	No
R3	34.8	32.1	55	45	No	No
R4	33.7	30.9	55	45	No	No
R5	34.4	31.7	55	45	No	No
R6	32.7	30.0	55	45	No	No

[1] See Exhibit 9-A for the receiver locations.
[2] Exterior noise level standard for residential land use as shown in Exhibit 4-1.
[3] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:01 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:00 a.m.

10.5 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearest receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (5) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented in Exhibits 10-5 and 10-6, respectively. Table 10-5 shows that the Project will not generate a measurable daytime operational noise level increase of less than 0.1 to 0.2 dBA L_{eq} at the nearest receiver locations. Table 10-6 shows that the Project will generate nighttime operational noise level increases ranging from less than 0.1 to 1.1 dBA L_{eq} at the nearest receiver locations.

Based on the significance criteria presented in Table 4-1, the Project-related operational noise level increases will satisfy the operational noise level increase criteria at the nearest sensitive receiver locations and the impact will be *less than significant.*

TABLE 10-3: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	30.3	L1	54.8	54.8	0.0	5.0	No
R2	30.9	L2	54.1	54.1	0.0	5.0	No
R3	34.8	L3	53.8	53.9	0.1	5.0	No
R4	33.7	L4	47.4	47.6	0.2	5.0	No
R5	34.4	L5	46.8	47.0	0.2	5.0	No
R6	32.7	L6	64.2	64.2	0.0	3.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown in Table 10-2.
[3] Reference noise level measurement locations as shown in Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown in Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the Project activities.
[7] Significance increase criteria as shown in Table 4-1.

TABLE 10-4: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	27.5	L1	46.1	46.2	0.1	5.0	No
R2	28.2	L2	41.1	41.3	0.2	5.0	No
R3	32.1	L3	41.0	41.5	0.5	5.0	No
R4	30.9	L4	36.8	37.8	1.0	5.0	No
R5	31.7	L5	37.2	38.3	1.1	5.0	No
R6	30.0	L6	57.7	57.7	0.0	5.0	No

[1] See Exhibit 9-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown in Table 10-2.
[3] Reference noise level measurement locations as shown in Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown in Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the Project activities.
[7] Significance increase criteria as shown in Table 4-1.

This page intentionally left blank

11 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 11-A shows the on-site construction noise source activity, including the off-site roadway and utility improvements, in relation to the nearest sensitive receiver locations previously described in Section 9. In addition to on-site construction activity, offsite improvements will be constructed as shown in Exhibit 11-B. According to Riverside County Ordinance No. 847 Regulating Noise Section 2i (Code Section 9.52.020[I]), noise associated with any private construction activity located within one-quarter of a mile from an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May. (15)

11.1 CONSTRUCTION NOISE LEVELS

The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage of construction has a specific equipment mix, depending on the work to be completed during that stage. As a result of the equipment mix, each stage has its own noise characteristics; some stages have higher continuous noise levels than others, and some have higher impact noise levels than others. The Project construction activities are expected to occur in the following stages:

- Utility Installations
- Roadway Improvements
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

11.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (38) The RCNM equipment database provides a comprehensive list of the noise-generating characteristics of specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation. According to the EPA, FTA, and FHWA, the overall construction noise level is governed primarily by the noisiest pieces of equipment. The quieter pieces do not affect the overall level, but they do reduce the magnitude of the fluctuations in the noise level. Therefore, a rough estimate of the noise level need only include the noisiest pieces of equipment expected at the site. (39) (20) (40) Consistent with FHWA and FTA guidance for detailed construction noise assessment, Table 11-1 presents the combined noise levels for the loudest construction activities expected for each stage, assuming all equipment operates simultaneously.

EXHIBIT 11-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS

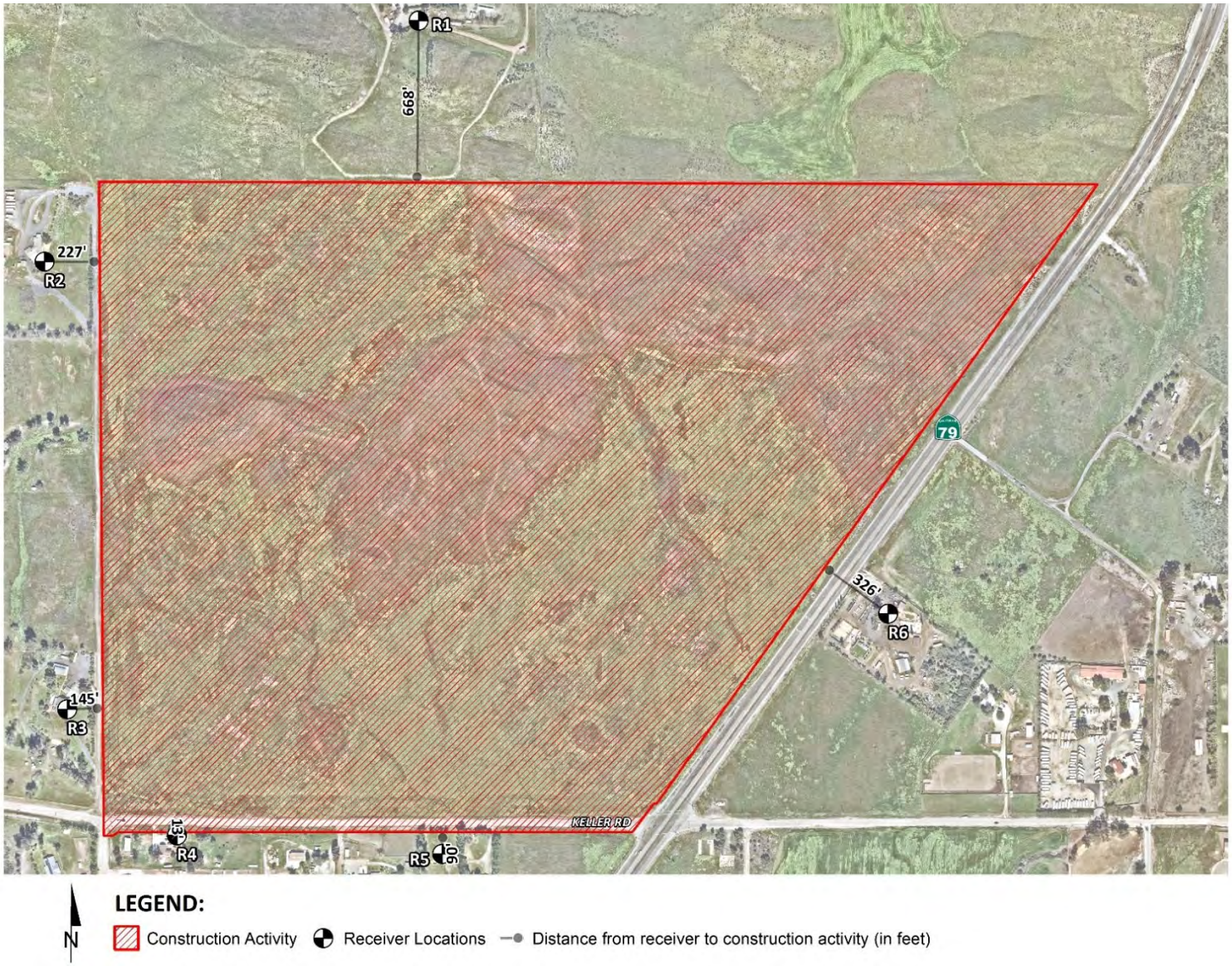


EXHIBIT 11-B: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS

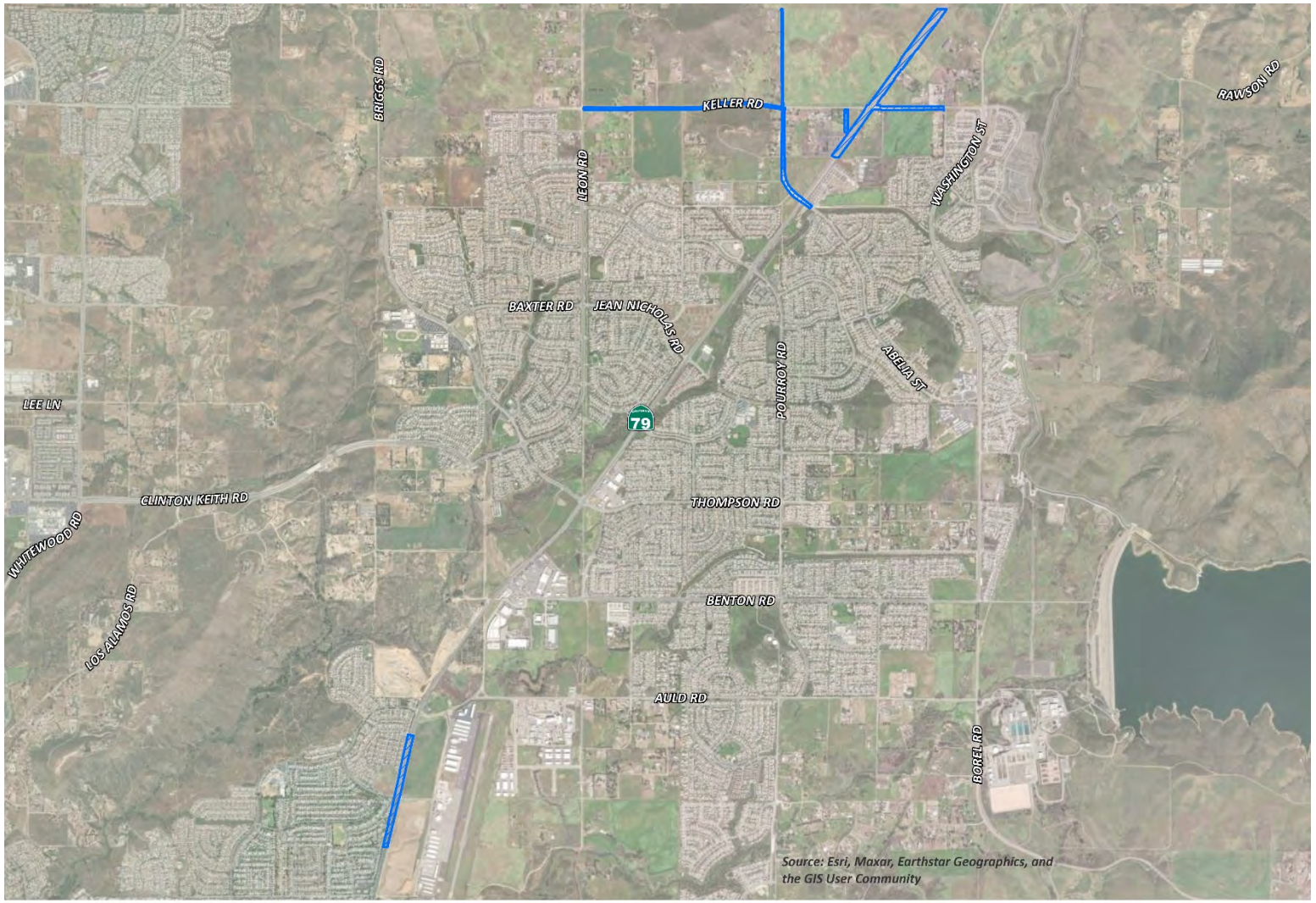


TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

Phase	Construction Stage	Equipment Type[1]	Quantity	Reference Noise Level @ 50 Feet (dBA Leq)	Combined Noise Level by Type @ 50 Feet (dBA L_{eq})	Combined Reference Noise Level by Stage @ 50 feet (dBA L_{eq})	Reference Power Level (dBA L_w)
Off-Site Utilities and Roadway	Grading	Scraper	4	80.0	86.0	86.7	118.4
		Rubber Tired Dozers	1	78.0	78.0		
		Water Truck	1	70.0	70.0		
	Sewer, Drain, Water	Excavators	2	77.0	80.0	82.4	114.0
		Rubber Tires Loaders	2	75.0	78.0		
		Water Truck	1	70.0	70.0		
	Utility Crossing	Tractors/Loaders/Backhoes	2	74.0	77.0	77.8	109.4
		Water Truck	1	70.0	70.0		
	Dry Utilities	Tractors/Loaders/Backhoes	2	74.0	77.0	77.8	109.4
		Water Truck	1	70.0	70.0		
	Curb, Gutter, Street Improvement	Grader	1	81.0	81.0	85.6	117.2
		Skid Steer Loader	1	74.0	74.0		
		Scraper	1	80.0	80.0		
		Water Truck	1	70.0	70.0		
In-Tract Utilities	Sewer, Drain, Water	Excavators	2	77.0	80.0	83.9	115.6
		Rubber Tires Loaders	2	78.0	81.0		
		Water Truck	2	70.0	73.0		
	Utility Sleeving	Tractors/Loaders/Backhoes	2	74.0	77.0	78.5	110.1
		Water Truck	2	70.0	73.0		
	Curb, Gutter, Street Improvement	Grader	1	81.0	81.0	82.1	113.7
		Skid Steer Loader	1	74.0	74.0		
		Water Truck	1	70.0	70.0		
	Dry Utilities	Tractors/Loaders/Backhoes	2	74.0	77.0	77.8	109.4
		Water Truck	1	70.0	70.0		

Phase	Construction Stage	Equipment Type[1]	Quantity	Reference Noise Level @ 50 Feet (dBA Leq)	Combined Noise Level by Type @ 50 Feet (dBA L_{eq})	Combined Reference Noise Level by Stage @ 50 feet (dBA L_{eq})	Reference Power Level (dBA L_w)
Phase 1	Grading	Scrapers	8	80.0	89.0	90.6	122.2
		Rubber Tired Dozers	5	78.0	85.0		
		Water Truck	2	70.0	73.0		
	Building Construction	Cranes	1	73.0	73.0	86.3	117.9
		Forklifts	3	79.0	83.8		
		Generator Sets	1	79.0	79.0		
		Tractors/Loaders/Backhoes	3	74.0	78.8		
		Welders	1	70.0	70.0		
	Paving	Pavers	2	74.0	77.0	81.5	113.1
		Paving Equipment	2	74.0	77.0		
		Rollers	2	73.0	76.0		
	Architectural Coating	Air Compressors	1	80.0	80.0	80.0	111.6
Phase 2	Building Construction	Cranes	1	73.0	73.0	86.3	117.9
		Forklifts	3	79.0	83.8		
		Generator Sets	1	79.0	79.0		
		Tractors/Loaders/Backhoes	3	74.0	78.8		
		Welders	1	70.0	70.0		
	Paving	Pavers	2	74.0	77.0	81.5	113.1
		Paving Equipment	2	74.0	77.0		
		Rollers	2	73.0	76.0		
	Architectural Coating	Air Compressors	1	80.0	80.0	80.0	111.6

[1] Based on the Keller Crossing Air Quality Analysis, Urban Crossroads, 2026.

11.3 CONSTRUCTION NOISE ANALYSIS

Construction projects involve various stages, and activities frequently shift from one location to another. For example, during site preparation and grading, noise-generating activities may concentrate in an area for a short period to remove an obstruction, while the majority of the grading involves the equipment moving back and forth in a predictable pattern throughout the site; building construction and foundation work generally concentrate near the building footprint, while paving generally involves a predictable pattern of movement throughout the site. Therefore, construction activities are best evaluated as multiple moving point sources within the construction area since the speed and power of the equipment vary, and the equipment constantly changes position in terms of its distance and direction relative to the receivers. (20) (41) Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts by phase at the nearby sensitive receiver locations were completed. To account for the dynamic nature of construction activities, the CadnaA construction noise analysis evaluates the noise source activities as multiple moving point sources, or construction crews, within the limits of construction. Construction impacts are based on the loudest activity and the highest noise level calculated at each receiver location. As shown in Table 10-2, the highest on-site construction noise levels are expected to range from 59.7 to 66.7 dBA L_{eq} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

TABLE 11-2: ON-SITE CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})			
	In-Tract Utilities	Phase 1	Phase 2	Highest Levels[2]
R1	53.1	59.7	55.4	59.7
R2	55.2	61.8	57.5	61.8
R3	56.7	63.3	59.0	63.3
R4	60.1	66.7	62.4	66.7
R5	57.9	64.5	60.2	64.5
R6	54.7	61.3	57.0	61.3

[1] Noise receiver locations are shown in Exhibit 11-A.
[2] Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 11.1.

11.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

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

11-3. Therefore, the noise impacts due to the Project construction noise are considered *less than significant* at all receiver locations.

TABLE 11-3: CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	59.7	80	No
R2	61.8	80	No
R3	63.3	80	No
R4	66.7	80	No
R5	64.5	80	No
R6	61.3	80	No

[1] Noise receiver locations are shown in Exhibit 11-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations, as shown in Table 11-2.
[3] Construction noise level thresholds as shown in Table 4-1.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.5 TEMPORARY CONSTRUCTION NOISE LEVEL INCREASES

To describe the temporary noise level increase associated with Project construction activities, the Project construction noise levels were combined with the existing ambient noise level measurements at the nearest off-site receiver locations, and then the difference between the combined increase and the ambient conditions was calculated. The difference between the combined Project-construction and ambient noise levels is used to describe the construction noise level increases. The temporary noise level increases that would be experienced at noise-sensitive receiver locations are presented in Table 11-4. A temporary noise level increase of 12 dBA or greater is considered a *significant* impact based on the Caltrans substantial noise level increase criteria, which for this Project is used to assess the Project-construction noise level increases. (25)

As indicated in Table 11-4, the Project construction will contribute to noise level increases ranging from 1.8 to 19.4 dBA L_{eq} during the daytime hours at the nearest receiver locations. The unmitigated construction noise analysis shows that the nearest receiver locations will exceed the *substantial* 12 dBA L_{eq} noise level increase significance threshold during Project construction activities. The temporary construction noise level increase analysis shows that the noise impacts due to Project construction noise are considered *significant* and require mitigation to reduce noise level increases.

TABLE 11-4: DAYTIME CONSTRUCTION NOISE LEVEL INCREASES -- UNMITIGATED

Receiver Location[1]	Total Project Construction Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria	Increase Criteria Exceeded?
R1	59.7	L1	54.8	60.9	6.1	12	No
R2	61.8	L2	54.1	62.5	8.4	12	No
R3	63.3	L3	53.8	63.8	10.0	12	No
R4	66.7	L4	47.4	66.8	19.4	12	**Yes**
R5	64.5	L5	46.8	64.6	17.8	12	**Yes**
R6	61.3	L6	64.2	66.0	1.8	12	No

[1] Construction noise source and receiver locations are shown in Exhibit 11-A.
[2] Total Project daytime construction noise levels as shown in Table 11-2.
[3] Reference noise level measurement locations as shown in Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown in Table 5-1.
[5] Represents the combined ambient conditions plus the Project construction activities.
[6] The noise level increase expected with the addition of the proposed Project construction activities.

11.6 CONSTRUCTION NOISE LEVEL INCREASE MITIGATION

To mitigate the Project construction noise level increases, a temporary 8-foot-high noise barrier was modeled between the construction area and Receivers R4 and R5. As indicated in Table 11-5, with the construction of a temporary noise barrier along the southern Project site boundary, as shown in Exhibit ES-1, Project construction will contribute to noise level increases ranging from 0.8 to 8.3 dBA L_{eq} during the daytime hours at the nearest receiver locations. The mitigated construction noise analysis shows that the nearest receiver locations will not exceed the *substantial* 12 dBA L_{eq} noise level increase significance threshold during Project construction activities. The temporary construction noise level increase analysis shows that with mitigation, the noise impacts due to Project construction noise are considered *less than significant*.

TABLE 11-5: DAYTIME CONSTRUCTION NOISE LEVEL INCREASES -- MITIGATED

Receiver Location[1]	Total Project Construction Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria	Increase Criteria Exceeded?
R1	53.6	L1	54.8	57.3	2.5	12	No
R2	55.7	L2	54.1	58.0	3.9	12	No
R3	57.2	L3	53.8	58.8	5.0	12	No
R4	55.0	L4	47.4	55.7	8.3	12	No
R5	53.6	L5	46.8	54.4	7.6	12	No
R6	55.2	L6	64.2	64.7	0.5	12	No

[1] Construction noise source and receiver locations are shown in Exhibit 11-A.
[2] Total Project daytime construction noise levels as shown in Table 11-2.
[3] Reference noise level measurement locations as shown in Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown in Table 5-1.
[5] Represents the combined ambient conditions plus the Project construction activities.
[6] The noise level increase expected with the addition of the proposed Project construction activities.

11.7 OFF-SITE CONSTRUCTION NOISE ANALYSIS

To support the Project development, there will be pavement removal, trenching, and paving for off-site improvements associated with roadway construction and utility installation for the Project. These off-site improvements will be constructed mostly within the existing public right-of-way (ROW). It is expected that the off-site construction activities will not take place at any one location for more than several days due to the nature of the linear construction activity. Daily roadway and in-road utility construction work typically includes an area one-third the width of the roadway and extends 200 to 300 feet in length, i.e., the area within which heavy equipment moves back and forth. This would result in a minimum distance of 150 feet from the centroid of the construction activity. Construction noise from this off-site work would be relatively short-term, and the noise levels would be reduced as construction work moves linearly along with the selected alignment and farther from sensitive uses.

As shown in Table 11-1, the loudest stage of construction associated with off-site improvements would be grading activities. Using the loudest stage of construction activity, Table 11-6 presents the estimated Project-related off-site construction noise levels at distances ranging from 25 to 200 feet from the roadway centered on the work area. At distances ranging from 25 to 200 feet, the off-site construction noise levels are estimated to range from 64.6 to 68.45 dBA L_{eq}. Since the off-site construction activities will not exceed the 80 dBA L_{eq} construction noise level standard, the noise impacts due to these off-site activities are considered *less than significant*. Appendix 11.2 includes the CadnaA off-site construction noise calculations.

TABLE 11-6: OFF-SITE CONSTRUCTION NOISE ANALYSIS

Distance From Construction (Feet)	Construction Noise Levels (dBA L_{eq})[1]		
	Construction Noise Levels (dBA L_{eq})	Threshold[2]	Threshold Exceeded?[3]
25	78.8	80	No
50	75.2	80	No
100	71.6	80	No
200	67.9	80	No

[1] Off-site construction noise calculations are included in Appendix 11.2
[2] Construction noise level thresholds as shown on Table 4-1.
[3] Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.8 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures, and soil type. It is expected that ground-borne vibration from the Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (10) However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration,

depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized in Table 11-7. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by Caltrans. To describe the human response (annoyance) associated with vibration impacts, Caltrans provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.1}$

TABLE 11-7: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089
Vibratory Roller	0.210

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided in Table 11-7 and the construction vibration assessment methodology published by Caltrans, it is possible to estimate the Project vibration impacts. Table 11-8 presents the expected Project-related vibration levels at the nearby receiver locations. At distances ranging from 13 to 668 feet from Project construction activities, construction vibration velocity levels are estimated to range from less than 0.01 to 0.31 PPV (in/sec) and will exceed the County of Riverside threshold of 0.30 PPV (in/sec) at receiver location R4, as shown in Table 11-8. Therefore, the Project-related vibration impacts are considered *significant* during the construction activities at the Project site and require mitigation.

11.9 CONSTRUCTION VIBRATION IMPACTS MITIGATION

A 15-foot equipment buffer zone is required to restrict the use of equipment with a high vibration potential, i.e., equipment (greater than 80,000 pounds), vibratory rollers, large-loaded trucks, and jackhammers, within 15 feet of occupied sensitive receivers. As shown in Table 11-9, with the mitigation measure identified in this analysis and shown in Exhibit ES-A, the mitigated vibration levels at the nearest vibration-sensitive receiver will be reduced to 0.26 PPV (in/sec) and will satisfy the 0.30 PPV (in/sec) threshold. Therefore, with mitigation, the impacts of construction vibration will be *less than significant*.

TABLE 11-8: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Receiver Levels (in/sec) RMS[2]						Threshold (in/sec) PPV[4]	Threshold Exceeded?[5]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Vibratory Roller	Peak Vibration		
R1	668'	0.00	0.00	0.00	0.00	0.00	0.00	0.30	No
R2	227'	0.00	0.00	0.00	0.01	0.01	0.01	0.30	No
R3	145'	0.00	0.00	0.01	0.01	0.02	0.02	0.30	No
R4	13'	0.00	0.05	0.11	0.13	0.31	0.31	0.30	Yes
R5	90'	0.00	0.01	0.01	0.02	0.04	0.04	0.30	No
R6	326'	0.00	0.00	0.00	0.00	0.01	0.01	0.30	No

[1] Receiver locations are shown In Exhibit 11-A.
[2] Based on the Vibration Source Levels of Construction Equipment included in Table 11-4. Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[3] Source: County of Riverside General Plan Noise Element, Policy N 16.3.
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period, but will occur only during the times that heavy construction equipment is operating adjacent to the Project site perimeter. Moreover, construction at the Project site will be restricted to the daytime hours between 6:00 a.m. and 6:00 p.m. during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May, consistent with County of Riverside requirements, thereby eliminating potential vibration impacts during the sensitive evening and nighttime hours.

TABLE 11-9: MITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Receiver Levels (in/sec) RMS[2]						Threshold (in/sec) RMS[4]	Threshold Exceeded?[5]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Vibratory Roller	Peak Vibration		
R1	668'	0.00	0.00	0.00	0.00	0.00	0.00	0.30	No
R2	227'	0.00	0.00	0.00	0.01	0.01	0.01	0.30	No
R3	145'	0.00	0.00	0.01	0.01	0.02	0.02	0.30	No
R4	15'	0.00	0.04	0.09	0.11	0.26	0.26	0.30	No
R5	90'	0.00	0.01	0.01	0.02	0.04	0.04	0.30	No
R6	326'	0.00	0.00	0.00	0.00	0.01	0.01	0.30	No

[1] Receiver locations are shown In Exhibit 11-A.
[2] Based on the Vibration Source Levels of Construction Equipment included in Table 11-4. Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[3] Source: County of Riverside General Plan Noise Element, Policy N 16.3.
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

11.10 OFF-SITE CONSTRUCTION VIBRATION ANALYSIS

Using the vibration source level of construction equipment provided in Table 11-6 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-9 presents the expected Project-related vibration levels at the nearby receiver locations. At distances 25 feet or greater from off-site Project construction activities, construction vibration velocity levels are estimated to be less than 0.16 PPV in/sec. Based on maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec), the off-site Project construction vibration levels will fall below the damage thresholds at all the receiver locations along the improvement alignment. Therefore, the Project-related vibration impacts are considered *less than significant* during off-site construction activities.

12 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **Urban Crossroads.** *Keller Crossing TTM NO. 38163.* 2025.
3. **U.S. Department of Transportation Federal Highway Administration.** Acoustical Consideration. *Noise Barrier Design Handbook.* [Online] [Cited: November 28, 2016.] https://www.fhwa.dot.gov/environment/noise/noise_barriers/design_construction/design/design03.cfm.
4. **Harris, Cyril M.** *Noise Control in Buildings.* s.l. : McGraw-Hill, Inc., 1994.
5. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
6. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
7. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
8. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
9. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
10. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
11. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
12. **State of California.** California Code of Regulations, Title 24, Part 2, Volume 1, Chapter 12, Section 1206.4, Allowable Interior Noise Level. *ICC Digital Coes.* [Online] 2019. https://codes.iccsafe.org/content/CABCV12019/chapter-12-interior-environment.
13. —. *2019 California Green Building Standards Code.* January 2020.
14. **County of Riverside.** *General Plan Noise Element.* December 2015.
15. —. *Municipal Code, Chapter 9.52 Noise Regulation.*
16. **National Institute for Occupational Safety and Health.** *Criteria for Recommended Standard: Occupational Noise Exposure.* June 1998.
17. **Occupational Safety and Health Administration.** *Standard 29 CRF, Part 1910.*
18. **Center for Disease Control and Prevention.** About Hearing Loss. [Online] [Cited: 04 15, 2016.] http://www.cdc.gov/healthyschools/noise/signs.htm.
19. **Caltrans.** *Standard Specifications in Section 14-8.02 Noise Control.*
20. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123.* September 2018.
21. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.

22. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.

23. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.

24. **California Department of Transportation.** *Technical Noise Supplement.* November 2013.

25. —. *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.* May 2011.

26. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*

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

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

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

30. **County of Riverside, Office of Industrial Hygiene.** *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures.* April 2015.

31. **County of Riverside.** *General Plan Circulation Element.* 2008.

32. **California Department of Transportation.** *Quieter Pavement: Acoustic Measurement and Performance.* 2018. CTHWANP-RT-18-365.01.1.

33. **California Department of Transportation Environmental Program.** *I-80 Davis OGAC Pavement Noise Study.* September 2001.

34. **Canadian Ministry of Transportation and Highways, Highway Environment Branch.** *Open-Graded Asphalt 'Quiet Pavement' - Assessment of Traffic Noise Reduction Performance.* November 1995.

35. **State of California.** California Public Resources Code, Section 21085. [Online] https://leginfo.legislature.ca.gov/faces/codesTOCSelected.xhtml?tocCode=PRC&tocTitle=+Public+Resources+Code+-+PRC.

36. **Bayerisches Landesamt fur Umwelt.** *Parking Area Noise, 6. Revised Edition.* 2007. ISBN 3-936385-26-2, ISSN 0723-0028.

37. *Prediction of parking area noise in Australian conditions.* **Johnson, Laurence Nicol and Paul.** Paper Number 39, s.l. : Gold Coast, Australia, 2-4 November 2011, Vol. Proceedings of ACOUSTICS 2011.

38. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.

39. **U.S. Environmental Protection Agency.** *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances.* 1971. NTID300.1.

40. **U.S. Department of Transportation, Federal Highway Administration.** Special Report - Measurement, Prediction, and Mitigation. *Office of Planning, Environment, and Realty - Environment - Noise.* [Online] 2017. https://www.fhwa.dot.gov/environment/noise/construction_noise/special_report/hcn00.cfm.

41. —. *FHWA Highway Construction Noise Handbook.* Final Report August 2006.

13 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the Keller Crossing Specific Plan Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (619) 788-1971.

William Maddux, INCE
Senior Associate
URBAN CROSSROADS, INC.
(619) 788-1971
bmaddux@urbanxroads.com

EDUCATION

Bachelor of Science in Urban and Regional Planning
California Polytechnic State University, Pomona • June 2000

PROFESSIONAL AFFILIATIONS

INCE – Institute of Noise Control Engineers
ASA – Acoustical Society of America
AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association

PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
FHWA Traffic Noise Model of Training • November 2004
CadnaA Basic and Advanced Training • March 2024

This page intentionally left blank

APPENDIX 3.1:

COUNTY OF RIVERSIDE MUNICIPAL CODE

This page intentionally left blank

Chapter 9.52 - NOISE REGULATION

Sections:

9.52.010 - Intent.

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

(Ord. 847 § 1, 2006)

9.52.020 - Exemptions.

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

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

B. Capital improvement projects of a governmental agency;

C. The maintenance or repair of public properties;

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

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

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

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

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

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

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

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

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

L. Heating and air conditioning equipment;

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

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

(Ord. 847 § 2, 2006)

9.52.030 - Definitions.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(Ord. 847 § 3, 2006)

9.52.040 - General sound level standards.

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

TABLE 1

Sound Level Standards (Db L_{max})

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

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

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

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

(Ord. 847 § 4, 2006)

9.52.050 - Sound level measurement methodology.

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

(Ord. 847 § 5, 2006)

9.52.060 - Special sound sources standards.

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

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

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

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

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

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

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

(Ord. 847 § 6, 2006)

9.52.070 - Exceptions.

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

A. Application and Processing.

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

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

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

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

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

(Ord. 847 § 7, 2006)

9.52.080 - Enforcement.

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

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

9.52.090 - Duty to cooperate.

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

(Ord. 847 § 9, 2006)

9.52.100 - Violations and penalties.

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

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

(Ord. 847 § 10, 2006)

APPENDIX 5.1:

STUDY AREA PHOTOS

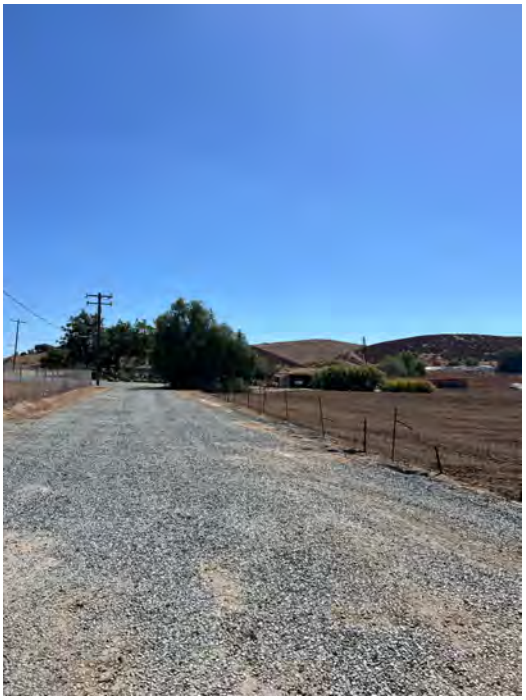
This page intentionally left blank

16056 - Keller Crossing

16056_L1_A 1.North
33, 38' 29.570000",117, 5' 49.750000"



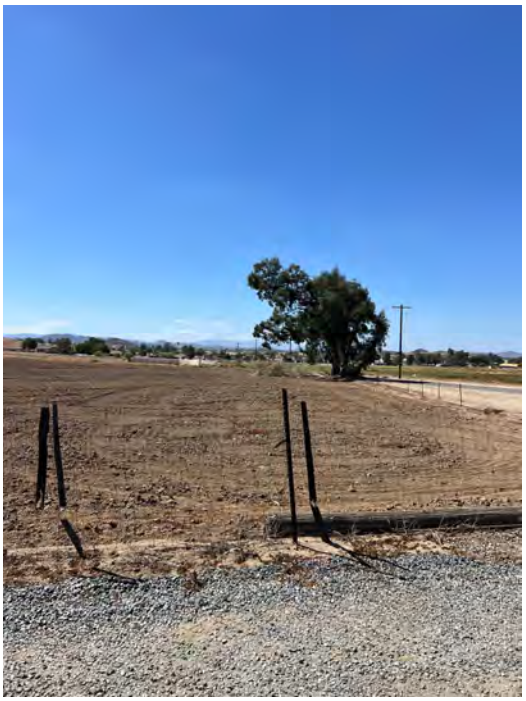
16056_L1_A 2.South
33, 38' 29.330000",117, 5' 49.670000"



16056_L1_A 3.East
33, 38' 29.350000",117, 5' 49.670000"

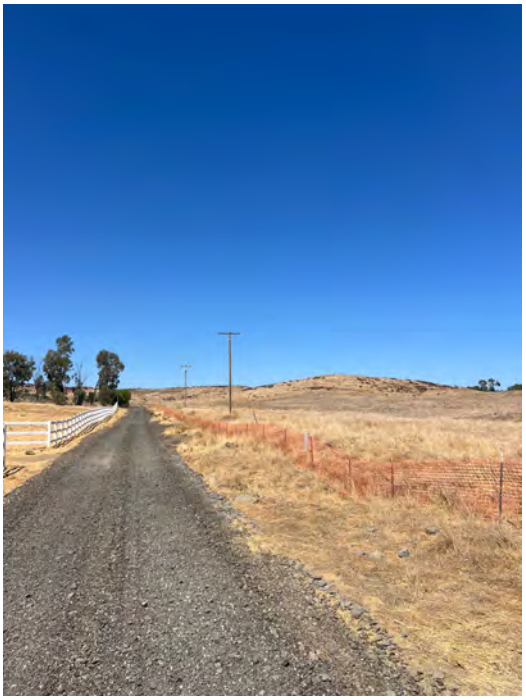


16056_L1_A 4.West
33, 38' 29.330000",117, 5' 49.750000"

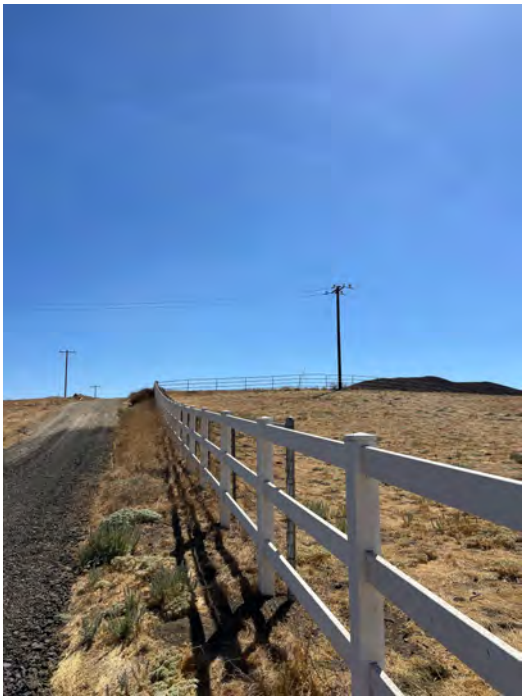


16056 - Keller Crossing

16056_L2_B 1.North
33, 37' 53.180000",117, 6' 4.940000"



16056_L2_B 2.South
33, 37' 52.910000",117, 6' 5.020000"



16056_L2_B 3.East
33, 37' 52.870000",117, 6' 4.910000"

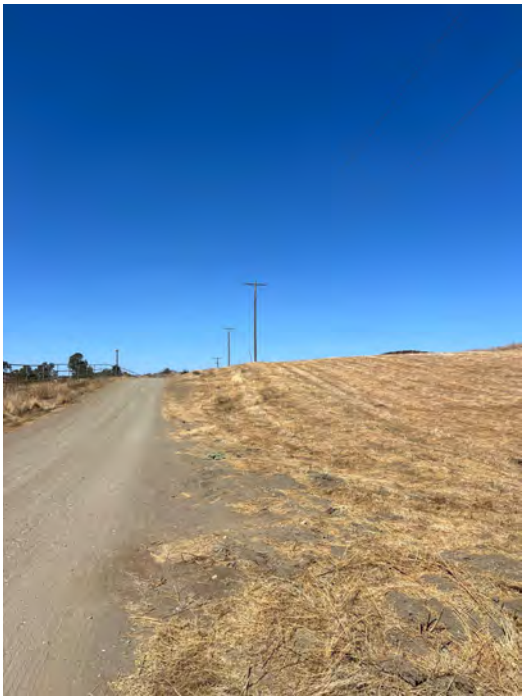


16056_L2_B 4.West
33, 37' 52.870000",117, 6' 4.970000"



16056 - Keller Crossing

16056_L3_C 1.North
33, 37' 44.900000",117, 6' 4.610000"



16056_L3_C 2.South
33, 37' 44.890000",117, 6' 4.610000"



16056_L3_C 3.East
33, 37' 44.820000",117, 6' 4.610000"

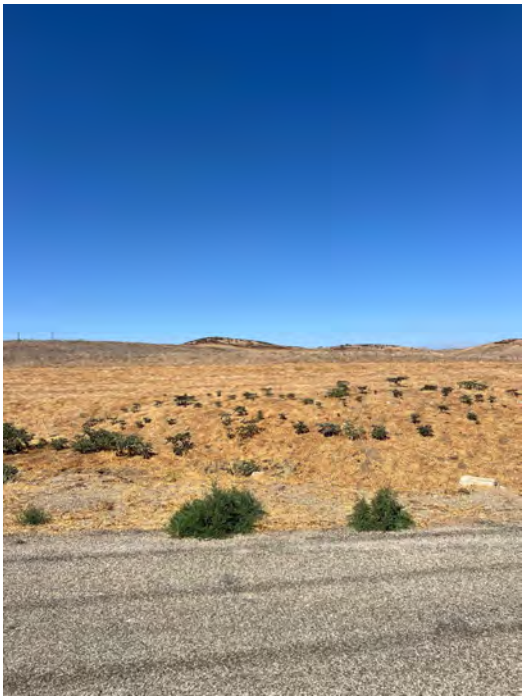


16056_L3_C 4.West
33, 37' 44.800000",117, 6' 4.660000"



16056 - Keller Crossing

16056_L4_E 1.North
33, 37' 37.760000",117, 6' 0.300000"



16056_L4_E 2.South
33, 37' 37.750000",117, 6' 0.300000"



16056_L4_E 3.East
33, 37' 37.730000",117, 6' 0.270000"



16056_L4_E 4.West
33, 37' 37.760000",117, 6' 0.520000"



16056 - Keller Crossing

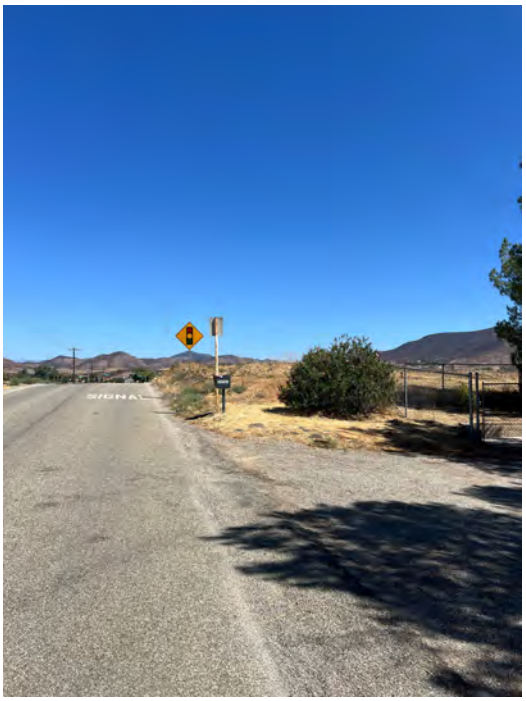
16056_L5_G 1.North
33, 37' 37.720000",117, 5' 45.770000"



16056_L5_G 2.South
33, 37' 37.700000",117, 5' 45.820000"



16056_L5_G 3.East
33, 37' 37.730000",117, 5' 45.630000"

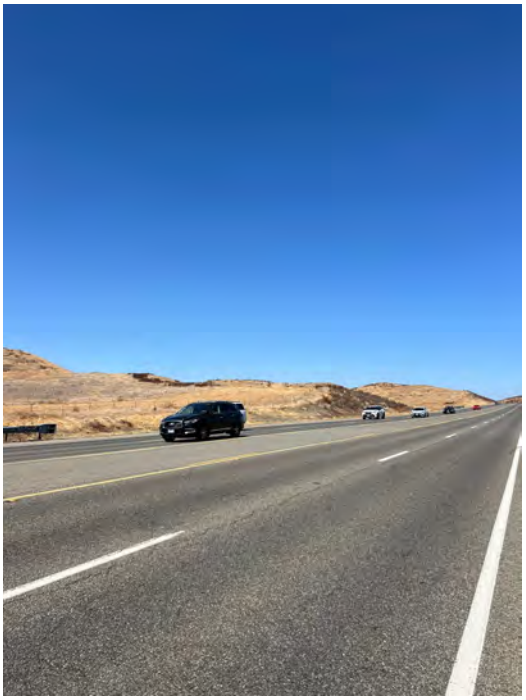


16056_L5_G 4.West
33, 37' 37.770000",117, 5' 45.740000"



16056 - Keller Crossing

16056_L6_H 1.North
33, 37' 47.170000",117, 5' 28.460000"



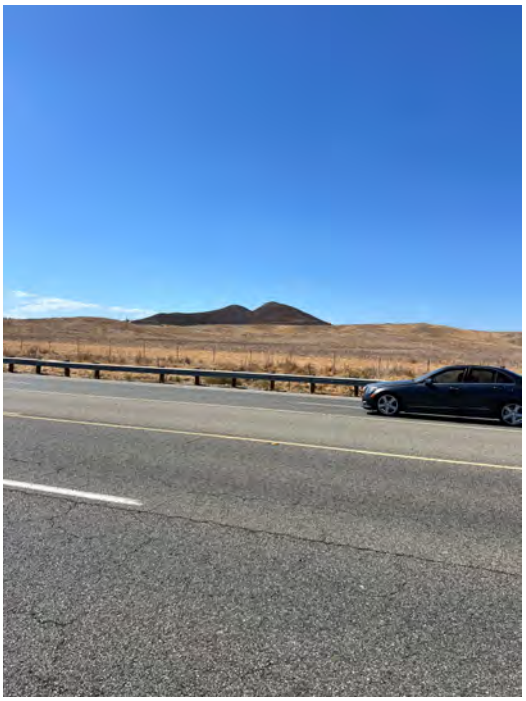
16056_L6_H 2.South
33, 37' 46.990000",117, 5' 28.550000"



16056_L6_H 3.East
33, 37' 47.000000",117, 5' 28.550000"



16056_L6_H 4.West
33, 37' 46.990000",117, 5' 28.550000"



APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

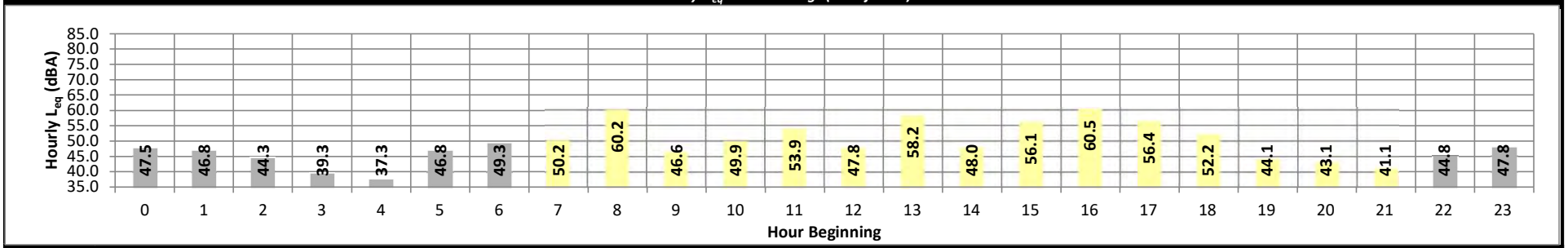
This page intentionally left blank

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 18, 2024 *Location:* L1 - Located north of the site near the residence at 33250 *Meter:* Piccolo II *JN:* 16056

Project: Keller Crossing *Source:* Ashford Ln *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	47.5	48.8	46.1	48.6	48.6	48.4	48.3	48.0	47.5	46.6	46.5	46.3	47.5	10.0	57.5
	1	46.8	47.9	45.6	47.8	47.7	47.6	47.5	47.1	46.8	46.2	45.9	45.7	46.8	10.0	56.8
	2	44.3	45.4	43.2	45.2	45.1	45.0	44.9	44.6	44.2	43.6	43.5	43.3	44.3	10.0	54.3
	3	39.3	41.5	37.5	41.3	41.1	40.9	40.7	40.0	39.0	37.9	37.8	37.6	39.3	10.0	49.3
	4	37.3	40.4	35.2	40.2	39.9	39.2	38.9	37.8	37.0	35.7	35.5	35.3	37.3	10.0	47.3
	5	46.8	50.9	44.9	50.5	50.2	49.4	48.8	47.8	45.9	45.1	45.1	44.9	46.8	10.0	56.8
	6	49.3	54.6	47.4	53.7	53.1	52.0	50.2	49.2	48.9	48.5	47.9	47.5	49.3	10.0	59.3
Day	7	50.2	61.3	40.9	59.9	58.1	56.4	55.3	50.1	45.4	41.9	41.4	41.0	50.2	0.0	50.2
	8	60.2	68.7	44.3	68.0	67.2	65.9	65.0	61.4	56.9	48.9	47.1	45.0	60.2	0.0	60.2
	9	46.6	54.0	41.4	53.3	52.5	51.3	50.1	47.0	45.1	42.7	42.3	41.7	46.6	0.0	46.6
	10	49.9	52.9	47.9	52.6	52.3	51.9	51.5	50.6	49.6	48.3	48.2	48.0	49.9	0.0	49.9
	11	53.9	58.1	50.2	57.6	57.1	56.4	56.0	54.9	53.6	51.1	50.7	50.3	53.9	0.0	53.9
	12	47.8	53.1	45.7	52.4	51.8	50.9	50.0	48.1	46.9	46.0	45.9	45.8	47.8	0.0	47.8
	13	58.2	67.8	46.8	66.8	65.9	64.4	63.3	58.5	54.9	48.9	47.8	47.0	58.2	0.0	58.2
	14	48.0	56.3	42.9	55.5	54.8	53.1	51.9	48.0	46.1	43.6	43.3	43.0	48.0	0.0	48.0
	15	56.1	68.4	42.7	67.3	65.7	62.9	61.0	54.7	51.1	44.9	44.2	43.3	56.1	0.0	56.1
	16	60.5	73.3	44.9	71.9	70.4	67.1	64.6	59.6	55.1	48.4	47.2	45.6	60.5	0.0	60.5
	17	56.4	68.7	41.7	67.4	66.2	63.0	61.6	55.2	50.1	44.4	43.4	42.1	56.4	0.0	56.4
	18	52.2	62.4	43.9	61.2	60.0	57.4	56.0	52.3	49.6	46.0	45.2	44.3	52.2	0.0	52.2
	19	44.1	54.0	38.8	52.7	51.3	48.8	47.5	44.2	42.1	39.7	39.3	38.9	44.1	5.0	49.1
	20	43.1	50.6	39.2	49.8	48.9	47.1	46.1	43.4	41.8	40.1	39.8	39.4	43.1	5.0	48.1
	21	41.1	45.6	39.7	44.8	43.9	42.9	42.6	41.4	40.7	40.0	39.9	39.8	41.1	5.0	46.1
Night	22	44.8	46.2	43.4	46.0	45.8	45.7	45.6	45.1	44.8	43.9	43.7	43.5	44.8	10.0	54.8
	23	47.8	49.3	47.0	48.9	48.8	48.5	48.4	48.0	47.8	47.4	47.3	47.1	47.8	10.0	57.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	41.1	45.6	38.8	44.8	43.9	42.9	42.6	41.4	40.7	39.7	39.3	38.9
	Max	60.5	73.3	50.2	71.9	70.4	67.1	65.0	61.4	56.9	51.1	50.7	50.3
Energy Average		54.8	Average:		58.7	57.7	56.0	54.8	51.3	48.6	45.0	44.4	43.7
Night	Min	37.3	40.4	35.2	40.2	39.9	39.2	38.9	37.8	37.0	35.7	35.5	35.3
	Max	49.3	54.6	47.4	53.7	53.1	52.0	50.2	49.2	48.9	48.5	47.9	47.5
Energy Average		46.1	Average:		46.9	46.7	46.3	45.9	45.3	44.6	43.9	43.7	43.5

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
55.4	**54.8**	**46.1**

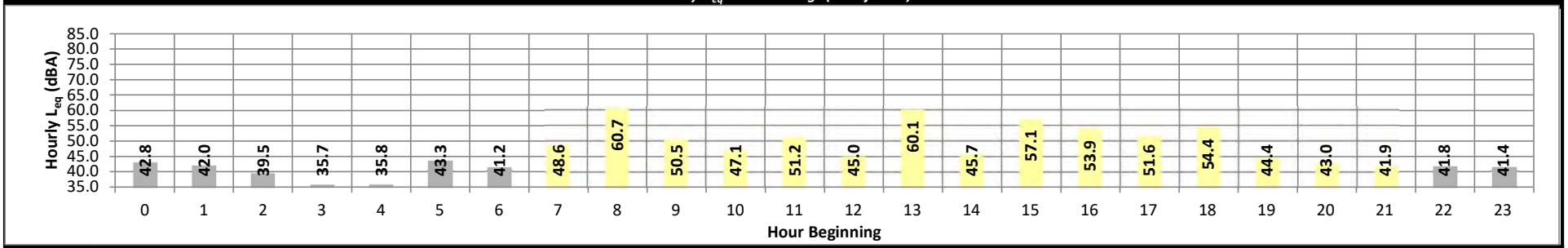
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 18, 2024 *Location:* L2 - Located west of the site near the residence at 33525 *Meter:* Piccolo II *JN:* 16056

Project: Keller Crossing *Source:* Pourroy Rd *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	42.8	44.3	41.8	44.1	43.9	43.7	43.5	43.1	42.8	42.2	42.1	41.9	42.8	10.0	52.8
	1	42.0	43.0	41.1	42.9	42.8	42.6	42.5	42.2	42.0	41.5	41.4	41.2	42.0	10.0	52.0
	2	39.5	41.4	38.5	41.0	40.7	40.3	40.1	39.8	39.5	39.0	38.9	38.7	39.5	10.0	49.5
	3	35.7	38.4	34.2	38.1	37.9	37.4	37.1	36.3	35.4	34.5	34.4	34.2	35.7	10.0	45.7
	4	35.8	38.7	33.9	38.5	38.3	37.7	37.3	36.4	35.5	34.3	34.1	34.0	35.8	10.0	45.8
	5	43.3	48.9	41.4	48.5	47.8	46.7	45.9	43.7	42.3	41.6	41.5	41.4	43.3	10.0	53.3
	6	41.2	50.7	37.3	49.8	49.2	46.4	43.6	40.5	39.4	38.1	37.8	37.5	41.2	10.0	51.2
Day	7	48.6	61.2	39.6	59.5	57.6	53.9	52.3	48.4	44.8	40.7	40.3	39.8	48.6	0.0	48.6
	8	60.7	69.6	46.3	68.7	67.7	66.3	65.3	62.2	57.8	49.0	47.7	46.6	60.7	0.0	60.7
	9	50.5	59.9	45.1	58.9	57.9	56.1	54.5	50.2	47.9	45.9	45.6	45.3	50.5	0.0	50.5
	10	47.1	52.3	42.1	51.8	51.2	50.6	50.1	48.1	46.2	43.3	42.8	42.2	47.1	0.0	47.1
	11	51.2	63.1	42.2	61.5	59.5	57.3	55.8	50.3	47.1	43.4	42.9	42.3	51.2	0.0	51.2
	12	45.0	53.1	40.2	52.1	51.4	49.8	48.6	45.5	43.3	40.9	40.6	40.3	45.0	0.0	45.0
	13	60.1	71.1	45.1	70.1	68.7	67.0	64.8	59.9	55.9	48.9	47.6	45.9	60.1	0.0	60.1
	14	45.7	55.0	39.7	53.9	52.6	50.5	49.2	45.8	43.9	40.5	40.2	39.8	45.7	0.0	45.7
	15	57.1	69.1	43.1	68.3	66.5	63.5	62.1	56.5	51.2	45.6	45.0	43.8	57.1	0.0	57.1
	16	53.9	63.9	43.1	62.8	61.8	59.8	58.4	54.4	50.5	45.2	44.5	43.5	53.9	0.0	53.9
	17	51.6	63.8	40.9	62.6	61.2	57.9	55.6	50.6	47.2	43.0	42.3	41.3	51.6	0.0	51.6
	18	54.4	64.7	44.6	63.6	62.6	60.6	59.0	54.3	50.8	46.3	45.8	45.0	54.4	0.0	54.4
	19	44.4	54.1	38.7	53.0	52.3	50.4	48.6	44.1	41.8	39.4	39.1	38.8	44.4	5.0	49.4
	20	43.0	49.9	40.3	48.9	47.8	46.1	45.4	43.1	42.1	40.9	40.7	40.5	43.0	5.0	48.0
	21	41.9	45.2	40.6	44.6	44.0	43.2	42.8	42.2	41.7	41.1	40.9	40.7	41.9	5.0	46.9
Night	22	41.8	43.6	40.3	43.3	43.1	42.8	42.7	42.2	41.8	40.8	40.6	40.4	41.8	10.0	51.8
	23	41.4	43.3	40.1	43.2	42.9	42.5	42.3	41.7	41.1	40.6	40.3	40.2	41.4	10.0	51.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	41.9	45.2	38.7	44.6	44.0	43.2	42.8	42.2	41.7	39.4	39.1	38.8
	Max	60.7	71.1	46.3	70.1	68.7	67.0	65.3	62.2	57.8	49.0	47.7	46.6
Energy Average		54.1	Average:		58.7	57.5	55.5	54.2	50.4	47.5	43.6	43.1	42.4
Night	Min	35.7	38.4	33.9	38.1	37.9	37.4	37.1	36.3	35.4	34.3	34.1	34.0
	Max	43.3	50.7	41.8	49.8	49.2	46.7	45.9	43.7	42.8	42.2	42.1	41.9
Energy Average		41.1	Average:		43.3	43.0	42.2	41.7	40.6	40.0	39.2	39.0	38.8

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
53.3	**54.1**	**41.1**

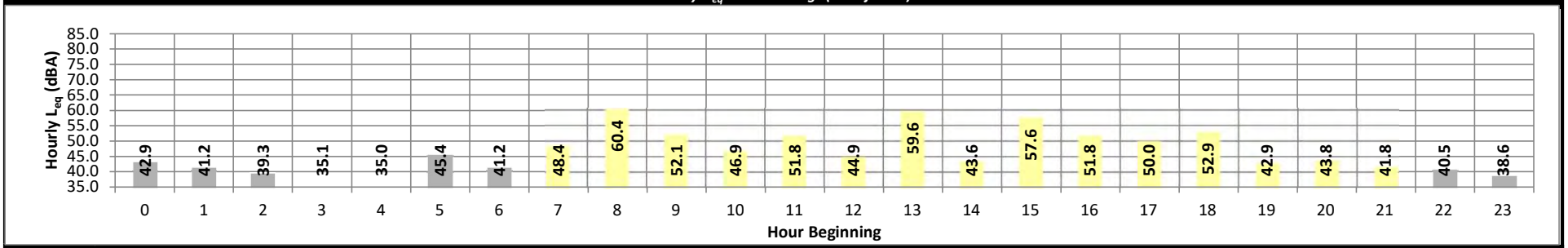
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 18, 2024 *Location:* L3 - Located west of the site near the residence at 33975 *Meter:* Piccolo II *JN:* 16056

Project: Keller Crossing *Source:* Pourroy Rd *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*	*L_{eq}*	*Adj.*	*Adj. L_{eq}*
Night	0	42.9	44.2	41.6	44.0	44.0	43.8	43.6	43.3	42.9	42.2	42.1	41.8	42.9	10.0	52.9
	1	41.2	42.2	40.3	42.0	41.9	41.8	41.7	41.4	41.2	40.7	40.6	40.4	41.2	10.0	51.2
	2	39.3	42.6	38.2	41.7	41.0	40.1	39.9	39.5	39.2	38.6	38.5	38.3	39.3	10.0	49.3
	3	35.1	38.0	33.4	37.8	37.6	37.0	36.6	35.6	34.6	33.7	33.6	33.5	35.1	10.0	45.1
	4	35.0	38.1	33.2	37.8	37.6	36.9	36.6	35.6	34.7	33.6	33.4	33.2	35.0	10.0	45.0
	5	45.4	51.6	43.3	50.9	50.0	48.9	48.3	45.7	44.3	43.6	43.5	43.4	45.4	10.0	55.4
	6	41.2	49.6	37.0	48.9	48.3	46.0	43.5	41.0	39.7	38.0	37.7	37.2	41.2	10.0	51.2
Day	7	48.4	58.6	40.1	57.1	56.0	53.8	52.5	49.5	45.4	41.2	40.7	40.2	48.4	0.0	48.4
	8	60.4	70.6	46.3	69.5	68.3	66.8	65.3	60.8	57.2	49.0	47.9	46.6	60.4	0.0	60.4
	9	52.1	62.0	46.7	61.0	60.1	57.9	56.2	51.5	49.0	47.3	47.1	46.7	52.1	0.0	52.1
	10	46.9	52.7	41.3	51.9	51.3	50.6	50.1	48.0	46.0	42.6	42.1	41.5	46.9	0.0	46.9
	11	51.8	64.8	41.3	63.3	61.4	58.4	56.0	50.2	46.6	42.3	41.9	41.4	51.8	0.0	51.8
	12	44.9	53.3	39.6	52.2	51.5	50.1	48.7	45.4	42.9	40.4	40.0	39.7	44.9	0.0	44.9
	13	59.6	71.8	44.8	70.7	69.1	65.5	64.3	59.0	55.1	49.0	47.6	45.6	59.6	0.0	59.6
	14	43.6	52.0	39.3	50.9	49.8	47.5	46.4	44.0	42.3	40.1	39.7	39.4	43.6	0.0	43.6
	15	57.6	69.9	42.4	69.2	67.4	64.1	62.5	56.8	50.8	45.2	44.5	43.1	57.6	0.0	57.6
	16	51.8	61.2	42.4	60.3	59.3	57.3	56.2	52.3	49.0	44.3	43.6	42.7	51.8	0.0	51.8
	17	50.0	62.8	39.4	61.5	60.2	56.6	54.1	48.2	44.9	41.2	40.5	39.7	50.0	0.0	50.0
	18	52.9	64.8	41.5	63.7	62.5	59.9	58.5	50.6	47.0	43.4	42.6	41.8	52.9	0.0	52.9
	19	42.9	51.4	39.0	50.2	49.2	47.3	46.0	43.1	41.4	39.6	39.4	39.1	42.9	5.0	47.9
	20	43.8	50.3	41.5	49.3	48.2	46.6	45.8	43.9	43.0	42.0	41.9	41.7	43.8	5.0	48.8
	21	41.8	45.2	40.3	44.7	44.1	43.2	42.7	42.0	41.6	40.8	40.6	40.4	41.8	5.0	46.8
Night	22	40.5	43.3	38.2	42.9	42.5	42.0	41.8	41.1	40.5	38.6	38.5	38.3	40.5	10.0	50.5
	23	38.6	40.9	37.4	40.6	40.3	39.9	39.7	38.8	38.5	37.8	37.7	37.5	38.6	10.0	48.6

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	41.8	45.2	39.0	44.7	44.1	43.2	42.7	42.0	41.4	39.6	39.4	39.1
	Max	60.4	71.8	46.7	70.7	69.1	66.8	65.3	60.8	57.2	49.0	47.9	46.7
Energy Average		53.8	Average:		58.4	57.2	55.0	53.7	49.7	46.8	43.2	42.7	42.0
Night	Min	35.0	38.0	33.2	37.8	37.6	36.9	36.6	35.6	34.6	33.6	33.4	33.2
	Max	45.4	51.6	43.3	50.9	50.0	48.9	48.3	45.7	44.3	43.6	43.5	43.4
Energy Average		41.0	Average:		43.0	42.6	41.8	41.3	40.2	39.5	38.5	38.4	38.2

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
53.0	**53.8**	**41.0**

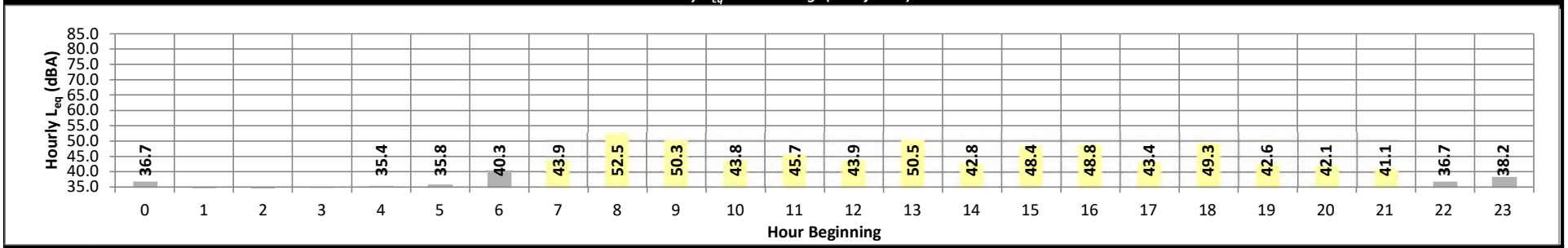
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 18, 2024 *Location:* L4 - Located south of the site near the residence at 32025 *Meter:* Piccolo II *JN:* 16056

Project: Keller Crossing *Source:* Keller Rd *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	36.7	40.1	35.1	39.8	39.4	38.9	38.6	37.2	36.2	35.3	35.2	35.1	36.7	10.0	46.7
	1	34.9	37.4	33.8	37.1	36.8	36.3	36.1	35.2	34.6	34.1	34.0	33.9	34.9	10.0	44.9
	2	33.6	35.4	32.8	35.1	34.9	34.5	34.3	33.8	33.4	33.0	32.9	32.8	33.6	10.0	43.6
	3	34.9	38.2	33.2	38.0	37.8	37.3	37.1	35.7	34.2	33.4	33.3	33.2	34.9	10.0	44.9
	4	35.4	38.7	33.6	38.4	38.0	37.3	37.0	35.8	35.0	34.0	33.8	33.7	35.4	10.0	45.4
	5	35.8	41.0	33.6	40.4	39.8	38.4	37.7	36.1	35.2	34.1	33.9	33.7	35.8	10.0	45.8
	6	40.3	47.9	36.2	47.1	46.3	44.0	42.9	40.9	39.2	37.1	36.8	36.3	40.3	10.0	50.3
Day	7	43.9	51.3	39.4	50.4	49.5	47.9	46.9	44.4	42.7	40.4	40.0	39.6	43.9	0.0	43.9
	8	52.5	63.8	41.7	62.2	61.1	58.4	56.8	52.6	48.4	43.1	42.5	41.9	52.5	0.0	52.5
	9	50.3	57.7	47.6	56.6	55.4	53.2	52.3	50.5	49.3	48.0	47.9	47.7	50.3	0.0	50.3
	10	43.8	51.0	38.8	50.0	49.2	47.8	47.0	44.5	42.7	39.9	39.4	39.0	43.8	0.0	43.8
	11	45.7	54.5	41.6	53.2	51.6	49.5	48.5	46.0	44.3	42.4	42.1	41.7	45.7	0.0	45.7
	12	43.9	50.7	39.0	50.1	49.7	48.4	47.5	44.6	41.8	39.8	39.5	39.2	43.9	0.0	43.9
	13	50.5	61.3	40.8	60.3	58.7	56.3	55.4	50.4	47.2	42.1	41.6	41.0	50.5	0.0	50.5
	14	42.8	50.8	38.6	49.6	48.7	47.1	46.0	43.3	41.3	39.4	39.1	38.8	42.8	0.0	42.8
	15	48.4	59.9	38.5	59.2	57.6	55.3	53.1	47.8	43.4	39.9	39.4	38.7	48.4	0.0	48.4
	16	48.8	60.9	39.9	59.3	58.4	54.8	52.6	47.9	45.0	41.3	40.7	40.1	48.8	0.0	48.8
	17	43.4	54.5	37.2	53.2	51.9	48.7	46.8	42.8	40.8	38.2	37.7	37.3	43.4	0.0	43.4
	18	49.3	61.4	37.6	60.5	59.1	56.7	55.3	46.1	42.2	38.7	38.3	37.8	49.3	0.0	49.3
	19	42.6	50.1	39.1	49.3	48.5	46.8	45.7	42.9	41.1	39.7	39.5	39.2	42.6	5.0	47.6
	20	42.1	46.3	40.8	45.5	44.8	43.7	43.3	42.3	41.8	41.2	41.1	40.9	42.1	5.0	47.1
	21	41.1	43.9	40.2	43.4	42.9	42.1	41.8	41.2	40.9	40.5	40.4	40.3	41.1	5.0	46.1
Night	22	36.7	40.6	35.4	40.1	39.7	39.0	38.4	36.9	36.3	35.7	35.6	35.5	36.7	10.0	46.7
	23	38.2	40.3	37.3	39.7	39.5	39.2	39.0	38.5	38.1	37.6	37.5	37.4	38.2	10.0	48.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	41.1	43.9	37.2	43.4	42.9	42.1	41.8	41.2	40.8	38.2	37.7	37.3
	Max	52.5	63.8	47.6	62.2	61.1	58.4	56.8	52.6	49.3	48.0	47.9	47.7
Energy Average		47.4	Average:		53.5	52.5	50.4	49.3	45.8	43.5	41.0	40.6	40.2
Night	Min	33.6	35.4	32.8	35.1	34.9	34.5	34.3	33.8	33.4	33.0	32.9	32.8
	Max	40.3	47.9	37.3	47.1	46.3	44.0	42.9	40.9	39.2	37.6	37.5	37.4
Energy Average		36.8	Average:		39.5	39.1	38.3	37.9	36.7	35.8	34.9	34.8	34.6

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
47.5	**47.4**	**36.8**

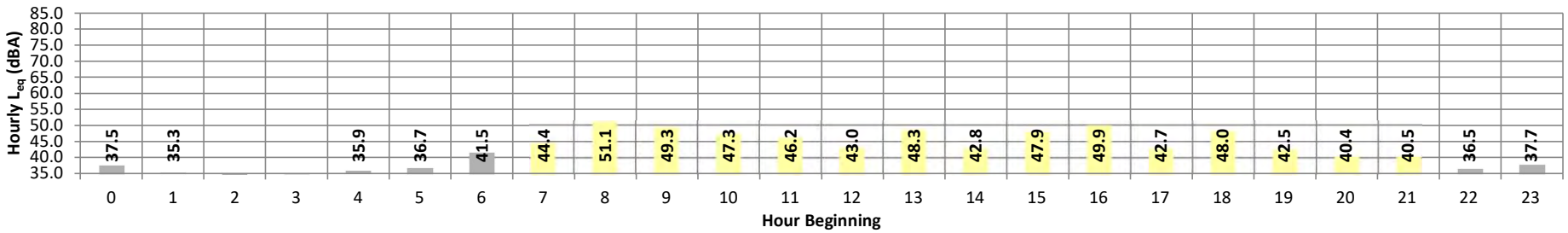
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 18, 2024 *Location:* L5 - Located south of the site near the residence at 32187 *Meter:* Piccolo II *JN:* 16056

Project: Keller Crossing *Source:* Keller Rd *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*	*L_{eq}*	*Adj.*	*Adj. L_{eq}*
Night	0	37.5	41.7	35.4	41.4	41.0	40.2	39.7	38.1	36.9	35.8	35.6	35.5	37.5	10.0	47.5
	1	35.3	38.2	34.0	37.9	37.6	37.0	36.7	35.7	34.9	34.3	34.2	34.1	35.3	10.0	45.3
	2	33.9	36.7	32.8	36.2	35.7	35.2	35.0	34.2	33.6	33.0	32.9	32.8	33.9	10.0	43.9
	3	35.0	38.4	33.2	38.1	37.8	37.4	36.9	35.7	34.3	33.5	33.4	33.2	35.0	10.0	45.0
	4	35.9	39.9	33.7	39.5	39.1	38.3	37.9	36.4	35.3	34.2	34.0	33.8	35.9	10.0	45.9
	5	36.7	42.8	33.9	42.0	41.3	40.0	39.4	37.1	35.7	34.4	34.2	33.9	36.7	10.0	46.7
	6	41.5	49.7	36.8	48.4	47.4	45.4	44.4	42.0	40.2	37.9	37.4	37.0	41.5	10.0	51.5
Day	7	44.4	52.7	40.0	51.6	50.6	48.7	47.4	44.7	43.0	40.9	40.5	40.1	44.4	0.0	44.4
	8	51.1	63.0	39.5	61.8	60.2	57.5	55.5	50.8	46.1	40.9	40.2	39.7	51.1	0.0	51.1
	9	49.3	58.0	46.4	56.6	55.0	52.3	51.2	49.5	48.2	46.8	46.6	46.5	49.3	0.0	49.3
	10	47.3	58.6	39.2	57.1	55.7	53.0	51.4	47.0	44.2	40.8	40.2	39.5	47.3	0.0	47.3
	11	46.2	55.6	41.5	54.3	52.9	50.8	49.5	46.1	44.4	42.4	42.1	41.7	46.2	0.0	46.2
	12	43.0	49.3	38.6	48.7	48.0	46.8	46.1	44.1	41.7	39.4	39.1	38.7	43.0	0.0	43.0
	13	48.3	60.3	39.3	59.2	57.5	54.4	52.7	47.6	44.4	40.7	40.2	39.5	48.3	0.0	48.3
	14	42.8	51.7	37.8	50.6	49.6	47.7	46.4	43.1	40.7	38.6	38.3	38.0	42.8	0.0	42.8
	15	47.9	59.5	38.2	58.6	57.2	54.5	52.3	47.1	43.0	39.4	38.9	38.4	47.9	0.0	47.9
	16	49.9	62.3	39.7	60.8	59.7	56.1	54.0	48.8	45.6	41.2	40.6	39.9	49.9	0.0	49.9
	17	42.7	53.2	36.9	52.0	50.7	47.8	46.2	42.3	40.2	38.0	37.6	37.1	42.7	0.0	42.7
	18	48.0	59.3	37.2	58.2	57.2	54.9	53.0	46.9	42.7	38.3	37.8	37.4	48.0	0.0	48.0
	19	42.5	51.2	38.1	50.1	49.2	47.5	46.2	42.7	40.4	38.7	38.4	38.2	42.5	5.0	47.5
	20	40.4	45.7	38.3	44.8	44.0	42.8	42.1	40.7	39.9	38.9	38.7	38.4	40.4	5.0	45.4
	21	40.5	43.7	39.6	43.0	42.5	41.6	41.3	40.7	40.3	39.9	39.8	39.6	40.5	5.0	45.5
Night	22	36.5	40.3	35.0	39.8	39.5	38.7	38.2	36.8	36.0	35.3	35.2	35.1	36.5	10.0	46.5
	23	37.7	40.1	36.8	39.6	39.1	38.6	38.4	37.9	37.6	37.1	37.0	36.9	37.7	10.0	47.7

Timeframe	*Hour*	*L_{eq}*	*L_{max}*	*L_{min}*	*L1%*	*L2%*	*L5%*	*L8%*	*L25%*	*L50%*	*L90%*	*L95%*	*L99%*
Day	Min	40.4	43.7	36.9	43.0	42.5	41.6	41.3	40.7	39.9	38.0	37.6	37.1
	Max	51.1	63.0	46.4	61.8	60.2	57.5	55.5	50.8	48.2	46.8	46.6	46.5
Energy Average		46.8	Average:		53.8	52.7	50.4	49.0	45.5	43.0	40.3	39.9	39.5
Night	Min	33.9	36.7	32.8	36.2	35.7	35.2	35.0	34.2	33.6	33.0	32.9	32.8
	Max	41.5	49.7	36.8	48.4	47.4	45.4	44.4	42.0	40.2	37.9	37.4	37.0
Energy Average		37.2	Average:		40.3	39.8	39.0	38.5	37.1	36.1	35.0	34.9	34.7

24-Hour CNEL	*Leq (dBA) Daytime (7am-10pm)*	*Leq (dBA) Nighttime (10pm-7am)*
47.3	**46.8**	**37.2**

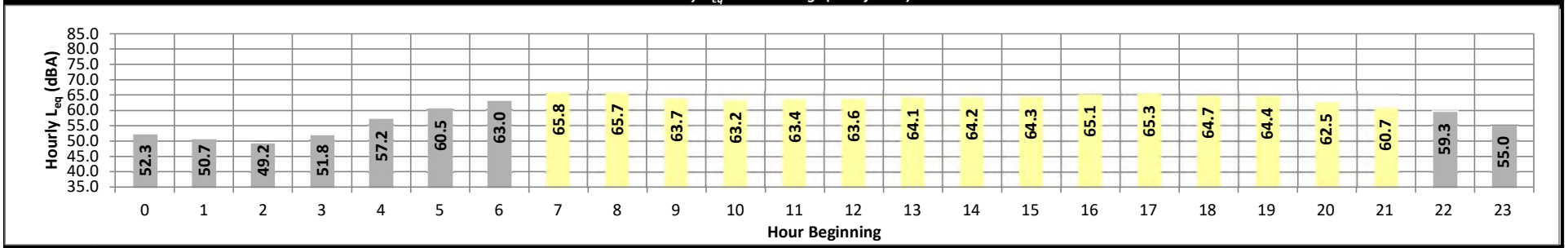
URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

Date: Wednesday, September 18, 2024 *Location:* L6 - Located east of the site near the retail building at 33900 *Meter:* Piccolo II *JN:* 16056

Project: Keller Crossing *Source:* Winchester Rd *Analyst:* Z. Ibrahim

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	52.3	64.7	37.2	64.2	63.2	60.4	57.7	48.3	42.3	38.1	37.8	37.5	52.3	10.0	62.3
	1	50.7	63.3	35.9	62.8	61.8	58.5	55.6	47.5	39.7	36.6	36.4	36.1	50.7	10.0	60.7
	2	49.2	62.4	32.5	61.7	60.7	57.1	54.1	44.0	36.8	33.0	32.8	32.6	49.2	10.0	59.2
	3	51.8	65.0	33.2	64.3	63.2	60.1	57.0	46.2	39.0	33.8	33.6	33.3	51.8	10.0	61.8
	4	57.2	68.6	36.3	68.0	67.2	65.1	63.3	54.8	46.7	37.6	37.0	36.4	57.2	10.0	67.2
	5	60.5	70.8	42.5	70.3	69.6	67.5	66.1	60.4	54.3	44.0	43.2	42.6	60.5	10.0	70.5
	6	63.0	71.7	46.5	71.4	70.8	69.2	68.2	64.0	58.7	49.7	48.2	46.7	63.0	10.0	73.0
Day	7	65.8	72.8	51.4	72.4	72.0	71.0	70.4	67.5	63.3	54.4	52.9	51.6	65.8	0.0	65.8
	8	65.7	72.6	50.7	72.3	71.8	70.7	70.1	67.7	63.3	53.6	52.3	50.9	65.7	0.0	65.7
	9	63.7	72.2	48.5	71.8	71.1	69.4	68.5	65.2	59.9	51.7	50.4	48.9	63.7	0.0	63.7
	10	63.2	71.6	48.1	71.3	70.6	68.9	67.9	64.5	59.8	50.9	49.4	48.3	63.2	0.0	63.2
	11	63.4	71.6	49.0	71.3	70.7	69.1	68.2	65.0	59.8	51.5	50.4	49.3	63.4	0.0	63.4
	12	63.6	72.4	49.2	71.7	71.1	69.1	68.0	65.0	60.3	52.7	50.9	49.5	63.6	0.0	63.6
	13	64.1	73.8	50.1	73.3	72.5	69.9	68.4	64.9	60.6	53.0	51.8	50.4	64.1	0.0	64.1
	14	64.2	72.6	51.3	72.3	71.7	69.7	68.6	65.6	61.0	53.8	52.7	51.5	64.2	0.0	64.2
	15	64.3	71.9	50.6	71.5	71.0	69.6	68.8	66.0	61.4	53.0	51.8	50.8	64.3	0.0	64.3
	16	65.1	72.8	50.5	72.4	71.8	70.4	69.6	66.7	62.3	54.0	52.2	50.9	65.1	0.0	65.1
	17	65.3	73.1	50.5	72.7	72.1	70.7	69.9	66.8	62.4	53.3	52.0	50.7	65.3	0.0	65.3
	18	64.7	72.5	49.5	72.1	71.4	69.9	69.2	66.6	61.3	52.7	51.3	49.8	64.7	0.0	64.7
	19	64.4	74.3	49.2	73.8	73.0	70.3	68.8	65.4	60.2	51.9	50.8	49.5	64.4	5.0	69.4
	20	62.5	71.7	47.2	71.3	70.7	68.7	67.5	63.5	57.8	49.9	48.6	47.4	62.5	5.0	67.5
	21	60.7	71.7	44.7	71.0	70.0	67.1	65.7	60.7	54.9	46.5	45.6	44.9	60.7	5.0	65.7
Night	22	59.3	71.5	42.1	71.0	70.0	66.8	64.1	57.0	51.6	44.0	43.1	42.4	59.3	10.0	69.3
	23	55.0	66.5	38.8	65.9	65.1	62.7	60.7	53.2	46.1	39.9	39.5	39.1	55.0	10.0	65.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	60.7	71.6	44.7	71.0	70.0	67.1	65.7	60.7	54.9	46.5	45.6	44.9
	Max	65.8	74.3	51.4	73.8	73.0	71.0	70.4	67.7	63.3	54.4	52.9	51.6
Energy Average		64.2	Average:		72.1	71.4	69.6	68.6	65.4	60.5	52.2	50.9	49.6
Night	Min	49.2	62.4	32.5	61.7	60.7	57.1	54.1	44.0	36.8	33.0	32.8	32.6
	Max	63.0	71.7	46.5	71.4	70.8	69.2	68.2	64.0	58.7	49.7	48.2	46.7
Energy Average		57.7	Average:		66.6	65.7	63.0	60.7	52.8	46.1	39.6	39.1	38.5

24-Hour CNEL	Leq (dBA) Daytime (7am-10pm)	Leq (dBA) Nighttime (10pm-7am)
66.4	64.2	57.7

URBAN CROSSROADS

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE LEVEL CALCULATIONS

This page intentionally left blank

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Menifee Rd.
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,933 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	902 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.86	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-20.10	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-24.05	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.2	64.0	62.7	56.7	65.1	65.7
Medium Trucks:	58.7	55.7	48.2	56.9	63.1	63.1
Heavy Trucks:	59.2	55.9	52.6	57.2	63.4	63.5
Vehicle Noise:	66.9	65.1	63.2	61.7	68.7	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	113	244	526
CNEL:	55	119	256	552

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Whitewood Rd.
Road Segment: n/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,578 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,533 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.35	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-15.21	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.99	0.82	-1.20	*-5.43*	0.000	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	66.6	65.2	59.2	67.7	68.3
Medium Trucks:	63.9	60.7	52.9	62.1	68.3	68.3
Heavy Trucks:	70.9	67.7	60.0	69.2	75.3	75.3
Vehicle Noise:	73.1	70.7	66.6	70.3	76.7	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	140	301	648	1,395
CNEL:	142	306	659	1,419

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Whitewood Rd.
Road Segment: s/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,616 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,453 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.58	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-15.44	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-13.22	0.82	-1.20	*-5.43*	0.000	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	66.4	65.0	59.0	67.4	68.1
Medium Trucks:	63.6	60.5	52.7	61.9	68.1	68.1
Heavy Trucks:	70.6	67.5	59.7	68.9	75.1	75.1
Vehicle Noise:	72.9	70.5	66.3	70.1	76.5	76.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	135	290	625	1,346
CNEL:	137	295	636	1,370

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Leon Rd.
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,047 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	664 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.85	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.72	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.50	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.1	64.0	62.6	56.6	65.1	65.7
Medium Trucks:	60.9	57.7	50.0	59.2	65.3	65.4
Heavy Trucks:	67.1	64.0	56.2	65.4	71.5	71.6
Vehicle Noise:	69.8	67.5	63.7	66.8	73.2	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	96	208	447	963
CNEL:	98	212	456	983

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,792 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	643 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.58	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.44	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-17.22	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.8	62.7	61.3	55.3	63.8	64.4
Medium Trucks:	59.8	56.6	48.8	58.0	64.2	64.2
Heavy Trucks:	66.4	63.2	55.4	64.6	70.8	70.8
Vehicle Noise:	68.8	66.5	62.5	65.9	72.3	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	84	181	390	840
CNEL:	86	184	397	856

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Leon Rd.
Road Segment: n/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,463 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	616 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.76	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.63	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-17.41	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.6	62.6	61.1	55.1	63.6	64.2
Medium Trucks:	59.6	56.4	48.6	57.9	64.0	64.0
Heavy Trucks:	66.2	63.0	55.2	64.4	70.6	70.6
Vehicle Noise:	68.7	66.3	62.3	65.7	72.1	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	82	176	379	817
CNEL:	83	179	386	832

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Leon Rd.
Road Segment: s/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,762 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	888 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.17	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.04	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.82	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.2	64.1	62.7	56.7	65.2	65.8
Medium Trucks:	61.2	58.0	50.2	59.4	65.6	65.6
Heavy Trucks:	67.8	64.6	56.8	66.0	72.2	72.2
Vehicle Noise:	70.2	67.9	63.9	67.3	73.7	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	104	225	484	1,042
CNEL:	106	229	493	1,062

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,712 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,544 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	106.752
Medium Trucks:	106.669
Heavy Trucks:	106.677

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.07	-5.04	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	79.45	-17.30	-5.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.26	-5.04	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.2	61.0	59.7	53.7	62.1	62.7
Medium Trucks:	55.9	52.8	45.3	54.1	60.3	60.3
Heavy Trucks:	56.8	53.5	50.1	54.8	61.0	61.1
Vehicle Noise:	64.0	62.2	60.3	59.0	65.9	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	59	127	274	590
CNEL:	62	133	287	619

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,428 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,923 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	0.86	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-14.01	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.79	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.1	69.0	67.6	61.6	70.1	70.7
Medium Trucks:	65.6	62.4	54.6	63.8	70.0	70.0
Heavy Trucks:	71.1	68.0	60.2	69.4	75.5	75.6
Vehicle Noise:	74.3	72.0	68.5	71.0	77.5	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	347	747	1,610	3,468
CNEL:	355	764	1,646	3,547

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,195 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,986 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	0.95	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.91	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.69	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.2	69.1	67.7	61.7	70.2	70.8
Medium Trucks:	65.7	62.5	54.7	63.9	70.1	70.1
Heavy Trucks:	71.2	68.1	60.3	69.5	75.6	75.7
Vehicle Noise:	74.4	72.1	68.6	71.1	77.6	77.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	352	758	1,633	3,518
CNEL:	360	775	1,670	3,598

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,693 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,872 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.73	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-15.59	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-13.37	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.2	66.1	64.7	58.7	67.2	67.8
Medium Trucks:	62.8	59.7	51.9	61.1	67.2	67.3
Heavy Trucks:	68.7	65.5	57.7	66.9	73.1	73.1
Vehicle Noise:	71.6	69.3	65.7	68.4	74.9	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	233	503	1,083	2,334
CNEL:	238	514	1,106	2,384

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Whispering Heights Pkwy./Pourroy Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,199 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,161 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.10	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.97	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.75	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.8	66.8	65.3	59.3	67.8	68.4
Medium Trucks:	63.4	60.3	52.5	61.7	67.9	67.9
Heavy Trucks:	69.3	66.1	58.4	67.6	73.7	73.8
Vehicle Noise:	72.2	70.0	66.3	69.1	75.5	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	257	553	1,192	2,568
CNEL:	262	565	1,218	2,623

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Whispering Heights Pkwy./Pourroy Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,579 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,110 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.21	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-15.07	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.85	-4.09	-1.20	*-5.14*	0.000	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	66.7	65.2	59.2	67.7	68.3
Medium Trucks:	63.3	60.2	52.4	61.6	67.8	67.8
Heavy Trucks:	69.2	66.0	58.3	67.5	73.6	73.7
Vehicle Noise:	72.1	69.9	66.2	69.0	75.4	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	253	544	1,173	2,527
CNEL:	258	556	1,198	2,582

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,455 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,183 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.06	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.93	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.71	-4.09	-1.20	*-5.14*	0.000	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	66.8	65.4	59.4	67.8	68.5
Medium Trucks:	63.5	60.3	52.5	61.7	67.9	67.9
Heavy Trucks:	69.3	66.2	58.4	67.6	73.8	73.8
Vehicle Noise:	72.3	70.0	66.4	69.1	75.6	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	258	557	1,200	2,585
CNEL:	264	569	1,226	2,640

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,457 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,100 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.23	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-15.09	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.87	-4.09	-1.20	*-5.14*	0.000	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	66.6	65.2	59.2	67.7	68.3
Medium Trucks:	63.3	60.2	52.4	61.6	67.7	67.8
Heavy Trucks:	69.2	66.0	58.2	67.4	73.6	73.6
Vehicle Noise:	72.1	69.8	66.2	68.9	75.4	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	252	543	1,169	2,519
CNEL:	257	554	1,195	2,574

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Via Maira Mosa/Audl Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,814 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,120 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	1.49	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-13.37	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-11.16	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.4	66.9	60.9	69.4	70.0
Medium Trucks:	65.0	61.9	54.1	63.3	69.5	69.5
Heavy Trucks:	70.9	67.7	60.0	69.2	75.3	75.3
Vehicle Noise:	73.8	71.6	67.9	70.7	77.1	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	328	707	1,522	3,280
CNEL:	335	722	1,555	3,350

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,054 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,304 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	1.74	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-13.12	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.91	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	68.6	67.2	61.2	69.6	70.3
Medium Trucks:	65.3	62.1	54.3	63.6	69.7	69.7
Heavy Trucks:	71.1	68.0	60.2	69.4	75.6	75.6
Vehicle Noise:	74.1	71.8	68.2	70.9	77.4	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	341	734	1,582	3,408
CNEL:	348	750	1,616	3,481

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,122 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,558 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.06	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.80	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.59	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.0	68.9	67.5	61.5	70.0	70.6
Medium Trucks:	65.6	62.4	54.7	63.9	70.0	70.1
Heavy Trucks:	71.4	68.3	60.5	69.7	75.9	75.9
Vehicle Noise:	74.4	72.1	68.5	71.2	77.7	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	358	771	1,662	3,580
CNEL:	366	788	1,697	3,657

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Scott Rd.
Road Segment: w/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,626 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,197 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.35	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.52	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.30	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	68.0	66.6	60.6	69.0	69.7
Medium Trucks:	64.8	61.7	53.9	63.1	69.3	69.3
Heavy Trucks:	71.1	67.9	60.1	69.3	75.5	75.5
Vehicle Noise:	73.8	71.5	67.7	70.7	77.2	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	228	491	1,057	2,278
CNEL:	232	501	1,079	2,324

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Scott Rd.
Road Segment: e/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,737 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,123 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.20	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.67	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.45	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.9	66.5	60.4	68.9	69.5
Medium Trucks:	64.7	61.6	53.8	63.0	69.1	69.2
Heavy Trucks:	70.9	67.8	60.0	69.2	75.3	75.4
Vehicle Noise:	73.6	71.3	67.5	70.6	77.0	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	223	480	1,034	2,227
CNEL:	227	489	1,054	2,272

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Scott Rd.
Road Segment: w/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,110 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,164 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.41	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-17.28	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.06	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.3	65.3	63.8	57.8	66.3	66.9
Medium Trucks:	62.1	58.9	51.2	60.4	66.5	66.6
Heavy Trucks:	68.3	65.2	57.4	66.6	72.7	72.8
Vehicle Noise:	71.0	68.7	64.9	68.0	74.4	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	149	321	692	1,492
CNEL:	152	328	706	1,522

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,449 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	120 vehicles
Vehicle Speed:	50 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:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-11.63	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-28.87	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-32.83	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	57.7	56.5	55.2	49.2	57.6	58.2
Medium Trucks:	51.3	48.2	40.7	49.5	55.6	55.7
Heavy Trucks:	51.7	48.5	45.1	49.7	55.9	56.0
Vehicle Noise:	59.4	57.7	55.7	54.2	61.2	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	13	28	61	130
CNEL:	14	30	64	137

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Clinton Keith Rd.
Road Segment: w/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,868 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,877 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.93	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.94	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.72	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.0	69.9	68.5	62.5	70.9	71.6
Medium Trucks:	66.9	63.8	56.0	65.2	71.4	71.4
Heavy Trucks:	73.5	70.4	62.6	71.8	78.0	78.0
Vehicle Noise:	76.0	73.6	69.7	73.1	79.5	79.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	287	618	1,330	2,866
CNEL:	292	629	1,355	2,920

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Clinton Keith Rd.
Road Segment: e/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,003 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,805 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.82	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-13.04	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.83	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.9	69.8	68.4	62.4	70.8	71.4
Medium Trucks:	66.8	63.7	55.9	65.1	71.2	71.3
Heavy Trucks:	73.4	70.3	62.5	71.7	77.8	77.9
Vehicle Noise:	75.9	73.5	69.6	72.9	79.4	79.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	282	607	1,308	2,819
CNEL:	287	619	1,333	2,872

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Menifee Rd.
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,219 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	926 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.74	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.98	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-23.94	-0.97	-1.20	*-5.31*	0.000	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	64.1	62.8	56.8	65.2	65.8
Medium Trucks:	58.8	55.8	48.3	57.0	63.2	63.2
Heavy Trucks:	59.3	56.1	52.7	57.3	63.5	63.6
Vehicle Noise:	67.0	65.3	63.3	61.8	68.8	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	53	115	248	535
CNEL:	56	121	261	562

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Whitewood Rd.
Road Segment: n/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,578 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,533 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.35	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-15.21	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.99	0.82	-1.20	*-5.43*	0.000	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	66.6	65.2	59.2	67.7	68.3
Medium Trucks:	63.9	60.7	52.9	62.1	68.3	68.3
Heavy Trucks:	70.9	67.7	60.0	69.2	75.3	75.3
Vehicle Noise:	73.1	70.7	66.6	70.3	76.7	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	140	301	648	1,395
CNEL:	142	306	659	1,419

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Whitewood Rd.
Road Segment: s/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,616 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,453 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.58	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-15.44	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-13.22	0.82	-1.20	*-5.43*	0.000	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	66.4	65.0	59.0	67.4	68.1
Medium Trucks:	63.6	60.5	52.7	61.9	68.1	68.1
Heavy Trucks:	70.6	67.5	59.7	68.9	75.1	75.1
Vehicle Noise:	72.9	70.5	66.3	70.1	76.5	76.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	135	290	625	1,346
CNEL:	137	295	636	1,370

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Leon Rd.
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,049 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	829 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-3.89	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-18.75	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.53	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	65.0	63.6	57.6	66.0	66.7
Medium Trucks:	61.9	58.7	50.9	60.1	66.3	66.3
Heavy Trucks:	68.1	64.9	57.1	66.3	72.5	72.5
Vehicle Noise:	70.8	68.5	64.7	67.7	74.2	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	112	241	518	1,117
CNEL:	114	245	529	1,139

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,936 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	737 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.98	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.85	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.63	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	63.3	61.9	55.9	64.4	65.0
Medium Trucks:	60.4	57.2	49.4	58.6	64.8	64.8
Heavy Trucks:	66.9	63.8	56.0	65.2	71.4	71.4
Vehicle Noise:	69.4	67.1	63.1	66.5	72.9	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	92	198	427	921
CNEL:	94	202	435	938

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Leon Rd.
Road Segment: n/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,607 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	710 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.14	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.01	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.79	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.2	63.2	61.8	55.7	64.2	64.8
Medium Trucks:	60.2	57.0	49.3	58.5	64.6	64.7
Heavy Trucks:	66.8	63.6	55.9	65.1	71.2	71.3
Vehicle Noise:	69.3	66.9	62.9	66.3	72.7	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	90	193	417	898
CNEL:	91	197	425	915

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Leon Rd.
Road Segment: s/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,906 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	982 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.73	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.60	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.38	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	64.6	63.2	57.2	65.6	66.2
Medium Trucks:	61.6	58.5	50.7	59.9	66.0	66.1
Heavy Trucks:	68.2	65.0	57.3	66.5	72.6	72.7
Vehicle Noise:	70.7	68.3	64.4	67.7	74.1	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	111	240	518	1,115
CNEL:	114	245	527	1,136

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,570 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,615 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	106.752
Medium Trucks:	106.669
Heavy Trucks:	106.677

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.13	-5.04	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	79.45	-17.11	-5.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-21.06	-5.04	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.3	61.2	59.9	53.8	62.3	62.9
Medium Trucks:	56.1	53.0	45.5	54.3	60.5	60.5
Heavy Trucks:	56.9	53.7	50.3	55.0	61.2	61.3
Vehicle Noise:	64.2	62.4	60.5	59.2	66.1	66.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	61	131	282	608
CNEL:	64	137	296	638

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,572 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,017 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.00	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.87	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.65	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.2	69.2	67.8	61.8	70.2	70.8
Medium Trucks:	65.7	62.6	54.8	64.0	70.1	70.2
Heavy Trucks:	71.2	68.1	60.3	69.5	75.7	75.7
Vehicle Noise:	74.4	72.2	68.7	71.1	77.6	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	354	763	1,644	3,542
CNEL:	362	781	1,682	3,623

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,339 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,080 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.09	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.78	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.56	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	69.3	67.9	61.8	70.3	70.9
Medium Trucks:	65.8	62.6	54.9	64.1	70.2	70.3
Heavy Trucks:	71.3	68.2	60.4	69.6	75.8	75.8
Vehicle Noise:	74.5	72.3	68.8	71.2	77.7	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	359	774	1,667	3,591
CNEL:	367	791	1,705	3,673

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,837 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,967 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.51	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-15.38	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-13.16	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.4	66.3	64.9	58.9	67.4	68.0
Medium Trucks:	63.0	59.9	52.1	61.3	67.5	67.5
Heavy Trucks:	68.9	65.7	57.9	67.2	73.3	73.3
Vehicle Noise:	71.8	69.6	65.9	68.6	75.1	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	241	519	1,119	2,411
CNEL:	246	531	1,143	2,463

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Project Name: Keller Crossing
Road Name: Winchester Rd. (SR-79)
Job Number: 16056
Road Segment: n/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,343 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,256 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.08	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.78	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.56	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.9	65.5	59.5	68.0	68.6
Medium Trucks:	63.6	60.5	52.7	61.9	68.0	68.1
Heavy Trucks:	69.5	66.3	58.5	67.8	73.9	73.9
Vehicle Noise:	72.4	70.1	66.5	69.2	75.7	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	264	569	1,226	2,642
CNEL:	270	582	1,253	2,699

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Project Name: Keller Crossing
Road Name: Winchester Rd. (SR-79)
Job Number: 16056
Road Segment: s/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,551 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,190 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.04	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.91	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.69	-4.09	-1.20	*-5.14*	0.000	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	66.8	65.4	59.4	67.8	68.5
Medium Trucks:	63.5	60.3	52.6	61.8	67.9	68.0
Heavy Trucks:	69.3	66.2	58.4	67.6	73.8	73.8
Vehicle Noise:	72.3	70.0	66.4	69.1	75.6	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	259	558	1,203	2,591
CNEL:	265	570	1,229	2,647

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,427 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,263 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.10	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.77	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.55	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	67.0	65.5	59.5	68.0	68.6
Medium Trucks:	63.6	60.5	52.7	61.9	68.1	68.1
Heavy Trucks:	69.5	66.3	58.6	67.8	73.9	74.0
Vehicle Noise:	72.4	70.2	66.5	69.3	75.7	75.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	265	570	1,229	2,648
CNEL:	270	583	1,255	2,705

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,429 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,180 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.06	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.93	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.71	-4.09	-1.20	*-5.14*	0.000	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	66.8	65.4	59.4	67.8	68.4
Medium Trucks:	63.5	60.3	52.5	61.7	67.9	67.9
Heavy Trucks:	69.3	66.2	58.4	67.6	73.8	73.8
Vehicle Noise:	72.3	70.0	66.4	69.1	75.6	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	258	556	1,199	2,583
CNEL:	264	568	1,225	2,639

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Via Maira Mosa/Audl Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,672 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,190 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	1.59	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-13.28	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-11.06	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.4	67.0	61.0	69.5	70.1
Medium Trucks:	65.1	62.0	54.2	63.4	69.6	69.6
Heavy Trucks:	71.0	67.8	60.0	69.3	75.4	75.4
Vehicle Noise:	73.9	71.7	68.0	70.7	77.2	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	333	717	1,545	3,329
CNEL:	340	733	1,579	3,401

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,626 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,352 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	1.80	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-13.06	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.84	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	68.7	67.3	61.2	69.7	70.3
Medium Trucks:	65.3	62.2	54.4	63.6	69.8	69.8
Heavy Trucks:	71.2	68.0	60.3	69.5	75.6	75.7
Vehicle Noise:	74.1	71.9	68.2	71.0	77.4	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	344	741	1,597	3,440
CNEL:	351	757	1,631	3,515

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,694 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,605 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.12	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.75	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.53	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.0	69.0	67.6	61.5	70.0	70.6
Medium Trucks:	65.6	62.5	54.7	63.9	70.1	70.1
Heavy Trucks:	71.5	68.4	60.6	69.8	75.9	76.0
Vehicle Noise:	74.5	72.2	68.5	71.3	77.7	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	361	778	1,676	3,612
CNEL:	369	795	1,712	3,689

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Scott Rd.
Road Segment: w/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,056 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,315 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.57	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.29	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.07	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	68.2	66.8	60.8	69.3	69.9
Medium Trucks:	65.1	61.9	54.1	63.4	69.5	69.5
Heavy Trucks:	71.3	68.1	60.4	69.6	75.7	75.8
Vehicle Noise:	74.0	71.7	67.9	70.9	77.4	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	236	508	1,095	2,358
CNEL:	241	518	1,117	2,406

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Scott Rd.
Road Segment: e/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,453 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,265 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.48	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.39	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.17	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.2	68.1	66.7	60.7	69.2	69.8
Medium Trucks:	65.0	61.8	54.0	63.3	69.4	69.4
Heavy Trucks:	71.2	68.0	60.3	69.5	75.6	75.7
Vehicle Noise:	73.9	71.6	67.8	70.8	77.3	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	232	501	1,079	2,325
CNEL:	237	511	1,101	2,372

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Scott Rd.
Road Segment: w/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,112 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,329 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.84	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-16.70	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-14.48	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.8	64.4	58.4	66.9	67.5
Medium Trucks:	62.7	59.5	51.7	60.9	67.1	67.1
Heavy Trucks:	68.9	65.7	57.9	67.2	73.3	73.3
Vehicle Noise:	71.6	69.3	65.5	68.5	75.0	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	163	351	756	1,629
CNEL:	166	358	772	1,662

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,595 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	379 vehicles
Vehicle Speed:	50 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:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-6.62	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-23.86	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-27.82	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	61.5	60.2	54.2	62.6	63.2
Medium Trucks:	56.3	53.2	45.7	54.5	60.6	60.7
Heavy Trucks:	56.7	53.5	50.1	54.7	60.9	61.0
Vehicle Noise:	64.4	62.7	60.7	59.2	66.3	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	28	61	131	282
CNEL:	30	64	137	296

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Clinton Keith Rd.
Road Segment: w/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,012 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,971 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.07	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.79	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.58	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.1	70.0	68.6	62.6	71.1	71.7
Medium Trucks:	67.1	63.9	56.1	65.3	71.5	71.5
Heavy Trucks:	73.7	70.5	62.7	71.9	78.1	78.1
Vehicle Noise:	76.1	73.8	69.8	73.2	79.6	79.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	293	631	1,359	2,929
CNEL:	298	643	1,385	2,984

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Clinton Keith Rd.
Road Segment: e/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,147 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,900 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.97	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.90	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.68	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.0	69.9	68.5	62.5	71.0	71.6
Medium Trucks:	67.0	63.8	56.0	65.2	71.4	71.4
Heavy Trucks:	73.6	70.4	62.6	71.8	78.0	78.0
Vehicle Noise:	76.0	73.7	69.7	73.1	79.5	79.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	288	621	1,338	2,882
CNEL:	294	633	1,363	2,936

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Menifee Rd.
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,834 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	976 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.51	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.75	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-23.71	-0.97	-1.20	*-5.31*	0.000	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	64.3	63.0	57.0	65.4	66.1
Medium Trucks:	59.1	56.0	48.5	57.3	63.4	63.5
Heavy Trucks:	59.5	56.3	52.9	57.5	63.7	63.8
Vehicle Noise:	67.2	65.5	63.6	62.0	69.1	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	55	119	257	554
CNEL:	58	125	270	582

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Whitewood Rd.
Road Segment: n/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,110 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,659 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.00	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.87	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.65	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	67.0	65.6	59.6	68.0	68.6
Medium Trucks:	64.2	61.1	53.3	62.5	68.6	68.7
Heavy Trucks:	71.2	68.1	60.3	69.5	75.7	75.7
Vehicle Noise:	73.5	71.0	66.9	70.6	77.0	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	147	317	683	1,471
CNEL:	150	322	694	1,496

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Whitewood Rd.
Road Segment: s/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,069 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,573 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.23	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-15.10	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.88	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.8	66.8	65.3	59.3	67.8	68.4
Medium Trucks:	64.0	60.8	53.0	62.3	68.4	68.4
Heavy Trucks:	71.0	67.8	60.1	69.3	75.4	75.5
Vehicle Noise:	73.2	70.8	66.7	70.4	76.8	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	142	306	659	1,419
CNEL:	144	311	670	1,444

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Leon Rd.
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,711 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	719 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.51	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.37	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.15	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	64.4	63.0	57.0	65.4	66.0
Medium Trucks:	61.2	58.1	50.3	59.5	65.7	65.7
Heavy Trucks:	67.4	64.3	56.5	65.7	71.9	71.9
Vehicle Noise:	70.2	67.8	64.1	67.1	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	102	219	471	1,015
CNEL:	104	223	481	1,036

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,434 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	696 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.23	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.10	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.88	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.2	63.1	61.7	55.7	64.1	64.7
Medium Trucks:	60.1	57.0	49.2	58.4	64.5	64.6
Heavy Trucks:	66.7	63.6	55.8	65.0	71.1	71.2
Vehicle Noise:	69.2	66.8	62.9	66.2	72.6	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	89	191	411	886
CNEL:	90	194	419	903

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Leon Rd.
Road Segment: n/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,078 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	666 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.42	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.29	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-17.07	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.0	62.9	61.5	55.5	63.9	64.6
Medium Trucks:	59.9	56.8	49.0	58.2	64.4	64.4
Heavy Trucks:	66.5	63.4	55.6	64.8	70.9	71.0
Vehicle Noise:	69.0	66.6	62.7	66.0	72.5	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	86	185	400	861
CNEL:	88	189	407	877

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Leon Rd.
Road Segment: s/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,649 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	961 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.83	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.70	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.48	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	64.5	63.1	57.1	65.5	66.1
Medium Trucks:	61.5	58.4	50.6	59.8	65.9	66.0
Heavy Trucks:	68.1	65.0	57.2	66.4	72.5	72.6
Vehicle Noise:	70.6	68.2	64.3	67.6	74.1	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	110	237	510	1,099
CNEL:	112	241	520	1,120

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,255 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,671 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	106.752
Medium Trucks:	106.669
Heavy Trucks:	106.677

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.28	-5.04	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	79.45	-16.96	-5.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.92	-5.04	-1.20	*-5.14*	0.000	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	61.3	60.0	54.0	62.4	63.0
Medium Trucks:	56.3	53.2	45.7	54.4	60.6	60.6
Heavy Trucks:	57.1	53.9	50.5	55.1	61.3	61.4
Vehicle Noise:	64.3	62.6	60.6	59.3	66.3	66.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	62	134	289	622
CNEL:	65	141	303	652

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,348 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,164 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.21	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.66	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.44	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.5	69.4	68.0	62.0	70.4	71.0
Medium Trucks:	65.9	62.8	55.0	64.2	70.3	70.4
Heavy Trucks:	71.4	68.3	60.5	69.7	75.9	75.9
Vehicle Noise:	74.6	72.4	68.9	71.3	77.8	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	366	788	1,697	3,656
CNEL:	374	806	1,736	3,739

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,178 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,232 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.30	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.57	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.35	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.5	69.5	68.1	62.0	70.5	71.1
Medium Trucks:	66.0	62.9	55.1	64.3	70.4	70.5
Heavy Trucks:	71.5	68.4	60.6	69.8	76.0	76.0
Vehicle Noise:	74.7	72.5	69.0	71.4	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	371	799	1,721	3,708
CNEL:	379	817	1,761	3,793

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,564 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,027 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.38	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-15.25	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-13.03	-4.09	-1.20	*-5.14*	0.000	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	66.5	65.1	59.0	67.5	68.1
Medium Trucks:	63.1	60.0	52.2	61.4	67.6	67.6
Heavy Trucks:	69.0	65.9	58.1	67.3	73.4	73.5
Vehicle Noise:	72.0	69.7	66.0	68.8	75.2	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	246	530	1,142	2,460
CNEL:	251	541	1,166	2,513

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: n/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,359 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,340 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.24	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.62	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.41	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.1	65.7	59.7	68.1	68.8
Medium Trucks:	63.8	60.6	52.8	62.1	68.2	68.2
Heavy Trucks:	69.6	66.5	58.7	67.9	74.1	74.1
Vehicle Noise:	72.6	70.3	66.7	69.4	75.9	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	271	583	1,257	2,707
CNEL:	277	596	1,284	2,766

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: s/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,687 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,284 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.14	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.73	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.51	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	67.0	65.6	59.6	68.0	68.6
Medium Trucks:	63.7	60.5	52.7	61.9	68.1	68.1
Heavy Trucks:	69.5	66.4	58.6	67.8	74.0	74.0
Vehicle Noise:	72.5	70.2	66.6	69.3	75.8	75.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	266	574	1,237	2,664
CNEL:	272	586	1,263	2,722

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,636 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,362 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.28	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.58	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.36	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.1	65.7	59.7	68.2	68.8
Medium Trucks:	63.8	60.7	52.9	62.1	68.2	68.3
Heavy Trucks:	69.7	66.5	58.7	68.0	74.1	74.1
Vehicle Noise:	72.6	70.3	66.7	69.4	75.9	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	272	587	1,265	2,725
CNEL:	278	600	1,292	2,784

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,555 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,273 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.12	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.75	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.53	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	67.0	65.6	59.5	68.0	68.6
Medium Trucks:	63.6	60.5	52.7	61.9	68.1	68.1
Heavy Trucks:	69.5	66.4	58.6	67.8	73.9	74.0
Vehicle Noise:	72.5	70.2	66.5	69.3	75.7	75.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	266	572	1,233	2,656
CNEL:	271	585	1,259	2,713

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Via Maira Mosa/Audl Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,931 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,377 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	1.84	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-13.03	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.81	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.8	68.7	67.3	61.3	69.7	70.3
Medium Trucks:	65.4	62.2	54.4	63.6	69.8	69.8
Heavy Trucks:	71.2	68.1	60.3	69.5	75.7	75.7
Vehicle Noise:	74.2	71.9	68.3	71.0	77.5	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	346	745	1,605	3,458
CNEL:	353	761	1,639	3,532

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,356 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,577 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.09	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.78	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.56	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.0	68.9	67.5	61.5	70.0	70.6
Medium Trucks:	65.6	62.5	54.7	63.9	70.0	70.1
Heavy Trucks:	71.5	68.3	60.5	69.8	75.9	75.9
Vehicle Noise:	74.4	72.2	68.5	71.2	77.7	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	359	774	1,668	3,593
CNEL:	367	791	1,704	3,670

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,677 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,851 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.41	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.46	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.24	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	69.3	67.9	61.8	70.3	70.9
Medium Trucks:	65.9	62.8	55.0	64.2	70.4	70.4
Heavy Trucks:	71.8	68.6	60.9	70.1	76.2	76.3
Vehicle Noise:	74.7	72.5	68.8	71.6	78.0	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	377	813	1,752	3,774
CNEL:	386	831	1,790	3,855

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Scott Rd.
Road Segment: w/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,820 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,378 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.69	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.18	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-11.96	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.4	66.9	60.9	69.4	70.0
Medium Trucks:	65.2	62.0	54.3	63.5	69.6	69.7
Heavy Trucks:	71.4	68.3	60.5	69.7	75.8	75.9
Vehicle Noise:	74.1	71.8	68.0	71.1	77.5	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	240	517	1,115	2,401
CNEL:	245	528	1,137	2,450

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Scott Rd.
Road Segment: e/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,858 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,298 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.54	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.32	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.11	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	68.2	66.8	60.8	69.2	69.9
Medium Trucks:	65.0	61.9	54.1	63.3	69.5	69.5
Heavy Trucks:	71.2	68.1	60.3	69.5	75.7	75.7
Vehicle Noise:	74.0	71.7	67.9	70.9	77.3	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	235	506	1,090	2,347
CNEL:	239	516	1,112	2,395

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Scott Rd.
Road Segment: w/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,273 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,260 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-2.07	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-16.93	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-14.72	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	65.6	64.2	58.2	66.6	67.2
Medium Trucks:	62.4	59.3	51.5	60.7	66.9	66.9
Heavy Trucks:	68.6	65.5	57.7	66.9	73.1	73.1
Vehicle Noise:	71.4	69.0	65.3	68.3	74.7	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	157	339	730	1,572
CNEL:	160	346	745	1,604

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,568 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	129 vehicles
Vehicle Speed:	50 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:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-11.29	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-28.53	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-32.48	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.0	56.9	55.5	49.5	57.9	58.6
Medium Trucks:	51.6	48.5	41.0	49.8	56.0	56.0
Heavy Trucks:	52.0	48.8	45.4	50.1	56.3	56.4
Vehicle Noise:	59.7	58.0	56.1	54.6	61.6	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	64	137
CNEL:	14	31	67	144

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Clinton Keith Rd.
Road Segment: w/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,742 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,114 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.28	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.59	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.37	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.3	70.2	68.8	62.8	71.3	71.9
Medium Trucks:	67.3	64.1	56.3	65.5	71.7	71.7
Heavy Trucks:	73.9	70.7	62.9	72.1	78.3	78.3
Vehicle Noise:	76.4	74.0	70.0	73.4	79.8	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	302	651	1,403	3,022
CNEL:	308	663	1,429	3,079

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 28
Road Name: Clinton Keith Rd.
Road Segment: e/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,806 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,037 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.17	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.70	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.48	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.2	70.1	68.7	62.7	71.2	71.8
Medium Trucks:	67.2	64.0	56.2	65.4	71.6	71.6
Heavy Trucks:	73.8	70.6	62.8	72.0	78.2	78.2
Vehicle Noise:	76.2	73.9	69.9	73.3	79.7	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	297	640	1,379	2,972
CNEL:	303	652	1,405	3,028

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Menifee Rd.
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,952 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	986 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.47	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.71	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-23.66	-0.97	-1.20	*-5.31*	0.000	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	64.4	63.1	57.0	65.5	66.1
Medium Trucks:	59.1	56.1	48.6	57.3	63.5	63.5
Heavy Trucks:	59.5	56.3	52.9	57.6	63.8	63.9
Vehicle Noise:	67.2	65.5	63.6	62.1	69.1	69.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	56	120	259	558
CNEL:	59	126	272	586

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Whitewood Rd.
Road Segment: n/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,110 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,659 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.00	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.87	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.65	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	67.0	65.6	59.6	68.0	68.6
Medium Trucks:	64.2	61.1	53.3	62.5	68.6	68.7
Heavy Trucks:	71.2	68.1	60.3	69.5	75.7	75.7
Vehicle Noise:	73.5	71.0	66.9	70.6	77.0	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	147	317	683	1,471
CNEL:	150	322	694	1,496

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Whitewood Rd.
Road Segment: s/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,069 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,573 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.23	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-15.10	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.88	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.8	66.8	65.3	59.3	67.8	68.4
Medium Trucks:	64.0	60.8	53.0	62.3	68.4	68.4
Heavy Trucks:	71.0	67.8	60.1	69.3	75.4	75.5
Vehicle Noise:	73.2	70.8	66.7	70.4	76.8	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	142	306	659	1,419
CNEL:	144	311	670	1,444

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Leon Rd.
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,533 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	786 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.11	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-18.98	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.76	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.8	64.8	63.4	57.4	65.8	66.4
Medium Trucks:	61.6	58.5	50.7	59.9	66.1	66.1
Heavy Trucks:	67.8	64.7	56.9	66.1	72.3	72.3
Vehicle Noise:	70.6	68.2	64.4	67.5	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	108	232	501	1,078
CNEL:	110	237	511	1,100

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,904 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	735 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.00	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.86	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.65	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	63.3	61.9	55.9	64.4	65.0
Medium Trucks:	60.3	57.2	49.4	58.6	64.8	64.8
Heavy Trucks:	66.9	63.8	56.0	65.2	71.4	71.4
Vehicle Noise:	69.4	67.0	63.1	66.5	72.9	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	92	198	426	919
CNEL:	94	202	434	936

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Leon Rd.
Road Segment: n/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,548 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	705 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.17	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.04	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.82	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.2	63.1	61.7	55.7	64.2	64.8
Medium Trucks:	60.2	57.0	49.2	58.4	64.6	64.6
Heavy Trucks:	66.8	63.6	55.8	65.0	71.2	71.2
Vehicle Noise:	69.2	66.9	62.9	66.3	72.7	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	89	193	415	894
CNEL:	91	196	423	911

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Leon Rd.
Road Segment: s/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,119 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,000 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.66	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.52	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.31	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	64.7	63.3	57.2	65.7	66.3
Medium Trucks:	61.7	58.5	50.7	60.0	66.1	66.1
Heavy Trucks:	68.3	65.1	57.3	66.6	72.7	72.7
Vehicle Noise:	70.8	68.4	64.4	67.8	74.2	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	113	243	524	1,128
CNEL:	115	248	534	1,149

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,607 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,700 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	106.752
Medium Trucks:	106.669
Heavy Trucks:	106.677

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.35	-5.04	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	79.45	-16.88	-5.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.84	-5.04	-1.20	*-5.14*	0.000	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	61.4	60.1	54.1	62.5	63.1
Medium Trucks:	56.3	53.3	45.8	54.5	60.7	60.7
Heavy Trucks:	57.2	54.0	50.6	55.2	61.4	61.5
Vehicle Noise:	64.4	62.6	60.7	59.4	66.4	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	63	136	292	630
CNEL:	66	142	306	660

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,818 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,202 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.26	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.61	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.39	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.5	69.4	68.0	62.0	70.5	71.1
Medium Trucks:	66.0	62.8	55.0	64.2	70.4	70.4
Heavy Trucks:	71.5	68.4	60.6	69.8	75.9	76.0
Vehicle Noise:	74.7	72.4	68.9	71.4	77.9	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	369	794	1,711	3,686
CNEL:	377	812	1,750	3,770

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,648 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,271 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.35	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.52	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.30	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	69.5	68.1	62.1	70.6	71.2
Medium Trucks:	66.1	62.9	55.1	64.3	70.5	70.5
Heavy Trucks:	71.6	68.4	60.7	69.9	76.0	76.1
Vehicle Noise:	74.8	72.5	69.0	71.5	78.0	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	374	805	1,735	3,738
CNEL:	382	824	1,775	3,823

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,034 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,065 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.30	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-15.17	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.95	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.6	66.6	65.1	59.1	67.6	68.2
Medium Trucks:	63.2	60.1	52.3	61.5	67.7	67.7
Heavy Trucks:	69.1	65.9	58.2	67.4	73.5	73.6
Vehicle Noise:	72.0	69.8	66.1	68.9	75.3	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	249	537	1,156	2,491
CNEL:	254	548	1,181	2,545

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: n/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,829 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,378 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.31	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.55	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.33	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.2	65.8	59.7	68.2	68.8
Medium Trucks:	63.8	60.7	52.9	62.1	68.3	68.3
Heavy Trucks:	69.7	66.6	58.8	68.0	74.1	74.2
Vehicle Noise:	72.7	70.4	66.7	69.5	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	274	590	1,270	2,737
CNEL:	280	602	1,298	2,796

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: s/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,087 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,317 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.20	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.67	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.45	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	67.1	65.6	59.6	68.1	68.7
Medium Trucks:	63.7	60.6	52.8	62.0	68.2	68.2
Heavy Trucks:	69.6	66.4	58.7	67.9	74.0	74.1
Vehicle Noise:	72.5	70.3	66.6	69.4	75.8	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	269	580	1,249	2,690
CNEL:	275	592	1,275	2,748

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,036 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,395 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.34	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.52	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.30	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.3	67.2	65.8	59.8	68.2	68.9
Medium Trucks:	63.9	60.7	52.9	62.2	68.3	68.3
Heavy Trucks:	69.7	66.6	58.8	68.0	74.2	74.2
Vehicle Noise:	72.7	70.4	66.8	69.5	76.0	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	275	593	1,277	2,750
CNEL:	281	605	1,304	2,809

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,955 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,306 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.18	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.69	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.47	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.1	67.0	65.6	59.6	68.1	68.7
Medium Trucks:	63.7	60.6	52.8	62.0	68.1	68.2
Heavy Trucks:	69.6	66.4	58.6	67.8	74.0	74.0
Vehicle Noise:	72.5	70.2	66.6	69.3	75.8	75.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	268	578	1,245	2,682
CNEL:	274	590	1,271	2,739

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Via Maira Mosa/Audl Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,285 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,406 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	1.87	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.99	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.77	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.8	68.7	67.3	61.3	69.8	70.4
Medium Trucks:	65.4	62.3	54.5	63.7	69.8	69.9
Heavy Trucks:	71.3	68.1	60.3	69.5	75.7	75.7
Vehicle Noise:	74.2	71.9	68.3	71.0	77.5	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	348	749	1,614	3,478
CNEL:	355	765	1,649	3,552

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,592 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,596 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.11	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.76	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.54	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.0	69.0	67.6	61.5	70.0	70.6
Medium Trucks:	65.6	62.5	54.7	63.9	70.1	70.1
Heavy Trucks:	71.5	68.4	60.6	69.8	75.9	76.0
Vehicle Noise:	74.4	72.2	68.5	71.3	77.7	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	361	777	1,674	3,606
CNEL:	368	794	1,710	3,684

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,913 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,870 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.43	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.44	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.22	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.4	69.3	67.9	61.9	70.3	70.9
Medium Trucks:	66.0	62.8	55.0	64.2	70.4	70.4
Heavy Trucks:	71.8	68.7	60.9	70.1	76.3	76.3
Vehicle Noise:	74.8	72.5	68.9	71.6	78.1	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	379	816	1,758	3,787
CNEL:	387	833	1,796	3,868

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Scott Rd.
Road Segment: w/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,408 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,426 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.78	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.09	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-11.87	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.5	68.4	67.0	61.0	69.5	70.1
Medium Trucks:	65.3	62.1	54.3	63.6	69.7	69.7
Heavy Trucks:	71.5	68.3	60.6	69.8	75.9	76.0
Vehicle Noise:	74.2	71.9	68.1	71.1	77.6	77.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	243	524	1,130	2,434
CNEL:	248	535	1,152	2,483

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Scott Rd.
Road Segment: e/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,564 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,357 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.65	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.22	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.00	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.3	66.9	60.9	69.3	70.0
Medium Trucks:	65.1	62.0	54.2	63.4	69.6	69.6
Heavy Trucks:	71.4	68.2	60.4	69.6	75.8	75.8
Vehicle Noise:	74.1	71.8	68.0	71.0	77.5	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	239	514	1,108	2,387
CNEL:	244	525	1,130	2,435

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Scott Rd.
Road Segment: w/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,095 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,328 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.84	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-16.71	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-14.49	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.9	65.8	64.4	58.4	66.9	67.5
Medium Trucks:	62.7	59.5	51.7	60.9	67.1	67.1
Heavy Trucks:	68.9	65.7	57.9	67.1	73.3	73.3
Vehicle Noise:	71.6	69.3	65.5	68.5	75.0	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	163	351	756	1,628
CNEL:	166	358	771	1,661

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,860 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	236 vehicles
Vehicle Speed:	50 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:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-8.68	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-25.92	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-29.87	0.34	-1.20	*-5.43*	0.000	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	59.5	58.1	52.1	60.6	61.2
Medium Trucks:	54.2	51.2	43.7	52.4	58.6	58.6
Heavy Trucks:	54.6	51.4	48.0	52.7	58.9	59.0
Vehicle Noise:	62.3	60.6	58.7	57.2	64.2	64.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	21	44	95	205
CNEL:	22	46	100	216

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Clinton Keith Rd.
Road Segment: w/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,212 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,152 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.33	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.54	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.32	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.4	70.3	68.9	62.9	71.3	72.0
Medium Trucks:	67.3	64.2	56.4	65.6	71.8	71.8
Heavy Trucks:	73.9	70.8	63.0	72.2	78.4	78.4
Vehicle Noise:	76.4	74.0	70.1	73.5	79.9	80.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	305	656	1,414	3,047
CNEL:	310	669	1,441	3,104

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 28
Road Name: Clinton Keith Rd.
Road Segment: e/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,276 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,075 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.22	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.65	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.43	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.3	70.2	68.8	62.8	71.2	71.8
Medium Trucks:	67.2	64.1	56.3	65.5	71.6	71.7
Heavy Trucks:	73.8	70.7	62.9	72.1	78.2	78.3
Vehicle Noise:	76.3	73.9	70.0	73.3	79.8	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	300	646	1,391	2,997
CNEL:	305	658	1,417	3,053

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Menifee Rd.
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,312 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,016 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.34	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.58	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-23.53	-0.97	-1.20	*-5.31*	0.000	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	64.5	63.2	57.2	65.6	66.2
Medium Trucks:	59.3	56.2	48.7	57.4	63.6	63.6
Heavy Trucks:	59.7	56.5	53.1	57.7	63.9	64.0
Vehicle Noise:	67.4	65.7	63.7	62.2	69.2	69.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	57	123	264	569
CNEL:	60	129	277	598

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Whitewood Rd.
Road Segment: n/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,922 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,726 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.17	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.70	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.48	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.2	65.7	59.7	68.2	68.8
Medium Trucks:	64.4	61.2	53.4	62.7	68.8	68.8
Heavy Trucks:	71.4	68.2	60.5	69.7	75.8	75.9
Vehicle Noise:	73.6	71.2	67.1	70.8	77.2	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	151	325	701	1,510
CNEL:	154	331	713	1,536

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Whitewood Rd.
Road Segment: s/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,839 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,637 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.06	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.93	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.71	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.9	65.5	59.5	68.0	68.6
Medium Trucks:	64.1	61.0	53.2	62.4	68.6	68.6
Heavy Trucks:	71.2	68.0	60.2	69.4	75.6	75.6
Vehicle Noise:	73.4	71.0	66.8	70.6	77.0	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	146	314	676	1,457
CNEL:	148	319	688	1,483

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Leon Rd.
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,063 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	748 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.33	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.20	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.98	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	64.6	63.2	57.1	65.6	66.2
Medium Trucks:	61.4	58.3	50.5	59.7	65.8	65.9
Heavy Trucks:	67.6	64.5	56.7	65.9	72.0	72.1
Vehicle Noise:	70.3	68.0	64.2	67.3	73.7	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	104	225	484	1,043
CNEL:	106	229	494	1,064

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,775 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	724 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.06	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.93	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.71	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	63.3	61.8	55.8	64.3	64.9
Medium Trucks:	60.3	57.1	49.3	58.6	64.7	64.7
Heavy Trucks:	66.9	63.7	55.9	65.1	71.3	71.3
Vehicle Noise:	69.4	67.0	63.0	66.4	72.8	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	91	196	422	910
CNEL:	93	200	430	927

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Leon Rd.
Road Segment: n/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,404 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	693 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.25	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.11	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.90	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.1	63.1	61.7	55.6	64.1	64.7
Medium Trucks:	60.1	56.9	49.2	58.4	64.5	64.6
Heavy Trucks:	66.7	63.5	55.8	65.0	71.1	71.2
Vehicle Noise:	69.2	66.8	62.8	66.2	72.6	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	88	190	410	884
CNEL:	90	194	418	901

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Leon Rd.
Road Segment: s/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,120 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,000 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.66	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.52	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.31	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	64.7	63.3	57.2	65.7	66.3
Medium Trucks:	61.7	58.5	50.8	60.0	66.1	66.1
Heavy Trucks:	68.3	65.1	57.3	66.6	72.7	72.7
Vehicle Noise:	70.8	68.4	64.4	67.8	74.2	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	113	243	524	1,128
CNEL:	115	248	534	1,150

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,073 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,739 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	106.752
Medium Trucks:	106.669
Heavy Trucks:	106.677

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.45	-5.04	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	79.45	-16.79	-5.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.74	-5.04	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	61.5	60.2	54.2	62.6	63.2
Medium Trucks:	56.4	53.4	45.9	54.6	60.8	60.8
Heavy Trucks:	57.3	54.1	50.7	55.3	61.5	61.6
Vehicle Noise:	64.5	62.7	60.8	59.5	66.5	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	64	138	297	639
CNEL:	67	144	311	670

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,897 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,292 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.38	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.49	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.27	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	69.6	68.1	62.1	70.6	71.2
Medium Trucks:	66.1	62.9	55.2	64.4	70.5	70.6
Heavy Trucks:	71.6	68.5	60.7	69.9	76.1	76.1
Vehicle Noise:	74.8	72.6	69.0	71.5	78.0	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	375	809	1,742	3,754
CNEL:	384	827	1,782	3,839

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,761 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,363 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.47	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.40	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.18	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.7	69.7	68.2	62.2	70.7	71.3
Medium Trucks:	66.2	63.0	55.2	64.5	70.6	70.6
Heavy Trucks:	71.7	68.6	60.8	70.0	76.1	76.2
Vehicle Noise:	74.9	72.7	69.1	71.6	78.1	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	381	820	1,767	3,808
CNEL:	389	839	1,808	3,895

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,556 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,108 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.21	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-15.08	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.86	-4.09	-1.20	*-5.14*	0.000	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	66.6	65.2	59.2	67.7	68.3
Medium Trucks:	63.3	60.2	52.4	61.6	67.8	67.8
Heavy Trucks:	69.2	66.0	58.2	67.5	73.6	73.6
Vehicle Noise:	72.1	69.9	66.2	68.9	75.4	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	253	544	1,172	2,526
CNEL:	258	556	1,198	2,580

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: n/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,505 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,434 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.41	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.45	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.23	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.3	67.3	65.9	59.8	68.3	68.9
Medium Trucks:	63.9	60.8	53.0	62.2	68.4	68.4
Heavy Trucks:	69.8	66.7	58.9	68.1	74.2	74.3
Vehicle Noise:	72.8	70.5	66.8	69.6	76.0	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	278	599	1,290	2,780
CNEL:	284	612	1,318	2,840

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: s/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,806 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,376 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.31	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.56	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.34	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.2	65.8	59.7	68.2	68.8
Medium Trucks:	63.8	60.7	52.9	62.1	68.3	68.3
Heavy Trucks:	69.7	66.6	58.8	68.0	74.1	74.2
Vehicle Noise:	72.6	70.4	66.7	69.5	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	274	589	1,270	2,736
CNEL:	279	602	1,297	2,795

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,793 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,458 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.46	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.41	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.19	-4.09	-1.20	*-5.14*	0.000	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	67.3	65.9	59.9	68.3	69.0
Medium Trucks:	64.0	60.8	53.1	62.3	68.4	68.5
Heavy Trucks:	69.8	66.7	58.9	68.1	74.3	74.3
Vehicle Noise:	72.8	70.5	66.9	69.6	76.1	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	280	603	1,299	2,798
CNEL:	286	616	1,327	2,858

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,668 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,365 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.29	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.58	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.36	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.1	65.7	59.7	68.2	68.8
Medium Trucks:	63.8	60.7	52.9	62.1	68.3	68.3
Heavy Trucks:	69.7	66.5	58.7	68.0	74.1	74.1
Vehicle Noise:	72.6	70.4	66.7	69.4	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	273	588	1,266	2,727
CNEL:	279	600	1,293	2,786

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Via Maira Mosa/Audl Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,585 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,513 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.01	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.86	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.64	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.9	68.9	67.5	61.4	69.9	70.5
Medium Trucks:	65.5	62.4	54.6	63.8	70.0	70.0
Heavy Trucks:	71.4	68.2	60.5	69.7	75.8	75.9
Vehicle Noise:	74.3	72.1	68.4	71.2	77.6	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	355	765	1,648	3,550
CNEL:	363	781	1,683	3,627

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,107 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,721 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.26	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.61	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.39	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.2	69.1	67.7	61.7	70.1	70.8
Medium Trucks:	65.8	62.6	54.9	64.1	70.2	70.3
Heavy Trucks:	71.6	68.5	60.7	69.9	76.1	76.1
Vehicle Noise:	74.6	72.3	68.7	71.4	77.9	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	369	795	1,712	3,689
CNEL:	377	812	1,749	3,768

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	48,562 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,006 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.58	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.29	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.07	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.5	69.4	68.0	62.0	70.5	71.1
Medium Trucks:	66.1	63.0	55.2	64.4	70.5	70.6
Heavy Trucks:	72.0	68.8	61.0	70.2	76.4	76.4
Vehicle Noise:	74.9	72.6	69.0	71.7	78.2	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	388	835	1,799	3,875
CNEL:	396	853	1,837	3,959

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Scott Rd.
Road Segment: w/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,985 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,474 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.86	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.00	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-11.79	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.6	68.5	67.1	61.1	69.6	70.2
Medium Trucks:	65.4	62.2	54.4	63.6	69.8	69.8
Heavy Trucks:	71.6	68.4	60.6	69.9	76.0	76.0
Vehicle Noise:	74.3	72.0	68.2	71.2	77.7	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	247	531	1,144	2,465
CNEL:	252	542	1,167	2,515

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Scott Rd.
Road Segment: e/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,984 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,391 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.71	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-14.15	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-11.93	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.4	68.4	67.0	60.9	69.4	70.0
Medium Trucks:	65.2	62.1	54.3	63.5	69.6	69.7
Heavy Trucks:	71.4	68.3	60.5	69.7	75.9	75.9
Vehicle Noise:	74.1	71.8	68.0	71.1	77.5	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	241	519	1,119	2,410
CNEL:	246	530	1,141	2,459

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Scott Rd.
Road Segment: w/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,890 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,311 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.90	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-16.76	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-14.54	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.8	65.8	64.4	58.3	66.8	67.4
Medium Trucks:	62.6	59.5	51.7	60.9	67.0	67.1
Heavy Trucks:	68.8	65.7	57.9	67.1	73.2	73.3
Vehicle Noise:	71.5	69.2	65.4	68.5	74.9	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	161	348	749	1,615
CNEL:	165	355	765	1,647

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,632 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	135 vehicles
Vehicle Speed:	50 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:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-11.12	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-28.36	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-32.31	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.2	57.0	55.7	49.7	58.1	58.7
Medium Trucks:	51.8	48.7	41.2	50.0	56.1	56.2
Heavy Trucks:	52.2	49.0	45.6	50.2	56.4	56.5
Vehicle Noise:	59.9	58.2	56.3	54.7	61.8	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	66	141
CNEL:	15	32	69	148

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Clinton Keith Rd.
Road Segment: w/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,267 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,239 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.45	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.42	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.20	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.5	70.4	69.0	63.0	71.5	72.1
Medium Trucks:	67.4	64.3	56.5	65.7	71.9	71.9
Heavy Trucks:	74.0	70.9	63.1	72.3	78.5	78.5
Vehicle Noise:	76.5	74.1	70.2	73.6	80.0	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	310	668	1,440	3,103
CNEL:	316	681	1,467	3,161

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EA 30
Road Name: Clinton Keith Rd.
Road Segment: e/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,293 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,159 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.34	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.53	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.31	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.4	70.3	68.9	62.9	71.3	72.0
Medium Trucks:	67.3	64.2	56.4	65.6	71.8	71.8
Heavy Trucks:	73.9	70.8	63.0	72.2	78.4	78.4
Vehicle Noise:	76.4	74.0	70.1	73.5	79.9	80.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	305	657	1,416	3,051
CNEL:	311	670	1,443	3,109

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Menifee Rd.
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,598 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,039 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.24	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-19.48	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-23.44	-0.97	-1.20	*-5.31*	0.000	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	64.6	63.3	57.3	65.7	66.3
Medium Trucks:	59.4	56.3	48.8	57.5	63.7	63.7
Heavy Trucks:	59.8	56.6	53.2	57.8	64.0	64.1
Vehicle Noise:	67.5	65.8	63.8	62.3	69.3	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	124	268	578
CNEL:	61	131	282	607

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Whitewood Rd.
Road Segment: n/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,922 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,726 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.17	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.70	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.48	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.2	65.7	59.7	68.2	68.8
Medium Trucks:	64.4	61.2	53.4	62.7	68.8	68.8
Heavy Trucks:	71.4	68.2	60.5	69.7	75.8	75.9
Vehicle Noise:	73.6	71.2	67.1	70.8	77.2	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	151	325	701	1,510
CNEL:	154	331	713	1,536

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Whitewood Rd.
Road Segment: s/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,839 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,637 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.06	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.93	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.71	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.9	65.5	59.5	68.0	68.6
Medium Trucks:	64.1	61.0	53.2	62.4	68.6	68.6
Heavy Trucks:	71.2	68.0	60.2	69.4	75.6	75.6
Vehicle Noise:	73.4	71.0	66.8	70.6	77.0	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	146	314	676	1,457
CNEL:	148	319	688	1,483

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Leon Rd.
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,065 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	913 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-3.47	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-18.33	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.12	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.5	65.4	64.0	58.0	66.5	67.1
Medium Trucks:	62.3	59.1	51.3	60.6	66.7	66.7
Heavy Trucks:	68.5	65.3	57.6	66.8	72.9	72.9
Vehicle Noise:	71.2	68.9	65.1	68.1	74.6	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	119	257	553	1,191
CNEL:	121	262	564	1,215

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,919 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	818 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.53	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.39	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.18	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	63.8	62.4	56.4	64.8	65.4
Medium Trucks:	60.8	57.7	49.9	59.1	65.2	65.3
Heavy Trucks:	67.4	64.3	56.5	65.7	71.8	71.9
Vehicle Noise:	69.9	67.5	63.6	66.9	73.4	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	99	213	458	987
CNEL:	101	217	467	1,006

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Leon Rd.
Road Segment: n/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,548 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	788 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.69	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.56	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.34	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	63.6	62.2	56.2	64.7	65.3
Medium Trucks:	60.6	57.5	49.7	58.9	65.1	65.1
Heavy Trucks:	67.2	64.1	56.3	65.5	71.7	71.7
Vehicle Noise:	69.7	67.3	63.4	66.8	73.2	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	96	207	447	962
CNEL:	98	211	455	981

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Leon Rd.
Road Segment: s/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,264 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,094 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.27	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.13	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-14.91	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	65.1	63.6	57.6	66.1	66.7
Medium Trucks:	62.1	58.9	51.1	60.4	66.5	66.5
Heavy Trucks:	68.7	65.5	57.7	66.9	73.1	73.1
Vehicle Noise:	71.2	68.8	64.8	68.2	74.6	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	120	258	556	1,198
CNEL:	122	263	567	1,221

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,931 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,809 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	106.752
Medium Trucks:	106.669
Heavy Trucks:	106.677

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.62	-5.04	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	79.45	-16.61	-5.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.57	-5.04	-1.20	*-5.14*	0.000	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	61.7	60.4	54.3	62.8	63.4
Medium Trucks:	56.6	53.5	46.0	54.8	61.0	61.0
Heavy Trucks:	57.4	54.2	50.8	55.5	61.7	61.8
Vehicle Noise:	64.7	62.9	61.0	59.7	66.6	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	141	305	656
CNEL:	69	148	319	688

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,041 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,386 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.50	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.37	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.15	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.7	69.7	68.3	62.3	70.7	71.3
Medium Trucks:	66.2	63.1	55.3	64.5	70.6	70.7
Heavy Trucks:	71.7	68.6	60.8	70.0	76.2	76.2
Vehicle Noise:	74.9	72.7	69.2	71.6	78.1	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	383	824	1,775	3,825
CNEL:	391	843	1,816	3,912

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,905 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,457 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.59	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.28	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.06	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.8	69.8	68.4	62.3	70.8	71.4
Medium Trucks:	66.3	63.2	55.4	64.6	70.7	70.8
Heavy Trucks:	71.8	68.7	60.9	70.1	76.3	76.3
Vehicle Noise:	75.0	72.8	69.3	71.7	78.2	78.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	388	836	1,800	3,879
CNEL:	397	855	1,841	3,967

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,700 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,203 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.02	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.89	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.67	-4.09	-1.20	*-5.14*	0.000	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	66.8	65.4	59.4	67.9	68.5
Medium Trucks:	63.5	60.4	52.6	61.8	67.9	68.0
Heavy Trucks:	69.4	66.2	58.4	67.6	73.8	73.8
Vehicle Noise:	72.3	70.0	66.4	69.1	75.6	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	260	560	1,207	2,601
CNEL:	266	572	1,233	2,657

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: n/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,649 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,529 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.58	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.29	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.07	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	67.4	66.0	60.0	68.5	69.1
Medium Trucks:	64.1	61.0	53.2	62.4	68.5	68.6
Heavy Trucks:	70.0	66.8	59.0	68.2	74.4	74.4
Vehicle Noise:	72.9	70.6	67.0	69.7	76.2	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	285	614	1,323	2,851
CNEL:	291	627	1,352	2,913

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: s/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,778 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,457 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.45	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.41	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.19	-4.09	-1.20	*-5.14*	0.000	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	67.3	65.9	59.9	68.3	69.0
Medium Trucks:	64.0	60.8	53.1	62.3	68.4	68.5
Heavy Trucks:	69.8	66.7	58.9	68.1	74.3	74.3
Vehicle Noise:	72.8	70.5	66.9	69.6	76.1	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	280	603	1,298	2,797
CNEL:	286	616	1,326	2,857

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,765 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,538 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.60	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.27	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.05	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	67.5	66.0	60.0	68.5	69.1
Medium Trucks:	64.1	61.0	53.2	62.4	68.6	68.6
Heavy Trucks:	70.0	66.8	59.1	68.3	74.4	74.5
Vehicle Noise:	72.9	70.7	67.0	69.8	76.2	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	286	616	1,327	2,858
CNEL:	292	629	1,355	2,920

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,640 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,445 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.43	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.43	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.21	-4.09	-1.20	*-5.14*	0.000	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	67.3	65.9	59.9	68.3	68.9
Medium Trucks:	64.0	60.8	53.0	62.2	68.4	68.4
Heavy Trucks:	69.8	66.7	58.9	68.1	74.3	74.3
Vehicle Noise:	72.8	70.5	66.9	69.6	76.1	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	279	601	1,294	2,788
CNEL:	285	614	1,322	2,848

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Via Maira Mosa/Audl Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,443 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,584 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.09	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.77	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.55	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.0	69.0	67.5	61.5	70.0	70.6
Medium Trucks:	65.6	62.5	54.7	63.9	70.1	70.1
Heavy Trucks:	71.5	68.3	60.6	69.8	75.9	76.0
Vehicle Noise:	74.4	72.2	68.5	71.3	77.7	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	360	775	1,670	3,598
CNEL:	368	792	1,706	3,675

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,679 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,769 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.31	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.55	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.34	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.2	69.2	67.8	61.7	70.2	70.8
Medium Trucks:	65.8	62.7	54.9	64.1	70.3	70.3
Heavy Trucks:	71.7	68.6	60.8	70.0	76.1	76.2
Vehicle Noise:	74.6	72.4	68.7	71.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	372	801	1,727	3,720
CNEL:	380	819	1,764	3,800

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,134 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,054 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.63	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.24	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.02	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	69.5	68.1	62.1	70.5	71.1
Medium Trucks:	66.2	63.0	55.2	64.4	70.6	70.6
Heavy Trucks:	72.0	68.9	61.1	70.3	76.5	76.5
Vehicle Noise:	75.0	72.7	69.1	71.8	78.3	78.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	391	841	1,813	3,905
CNEL:	399	860	1,852	3,990

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Scott Rd.
Road Segment: w/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,415 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,592 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	1.06	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-13.80	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-11.58	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.8	68.7	67.3	61.3	69.8	70.4
Medium Trucks:	65.6	62.4	54.6	63.8	70.0	70.0
Heavy Trucks:	71.8	68.6	60.8	70.1	76.2	76.2
Vehicle Noise:	74.5	72.2	68.4	71.4	77.9	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	254	548	1,180	2,543
CNEL:	259	559	1,204	2,595

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Scott Rd.
Road Segment: e/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,700 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,533 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.96	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-13.90	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-11.68	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	68.6	67.2	61.2	69.7	70.3
Medium Trucks:	65.5	62.3	54.5	63.7	69.9	69.9
Heavy Trucks:	71.7	68.5	60.7	70.0	76.1	76.1
Vehicle Noise:	74.4	72.1	68.3	71.3	77.8	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	250	540	1,162	2,504
CNEL:	256	550	1,186	2,555

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Scott Rd.
Road Segment: w/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,892 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,476 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.38	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-16.25	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-14.03	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.3	66.3	64.9	58.9	67.3	67.9
Medium Trucks:	63.1	60.0	52.2	61.4	67.6	67.6
Heavy Trucks:	69.3	66.2	58.4	67.6	73.8	73.8
Vehicle Noise:	72.1	69.7	65.9	69.0	75.4	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	175	376	811	1,747
CNEL:	178	384	827	1,783

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,778 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	394 vehicles
Vehicle Speed:	50 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:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-6.45	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-23.69	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-27.65	0.34	-1.20	*-5.43*	0.000	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	61.7	60.4	54.4	62.8	63.4
Medium Trucks:	56.4	53.4	45.9	54.6	60.8	60.8
Heavy Trucks:	56.9	53.7	50.3	54.9	61.1	61.2
Vehicle Noise:	64.6	62.8	60.9	59.4	66.4	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	62	134	289
CNEL:	30	65	141	303

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Clinton Keith Rd.
Road Segment: w/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,411 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,334 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.57	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.29	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.08	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.6	70.5	69.1	63.1	71.6	72.2
Medium Trucks:	67.6	64.4	56.6	65.8	72.0	72.0
Heavy Trucks:	74.2	71.0	63.2	72.4	78.6	78.6
Vehicle Noise:	76.6	74.3	70.3	73.7	80.1	80.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	316	681	1,468	3,163
CNEL:	322	694	1,496	3,222

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAP 30
Road Name: Clinton Keith Rd.
Road Segment: e/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,437 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,254 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.47	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.40	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.18	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.5	70.4	69.0	63.0	71.5	72.1
Medium Trucks:	67.5	64.3	56.5	65.7	71.9	71.9
Heavy Trucks:	74.1	70.9	63.1	72.3	78.5	78.5
Vehicle Noise:	76.5	74.2	70.2	73.6	80.0	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	311	670	1,444	3,112
CNEL:	317	683	1,471	3,170

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Menifee Rd.
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,448 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,357 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-1.08	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-18.32	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-22.28	-0.97	-1.20	*-5.31*	0.000	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	65.8	64.4	58.4	66.9	67.5
Medium Trucks:	60.5	57.4	49.9	58.7	64.9	64.9
Heavy Trucks:	60.9	57.7	54.3	59.0	65.2	65.3
Vehicle Noise:	68.6	66.9	65.0	63.5	70.5	70.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	69	149	320	690
CNEL:	72	156	336	725

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Whitewood Rd.
Road Segment: n/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,922 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,726 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.17	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.70	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.48	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.2	65.7	59.7	68.2	68.8
Medium Trucks:	64.4	61.2	53.4	62.7	68.8	68.8
Heavy Trucks:	71.4	68.2	60.5	69.7	75.8	75.9
Vehicle Noise:	73.6	71.2	67.1	70.8	77.2	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	151	325	701	1,510
CNEL:	154	331	713	1,536

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Whitewood Rd.
Road Segment: s/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,839 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,637 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.06	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.93	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.71	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.9	65.5	59.5	68.0	68.6
Medium Trucks:	64.1	61.0	53.2	62.4	68.6	68.6
Heavy Trucks:	71.2	68.0	60.2	69.4	75.6	75.6
Vehicle Noise:	73.4	71.0	66.8	70.6	77.0	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	146	314	676	1,457
CNEL:	148	319	688	1,483

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Leon Rd.
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,063 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	748 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-4.33	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-19.20	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.98	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	64.6	63.2	57.1	65.6	66.2
Medium Trucks:	61.4	58.3	50.5	59.7	65.8	65.9
Heavy Trucks:	67.6	64.5	56.7	65.9	72.0	72.1
Vehicle Noise:	70.3	68.0	64.2	67.3	73.7	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	104	225	484	1,043
CNEL:	106	229	494	1,064

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,775 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	724 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.06	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.93	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.71	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.3	63.3	61.8	55.8	64.3	64.9
Medium Trucks:	60.3	57.1	49.3	58.6	64.7	64.7
Heavy Trucks:	66.9	63.7	55.9	65.1	71.3	71.3
Vehicle Noise:	69.4	67.0	63.0	66.4	72.8	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	91	196	422	910
CNEL:	93	200	430	927

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Leon Rd.
Road Segment: n/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,404 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	693 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-4.25	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-19.11	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.90	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.1	63.1	61.7	55.6	64.1	64.7
Medium Trucks:	60.1	56.9	49.2	58.4	64.5	64.6
Heavy Trucks:	66.7	63.5	55.8	65.0	71.1	71.2
Vehicle Noise:	69.2	66.8	62.8	66.2	72.6	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	88	190	410	884
CNEL:	90	194	418	901

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Leon Rd.
Road Segment: s/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,510 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,032 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.52	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.39	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-15.17	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.9	64.8	63.4	57.4	65.8	66.5
Medium Trucks:	61.8	58.7	50.9	60.1	66.3	66.3
Heavy Trucks:	68.4	65.3	57.5	66.7	72.8	72.9
Vehicle Noise:	70.9	68.5	64.6	67.9	74.4	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	115	248	535	1,152
CNEL:	117	253	545	1,174

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,073 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,739 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	106.752
Medium Trucks:	106.669
Heavy Trucks:	106.677

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.45	-5.04	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	79.45	-16.79	-5.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.74	-5.04	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	61.5	60.2	54.2	62.6	63.2
Medium Trucks:	56.4	53.4	45.9	54.6	60.8	60.8
Heavy Trucks:	57.3	54.1	50.7	55.3	61.5	61.6
Vehicle Noise:	64.5	62.7	60.8	59.5	66.5	66.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	64	138	297	639
CNEL:	67	144	311	670

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,897 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,292 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.38	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.49	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.27	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	69.6	68.1	62.1	70.6	71.2
Medium Trucks:	66.1	62.9	55.2	64.4	70.5	70.6
Heavy Trucks:	71.6	68.5	60.7	69.9	76.1	76.1
Vehicle Noise:	74.8	72.6	69.0	71.5	78.0	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	375	809	1,742	3,754
CNEL:	384	827	1,782	3,839

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,761 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,363 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.47	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.40	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.18	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.7	69.7	68.2	62.2	70.7	71.3
Medium Trucks:	66.2	63.0	55.2	64.5	70.6	70.6
Heavy Trucks:	71.7	68.6	60.8	70.0	76.1	76.2
Vehicle Noise:	74.9	72.7	69.1	71.6	78.1	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	381	820	1,767	3,808
CNEL:	389	839	1,808	3,895

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,556 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,108 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.21	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-15.08	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.86	-4.09	-1.20	*-5.14*	0.000	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	66.6	65.2	59.2	67.7	68.3
Medium Trucks:	63.3	60.2	52.4	61.6	67.8	67.8
Heavy Trucks:	69.2	66.0	58.2	67.5	73.6	73.6
Vehicle Noise:	72.1	69.9	66.2	68.9	75.4	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	253	544	1,172	2,526
CNEL:	258	556	1,198	2,580

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: n/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,505 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,434 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.41	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.45	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.23	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.3	67.3	65.9	59.8	68.3	68.9
Medium Trucks:	63.9	60.8	53.0	62.2	68.4	68.4
Heavy Trucks:	69.8	66.7	58.9	68.1	74.2	74.3
Vehicle Noise:	72.8	70.5	66.8	69.6	76.0	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	278	599	1,290	2,780
CNEL:	284	612	1,318	2,840

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: s/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,806 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,376 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.31	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.56	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.34	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.2	65.8	59.7	68.2	68.8
Medium Trucks:	63.8	60.7	52.9	62.1	68.3	68.3
Heavy Trucks:	69.7	66.6	58.8	68.0	74.1	74.2
Vehicle Noise:	72.6	70.4	66.7	69.5	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	274	589	1,270	2,736
CNEL:	279	602	1,297	2,795

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,793 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,458 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.46	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.41	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.19	-4.09	-1.20	*-5.14*	0.000	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	67.3	65.9	59.9	68.3	69.0
Medium Trucks:	64.0	60.8	53.1	62.3	68.4	68.5
Heavy Trucks:	69.8	66.7	58.9	68.1	74.3	74.3
Vehicle Noise:	72.8	70.5	66.9	69.6	76.1	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	280	603	1,299	2,798
CNEL:	286	616	1,327	2,858

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,668 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,365 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.29	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.58	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.36	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.1	65.7	59.7	68.2	68.8
Medium Trucks:	63.8	60.7	52.9	62.1	68.3	68.3
Heavy Trucks:	69.7	66.5	58.7	68.0	74.1	74.1
Vehicle Noise:	72.6	70.4	66.7	69.4	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	273	588	1,266	2,727
CNEL:	279	600	1,293	2,786

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Via Maira Mosa/Audl Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,585 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,513 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.01	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.86	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.64	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.9	68.9	67.5	61.4	69.9	70.5
Medium Trucks:	65.5	62.4	54.6	63.8	70.0	70.0
Heavy Trucks:	71.4	68.2	60.5	69.7	75.8	75.9
Vehicle Noise:	74.3	72.1	68.4	71.2	77.6	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	355	765	1,648	3,550
CNEL:	363	781	1,683	3,627

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,107 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,721 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.26	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.61	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.39	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.2	69.1	67.7	61.7	70.1	70.8
Medium Trucks:	65.8	62.6	54.9	64.1	70.2	70.3
Heavy Trucks:	71.6	68.5	60.7	69.9	76.1	76.1
Vehicle Noise:	74.6	72.3	68.7	71.4	77.9	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	369	795	1,712	3,689
CNEL:	377	812	1,749	3,768

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	48,562 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,006 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.58	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.29	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.07	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.5	69.4	68.0	62.0	70.5	71.1
Medium Trucks:	66.1	63.0	55.2	64.4	70.5	70.6
Heavy Trucks:	72.0	68.8	61.0	70.2	76.4	76.4
Vehicle Noise:	74.9	72.6	69.0	71.7	78.2	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	388	835	1,799	3,875
CNEL:	396	853	1,837	3,959

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Scott Rd.
Road Segment: w/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	55,195 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,554 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.51	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-11.35	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.14	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.2	71.2	69.8	63.7	72.2	72.8
Medium Trucks:	68.0	64.9	57.1	66.3	72.4	72.5
Heavy Trucks:	74.2	71.1	63.3	72.5	78.7	78.7
Vehicle Noise:	76.9	74.6	70.8	73.9	80.3	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	370	798	1,719	3,703
CNEL:	378	814	1,753	3,778

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Scott Rd.
Road Segment: e/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	57,562 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,749 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.69	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-11.17	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-8.95	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.4	71.4	69.9	63.9	72.4	73.0
Medium Trucks:	68.2	65.0	57.3	66.5	72.6	72.7
Heavy Trucks:	74.4	71.3	63.5	72.7	78.8	78.9
Vehicle Noise:	77.1	74.8	71.0	74.1	80.5	80.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	381	820	1,768	3,808
CNEL:	388	837	1,803	3,885

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Scott Rd.
Road Segment: w/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,890 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,311 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.90	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-16.76	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-14.54	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.8	65.8	64.4	58.3	66.8	67.4
Medium Trucks:	62.6	59.5	51.7	60.9	67.0	67.1
Heavy Trucks:	68.8	65.7	57.9	67.1	73.2	73.3
Vehicle Noise:	71.5	69.2	65.4	68.5	74.9	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	161	348	749	1,615
CNEL:	165	355	765	1,647

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,632 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	135 vehicles
Vehicle Speed:	50 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:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-11.12	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-28.36	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-32.31	0.34	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.2	57.0	55.7	49.7	58.1	58.7
Medium Trucks:	51.8	48.7	41.2	50.0	56.1	56.2
Heavy Trucks:	52.2	49.0	45.6	50.2	56.4	56.5
Vehicle Noise:	59.9	58.2	56.3	54.7	61.8	62.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	14	30	66	141
CNEL:	15	32	69	148

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Clinton Keith Rd.
Road Segment: w/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,267 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,239 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.45	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.42	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.20	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.5	70.4	69.0	63.0	71.5	72.1
Medium Trucks:	67.4	64.3	56.5	65.7	71.9	71.9
Heavy Trucks:	74.0	70.9	63.1	72.3	78.5	78.5
Vehicle Noise:	76.5	74.1	70.2	73.6	80.0	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	310	668	1,440	3,103
CNEL:	316	681	1,467	3,161

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAC 30
Road Name: Clinton Keith Rd.
Road Segment: e/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,293 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,159 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.34	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.53	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.31	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.4	70.3	68.9	62.9	71.3	72.0
Medium Trucks:	67.3	64.2	56.4	65.6	71.8	71.8
Heavy Trucks:	73.9	70.8	63.0	72.2	78.4	78.4
Vehicle Noise:	76.4	74.0	70.1	73.5	79.9	80.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	305	657	1,416	3,051
CNEL:	311	670	1,443	3,109

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Menifee Rd.
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,734 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,381 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	58 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	64.0 feet
Centerline Dist. to Observer:	64.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	57.271
Medium Trucks:	57.117
Heavy Trucks:	57.132

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-1.01	-0.99	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	81.00	-18.25	-0.97	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-22.20	-0.97	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.0	65.8	64.5	58.5	66.9	67.6
Medium Trucks:	60.6	57.5	50.0	58.8	64.9	65.0
Heavy Trucks:	61.0	57.8	54.4	59.0	65.2	65.3
Vehicle Noise:	68.7	67.0	65.1	63.6	70.6	70.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	70	150	324	698
CNEL:	73	158	340	733

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Whitewood Rd.
Road Segment: n/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,922 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,726 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.17	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.70	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.48	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.2	67.2	65.7	59.7	68.2	68.8
Medium Trucks:	64.4	61.2	53.4	62.7	68.8	68.8
Heavy Trucks:	71.4	68.2	60.5	69.7	75.8	75.9
Vehicle Noise:	73.6	71.2	67.1	70.8	77.2	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	151	325	701	1,510
CNEL:	154	331	713	1,536

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Whitewood Rd.
Road Segment: s/o Clinton Keith Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,839 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,637 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.06	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	79.45	-14.93	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-12.71	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.0	66.9	65.5	59.5	68.0	68.6
Medium Trucks:	64.1	61.0	53.2	62.4	68.6	68.6
Heavy Trucks:	71.2	68.0	60.2	69.4	75.6	75.6
Vehicle Noise:	73.4	71.0	66.8	70.6	77.0	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	146	314	676	1,457
CNEL:	148	319	688	1,483

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Leon Rd.
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,065 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	913 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-3.47	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	82.40	-18.33	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.12	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.5	65.4	64.0	58.0	66.5	67.1
Medium Trucks:	62.3	59.1	51.3	60.6	66.7	66.7
Heavy Trucks:	68.5	65.3	57.6	66.8	72.9	72.9
Vehicle Noise:	71.2	68.9	65.1	68.1	74.6	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	119	257	553	1,191
CNEL:	121	262	564	1,215

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Leon Rd.
Road Segment: s/o Keller Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,919 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	818 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.53	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.39	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.18	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	63.8	62.4	56.4	64.8	65.4
Medium Trucks:	60.8	57.7	49.9	59.1	65.2	65.3
Heavy Trucks:	67.4	64.3	56.5	65.7	71.8	71.9
Vehicle Noise:	69.9	67.5	63.6	66.9	73.4	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	99	213	458	987
CNEL:	101	217	467	1,006

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Leon Rd.
Road Segment: n/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,548 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	788 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-3.69	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-18.56	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-16.34	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.7	63.6	62.2	56.2	64.7	65.3
Medium Trucks:	60.6	57.5	49.7	58.9	65.1	65.1
Heavy Trucks:	67.2	64.1	56.3	65.5	71.7	71.7
Vehicle Noise:	69.7	67.3	63.4	66.8	73.2	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	96	207	447	962
CNEL:	98	211	455	981

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Leon Rd.
Road Segment: s/o Jean Nichols Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,654 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,126 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	54.129
Medium Trucks:	53.966
Heavy Trucks:	53.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.14	-0.62	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-17.01	-0.60	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-14.79	-0.60	-1.20	*-5.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.2	65.2	63.8	57.7	66.2	66.8
Medium Trucks:	62.2	59.0	51.3	60.5	66.6	66.7
Heavy Trucks:	68.8	65.6	57.9	67.1	73.2	73.3
Vehicle Noise:	71.3	68.9	65.0	68.3	74.7	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	122	263	567	1,222
CNEL:	124	268	578	1,245

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,931 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,809 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	54 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	106.752
Medium Trucks:	106.669
Heavy Trucks:	106.677

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	0.62	-5.04	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	79.45	-16.61	-5.04	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-20.57	-5.04	-1.20	*-5.14*	0.000	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	61.7	60.4	54.3	62.8	63.4
Medium Trucks:	56.6	53.5	46.0	54.8	61.0	61.0
Heavy Trucks:	57.4	54.2	50.8	55.5	61.7	61.8
Vehicle Noise:	64.7	62.9	61.0	59.7	66.6	66.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	66	141	305	656
CNEL:	69	148	319	688

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Domenigoni Pkwy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,041 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,386 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.50	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.37	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.15	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.7	69.7	68.3	62.3	70.7	71.3
Medium Trucks:	66.2	63.1	55.3	64.5	70.6	70.7
Heavy Trucks:	71.7	68.6	60.8	70.0	76.2	76.2
Vehicle Noise:	74.9	72.7	69.2	71.6	78.1	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	383	824	1,775	3,825
CNEL:	391	843	1,816	3,912

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,905 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,457 vehicles
Vehicle Speed:	65 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	74.55	1.59	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	84.86	-13.28	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	88.18	-11.06	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.8	69.8	68.4	62.3	70.8	71.4
Medium Trucks:	66.3	63.2	55.4	64.6	70.7	70.8
Heavy Trucks:	71.8	68.7	60.9	70.1	76.3	76.3
Vehicle Noise:	75.0	72.8	69.3	71.7	78.2	78.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	388	836	1,800	3,879
CNEL:	397	855	1,841	3,967

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Scott Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,700 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,203 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	-0.02	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.89	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.67	-4.09	-1.20	*-5.14*	0.000	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	66.8	65.4	59.4	67.9	68.5
Medium Trucks:	63.5	60.4	52.6	61.8	67.9	68.0
Heavy Trucks:	69.4	66.2	58.4	67.6	73.8	73.8
Vehicle Noise:	72.3	70.0	66.4	69.1	75.6	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	260	560	1,207	2,601
CNEL:	266	572	1,233	2,657

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: n/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,649 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,529 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.58	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.29	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.07	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	67.4	66.0	60.0	68.5	69.1
Medium Trucks:	64.1	61.0	53.2	62.4	68.5	68.6
Heavy Trucks:	70.0	66.8	59.0	68.2	74.4	74.4
Vehicle Noise:	72.9	70.6	67.0	69.7	76.2	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	285	614	1,323	2,851
CNEL:	291	627	1,352	2,913

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30 *Project Name:* Keller Crossing
Road Name: Winchester Rd. (SR-79) *Job Number:* 16056
Road Segment: s/o Whispering Heights Pkwy./Pourroy Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,778 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,457 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.45	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.41	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.19	-4.09	-1.20	*-5.14*	0.000	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	67.3	65.9	59.9	68.3	69.0
Medium Trucks:	64.0	60.8	53.1	62.3	68.4	68.5
Heavy Trucks:	69.8	66.7	58.9	68.1	74.3	74.3
Vehicle Noise:	72.8	70.5	66.9	69.6	76.1	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	280	603	1,298	2,797
CNEL:	286	616	1,326	2,857

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,765 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,538 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.60	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.27	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.05	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.5	67.5	66.0	60.0	68.5	69.1
Medium Trucks:	64.1	61.0	53.2	62.4	68.6	68.6
Heavy Trucks:	70.0	66.8	59.1	68.3	74.4	74.5
Vehicle Noise:	72.9	70.7	67.0	69.8	76.2	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	286	616	1,327	2,858
CNEL:	292	629	1,355	2,920

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o Thompson Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,640 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	2,445 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	0.43	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-14.43	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-12.21	-4.09	-1.20	*-5.14*	0.000	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	67.3	65.9	59.9	68.3	68.9
Medium Trucks:	64.0	60.8	53.0	62.2	68.4	68.4
Heavy Trucks:	69.8	66.7	58.9	68.1	74.3	74.3
Vehicle Noise:	72.8	70.5	66.9	69.6	76.1	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	279	601	1,294	2,788
CNEL:	285	614	1,322	2,848

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o Via Maira Mosa/Audl Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,443 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,584 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.09	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.77	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.55	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.0	69.0	67.5	61.5	70.0	70.6
Medium Trucks:	65.6	62.5	54.7	63.9	70.1	70.1
Heavy Trucks:	71.5	68.3	60.6	69.8	75.9	76.0
Vehicle Noise:	74.4	72.2	68.5	71.3	77.7	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	360	775	1,670	3,598
CNEL:	368	792	1,706	3,675

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: n/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,679 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,769 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.31	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.55	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.34	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.2	69.2	67.8	61.7	70.2	70.8
Medium Trucks:	65.8	62.7	54.9	64.1	70.3	70.3
Heavy Trucks:	71.7	68.6	60.8	70.0	76.1	76.2
Vehicle Noise:	74.6	72.4	68.7	71.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	372	801	1,727	3,720
CNEL:	380	819	1,764	3,800

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Winchester Rd. (SR-79)
Road Segment: s/o La Alba Dr./Sparkman Wy.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	49,134 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,054 vehicles
Vehicle Speed:	60 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	110.0 feet
Centerline Dist. to Observer:	110.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	92.331
Medium Trucks:	92.235
Heavy Trucks:	92.244

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	73.22	2.63	-4.10	-1.20	*-4.78*	0.000	0.000
Medium Trucks:	83.68	-12.24	-4.09	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	87.33	-10.02	-4.09	-1.20	*-5.14*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	69.5	68.1	62.1	70.5	71.1
Medium Trucks:	66.2	63.0	55.2	64.4	70.6	70.6
Heavy Trucks:	72.0	68.9	61.1	70.3	76.5	76.5
Vehicle Noise:	75.0	72.7	69.1	71.8	78.3	78.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	391	841	1,813	3,905
CNEL:	399	860	1,852	3,990

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Scott Rd.
Road Segment: w/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,625 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,672 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.62	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-11.24	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.02	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	71.3	69.9	63.9	72.3	72.9
Medium Trucks:	68.1	65.0	57.2	66.4	72.6	72.6
Heavy Trucks:	74.3	71.2	63.4	72.6	78.8	78.8
Vehicle Noise:	77.1	74.7	70.9	74.0	80.4	80.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	377	811	1,748	3,767
CNEL:	384	828	1,784	3,843

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Scott Rd.
Road Segment: e/o Menifee Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,278 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	4,890 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.82	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-11.04	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-8.83	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	71.5	70.1	64.1	72.5	73.1
Medium Trucks:	68.3	65.2	57.4	66.6	72.8	72.8
Heavy Trucks:	74.5	71.4	63.6	72.8	79.0	79.0
Vehicle Noise:	77.3	74.9	71.1	74.2	80.6	80.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	388	837	1,803	3,883
CNEL:	396	854	1,839	3,962

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Scott Rd.
Road Segment: w/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,892 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	1,476 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	78 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	76.0 feet
Centerline Dist. to Observer:	76.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.300

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.38	-1.85	-1.20	*-4.73*	0.000	0.000
Medium Trucks:	82.40	-16.25	-1.84	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-14.03	-1.84	-1.20	*-5.25*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.3	66.3	64.9	58.9	67.3	67.9
Medium Trucks:	63.1	60.0	52.2	61.4	67.6	67.6
Heavy Trucks:	69.3	66.2	58.4	67.6	73.8	73.8
Vehicle Noise:	72.1	69.7	65.9	69.0	75.4	75.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	175	376	811	1,747
CNEL:	178	384	827	1,783

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Keller Rd.
Road Segment: e/o Leon Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,778 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	394 vehicles
Vehicle Speed:	50 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:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	46.915
Medium Trucks:	46.726
Heavy Trucks:	46.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-6.45	0.31	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-23.69	0.34	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-27.65	0.34	-1.20	*-5.43*	0.000	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	61.7	60.4	54.4	62.8	63.4
Medium Trucks:	56.4	53.4	45.9	54.6	60.8	60.8
Heavy Trucks:	56.9	53.7	50.3	54.9	61.1	61.2
Vehicle Noise:	64.6	62.8	60.9	59.4	66.4	66.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	29	62	134	289
CNEL:	30	65	141	303

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Clinton Keith Rd.
Road Segment: w/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,411 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,334 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.57	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.29	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.08	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.6	70.5	69.1	63.1	71.6	72.2
Medium Trucks:	67.6	64.4	56.6	65.8	72.0	72.0
Heavy Trucks:	74.2	71.0	63.2	72.4	78.6	78.6
Vehicle Noise:	76.6	74.3	70.3	73.7	80.1	80.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	316	681	1,468	3,163
CNEL:	322	694	1,496	3,222

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAPC 30
Road Name: Clinton Keith Rd.
Road Segment: e/o Whitewood Rd.

Project Name: Keller Crossing
Job Number: 16056

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,437 vehicles
Peak Hour Percentage:	8.25%
Peak Hour Volume:	3,254 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	67.0 feet
Centerline Dist. to Observer:	67.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

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

Noise Source Elevations (in feet)

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

Lane Equivalent Distance (in feet)

Autos:	48.969
Medium Trucks:	48.788
Heavy Trucks:	48.806

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.47	0.03	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	81.00	-12.40	0.06	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.18	0.05	-1.20	*-5.29*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.5	70.4	69.0	63.0	71.5	72.1
Medium Trucks:	67.5	64.3	56.5	65.7	71.9	71.9
Heavy Trucks:	74.1	70.9	63.1	72.3	78.5	78.5
Vehicle Noise:	76.5	74.2	70.2	73.6	80.0	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	311	670	1,444	3,112
CNEL:	317	683	1,471	3,170

APPENDIX 8.1:

ON-SITE TRAFFIC NOISE LEVEL CALCULATIONS

This page intentionally left blank

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Keller Rd.
Lot No: PA 1

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	304.0 feet
Centerline Dist. to Observer:	314.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,463.6 feet
Road Elevation:	1,440.0 feet
Barrier Elevation:	1,463.6 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,440.000		
Medium Trucks:	1,442.297		
Heavy Trucks:	1,448.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	314.786
Medium Trucks:	314.585
Heavy Trucks:	314.159

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-8.06	0.00	*-0.78*	0.000	0.000
Medium Trucks:	76.31	-15.52	-8.06	0.00	*-0.81*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-8.05	0.00	*-0.89*	0.000	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	59.0	57.7	51.7	60.1	60.7
Medium Trucks:	52.7	48.8	41.3	50.1	56.3	56.3
Heavy Trucks:	53.6	49.6	46.2	50.8	57.0	57.1
Vehicle Noise:	62.3	59.8	58.1	55.7	62.9	63.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.0	59.0	57.7	51.7	60.1	60.7
Medium Trucks:	52.7	48.8	41.3	50.1	56.3	56.3
Heavy Trucks:	53.6	49.6	46.2	50.8	57.0	57.1
Vehicle Noise:	62.3	59.8	58.1	55.7	62.9	63.3

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	67	211	668	2,112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Keller Rd.
Lot No: PA 3

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	93.0 feet
Centerline Dist. to Observer:	103.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,467.7 feet
Road Elevation:	1,435.0 feet
Barrier Elevation:	1,467.7 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,435.000		
Medium Trucks:	1,437.297		
Heavy Trucks:	1,443.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	108.196
Medium Trucks:	107.417
Heavy Trucks:	105.673

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-3.42	0.00	*-0.08*	0.000	0.000
Medium Trucks:	76.31	-15.52	-3.39	0.00	*-0.11*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-3.32	0.00	*-0.20*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	63.6	62.3	56.3	64.7	65.4
Medium Trucks:	57.4	53.5	46.0	54.8	60.9	61.0
Heavy Trucks:	58.4	54.3	50.9	55.6	61.8	61.9
Vehicle Noise:	66.9	64.5	62.7	60.4	67.6	67.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.7	63.6	62.3	56.3	64.7	65.4
Medium Trucks:	57.4	53.5	46.0	54.8	60.9	61.0
Heavy Trucks:	58.4	54.3	50.9	55.6	61.8	61.9
Vehicle Noise:	66.9	64.5	62.7	60.4	67.6	67.9

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	64	203	642	2,029

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Keller Rd.
Lot No: PA 4 (Keller Rd.)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	82.0 feet
Centerline Dist. to Observer:	92.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,450.0 feet
Road Elevation:	1,420.0 feet
Barrier Elevation:	1,450.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,420.000		
Medium Trucks:	1,422.297		
Heavy Trucks:	1,428.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.773
Medium Trucks:	95.966
Heavy Trucks:	94.174

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-2.94	0.00	*-0.06*	0.000	0.000
Medium Trucks:	76.31	-15.52	-2.90	0.00	*-0.09*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-2.82	0.00	*-0.20*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.1	62.8	56.8	65.2	65.9
Medium Trucks:	57.9	54.0	46.5	55.2	61.4	61.5
Heavy Trucks:	58.9	54.8	51.4	56.1	62.3	62.4
Vehicle Noise:	67.4	65.0	63.2	60.9	68.1	68.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.1	62.8	56.8	65.2	65.9
Medium Trucks:	57.9	54.0	46.5	55.2	61.4	61.5
Heavy Trucks:	58.9	54.8	51.4	56.1	62.3	62.4
Vehicle Noise:	67.4	65.0	63.2	60.9	68.1	68.4

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	64	203	642	2,029

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: South PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	158.0 feet
Centerline Dist. to Observer:	168.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,422.6 feet
Road Elevation:	1,424.5 feet
Barrier Elevation:	1,424.5 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,424.500		
Medium Trucks:	1,426.797		
Heavy Trucks:	1,432.506	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.951
Medium Trucks:	156.922
Heavy Trucks:	156.997

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-5.04	0.00	*-0.43*	0.000	0.000
Medium Trucks:	76.31	-8.40	-5.04	0.00	*-0.47*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-5.04	0.00	*-0.59*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	66.8	65.5	59.5	67.9	68.5
Medium Trucks:	62.9	58.9	51.1	60.3	66.5	66.5
Heavy Trucks:	69.9	66.0	58.2	67.4	73.5	73.6
Vehicle Noise:	72.9	69.8	66.4	68.7	75.2	75.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	66.8	65.5	59.5	67.9	68.5
Medium Trucks:	62.9	58.9	51.1	60.3	66.5	66.5
Heavy Trucks:	69.9	66.0	58.2	67.4	73.5	73.6
Vehicle Noise:	72.9	69.8	66.4	68.7	75.2	75.4

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	577	1,825	5,772	18,251

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: North PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	382.0 feet
Centerline Dist. to Observer:	392.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,437.0 feet
Road Elevation:	1,431.4 feet
Barrier Elevation:	1,437.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,431.400		
Medium Trucks:	1,433.697		
Heavy Trucks:	1,439.406	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	387.526
Medium Trucks:	387.470
Heavy Trucks:	387.390

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-8.96	0.00	*-1.05*	0.000	0.000
Medium Trucks:	76.31	-8.40	-8.96	0.00	*-1.08*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-8.96	0.00	*-1.15*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	62.9	61.6	55.5	64.0	64.6
Medium Trucks:	59.0	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	66.0	62.0	54.3	63.5	69.6	69.7
Vehicle Noise:	68.9	65.8	62.4	64.8	71.3	71.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	62.9	61.6	55.5	64.0	64.6
Medium Trucks:	59.0	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	66.0	62.0	54.3	63.5	69.6	69.7
Vehicle Noise:	68.9	65.8	62.4	64.8	71.3	71.4

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	546	1,726	5,457	17,255

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: PA 5

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	161.0 feet
Centerline Dist. to Observer:	171.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,447.5 feet
Road Elevation:	1,454.0 feet
Barrier Elevation:	1,454.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,454.000		
Medium Trucks:	1,456.297		
Heavy Trucks:	1,462.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	159.514
Medium Trucks:	159.532
Heavy Trucks:	159.728

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-5.11	0.00	*0.10*	-6.000	-9.000
Medium Trucks:	76.31	-8.40	-5.11	0.00	*0.08*	-5.800	-8.800
Heavy Trucks:	81.16	-6.18	-5.11	0.00	*0.05*	-5.500	-8.500

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	66.7	65.4	59.4	67.8	68.4
Medium Trucks:	62.8	58.8	51.0	60.3	66.4	66.4
Heavy Trucks:	69.9	65.9	58.1	67.3	73.5	73.5
Vehicle Noise:	72.8	69.7	66.3	68.6	75.1	75.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	60.7	59.4	53.4	61.8	62.4
Medium Trucks:	57.0	53.0	45.2	54.5	60.6	60.6
Heavy Trucks:	64.4	60.4	52.6	61.8	68.0	68.0
Vehicle Noise:	67.1	63.9	60.4	63.0	69.5	69.6

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	578	1,827	5,776	18,265

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
Road Name: Keller Rd.
Lot No: PA 1

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	304.0 feet
Centerline Dist. to Observer:	314.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,463.6 feet
Road Elevation:	1,440.0 feet
Barrier Elevation:	1,463.6 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,440.000		
Medium Trucks:	1,442.297		
Heavy Trucks:	1,448.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	314.786
Medium Trucks:	314.585
Heavy Trucks:	314.159

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-8.06	0.00	*-0.78*	0.000	0.000
Medium Trucks:	76.31	-15.52	-8.06	0.00	*-0.81*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-8.05	0.00	*-0.89*	0.000	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	59.0	57.7	51.7	60.1	60.7
Medium Trucks:	52.7	48.8	41.3	50.1	56.3	56.3
Heavy Trucks:	53.6	49.6	46.2	50.8	57.0	57.1
Vehicle Noise:	62.3	59.8	58.1	55.7	62.9	63.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	61.0	59.0	57.7	51.7	60.1	60.7
Medium Trucks:	52.7	48.8	41.3	50.1	56.3	56.3
Heavy Trucks:	53.6	49.6	46.2	50.8	57.0	57.1
Vehicle Noise:	62.3	59.8	58.1	55.7	62.9	63.3

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	67	211	668	2,112

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
Road Name: Keller Rd.
Lot No: PA 3

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	93.0 feet
Centerline Dist. to Observer:	103.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,467.7 feet
Road Elevation:	1,435.0 feet
Barrier Elevation:	1,467.7 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,435.000		
Medium Trucks:	1,437.297		
Heavy Trucks:	1,443.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	109.159
Medium Trucks:	108.285
Heavy Trucks:	106.316

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-3.46	0.00	*1.07*	-10.440	-13.440
Medium Trucks:	76.31	-15.52	-3.42	0.00	*0.98*	-10.240	-13.240
Heavy Trucks:	81.16	-19.47	-3.35	0.00	*0.77*	-9.580	-12.580

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.6	63.6	62.3	56.3	64.7	65.3
Medium Trucks:	57.4	53.5	46.0	54.7	60.9	60.9
Heavy Trucks:	58.3	54.3	50.9	55.5	61.7	61.8
Vehicle Noise:	66.9	64.5	62.7	60.3	67.5	67.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	55.2	53.2	51.9	45.8	54.3	54.9
Medium Trucks:	47.1	43.2	35.7	44.5	50.7	50.7
Heavy Trucks:	48.8	44.7	41.3	46.0	52.2	52.3
Vehicle Noise:	56.6	54.1	52.3	50.3	57.4	57.7

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	64	201	637	2,013

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
Road Name: Keller Rd.
Lot No: PA 4 (Keller Rd.)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	82.0 feet
Centerline Dist. to Observer:	92.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,450.0 feet
Road Elevation:	1,420.0 feet
Barrier Elevation:	1,450.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,420.000		
Medium Trucks:	1,422.297		
Heavy Trucks:	1,428.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	96.773
Medium Trucks:	95.966
Heavy Trucks:	94.174

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-2.94	0.00	*-0.06*	0.000	0.000
Medium Trucks:	76.31	-15.52	-2.90	0.00	*-0.09*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-2.82	0.00	*-0.20*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.1	62.8	56.8	65.2	65.9
Medium Trucks:	57.9	54.0	46.5	55.2	61.4	61.5
Heavy Trucks:	58.9	54.8	51.4	56.1	62.3	62.4
Vehicle Noise:	67.4	65.0	63.2	60.9	68.1	68.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	64.1	62.8	56.8	65.2	65.9
Medium Trucks:	57.9	54.0	46.5	55.2	61.4	61.5
Heavy Trucks:	58.9	54.8	51.4	56.1	62.3	62.4
Vehicle Noise:	67.4	65.0	63.2	60.9	68.1	68.4

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	64	203	642	2,029

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: South PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	158.0 feet
Centerline Dist. to Observer:	168.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,422.6 feet
Road Elevation:	1,424.5 feet
Barrier Elevation:	1,424.5 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,424.500		
Medium Trucks:	1,426.797		
Heavy Trucks:	1,432.506	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.951
Medium Trucks:	156.922
Heavy Trucks:	156.997

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-5.04	0.00	*-0.43*	0.000	0.000
Medium Trucks:	76.31	-8.40	-5.04	0.00	*-0.47*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-5.04	0.00	*-0.59*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	66.8	65.5	59.5	67.9	68.5
Medium Trucks:	62.9	58.9	51.1	60.3	66.5	66.5
Heavy Trucks:	69.9	66.0	58.2	67.4	73.5	73.6
Vehicle Noise:	72.9	69.8	66.4	68.7	75.2	75.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	66.8	65.5	59.5	67.9	68.5
Medium Trucks:	62.9	58.9	51.1	60.3	66.5	66.5
Heavy Trucks:	69.9	66.0	58.2	67.4	73.5	73.6
Vehicle Noise:	72.9	69.8	66.4	68.7	75.2	75.4

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	577	1,825	5,772	18,251

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: North PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	382.0 feet
Centerline Dist. to Observer:	392.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,437.0 feet
Road Elevation:	1,431.4 feet
Barrier Elevation:	1,437.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,431.400		
Medium Trucks:	1,433.697		
Heavy Trucks:	1,439.406	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	387.526
Medium Trucks:	387.470
Heavy Trucks:	387.390

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-8.96	0.00	*-1.05*	0.000	0.000
Medium Trucks:	76.31	-8.40	-8.96	0.00	*-1.08*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-8.96	0.00	*-1.15*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	62.9	61.6	55.5	64.0	64.6
Medium Trucks:	59.0	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	66.0	62.0	54.3	63.5	69.6	69.7
Vehicle Noise:	68.9	65.8	62.4	64.8	71.3	71.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	62.9	61.6	55.5	64.0	64.6
Medium Trucks:	59.0	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	66.0	62.0	54.3	63.5	69.6	69.7
Vehicle Noise:	68.9	65.8	62.4	64.8	71.3	71.4

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	546	1,726	5,457	17,255

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: PA 5

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	161.0 feet
Centerline Dist. to Observer:	171.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,447.5 feet
Road Elevation:	1,454.0 feet
Barrier Elevation:	1,454.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,454.000		
Medium Trucks:	1,456.297		
Heavy Trucks:	1,462.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	159.514
Medium Trucks:	159.532
Heavy Trucks:	159.728

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-5.11	0.00	*0.10*	-6.000	-9.000
Medium Trucks:	76.31	-8.40	-5.11	0.00	*0.08*	-5.800	-8.800
Heavy Trucks:	81.16	-6.18	-5.11	0.00	*0.05*	-5.500	-8.500

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	66.7	65.4	59.4	67.8	68.4
Medium Trucks:	62.8	58.8	51.0	60.3	66.4	66.4
Heavy Trucks:	69.9	65.9	58.1	67.3	73.5	73.5
Vehicle Noise:	72.8	69.7	66.3	68.6	75.1	75.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.7	60.7	59.4	53.4	61.8	62.4
Medium Trucks:	57.0	53.0	45.2	54.5	60.6	60.6
Heavy Trucks:	64.4	60.4	52.6	61.8	68.0	68.0
Vehicle Noise:	67.1	63.9	60.4	63.0	69.5	69.6

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	578	1,827	5,776	18,265

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Keller Rd.
Lot No: PA 1

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,281 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	304.0 feet
Centerline Dist. to Observer:	324.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,463.6 feet
Road Elevation:	1,440.0 feet
Barrier Elevation:	1,463.6 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,440.000		
Medium Trucks:	1,442.297		
Heavy Trucks:	1,448.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	324.761
Medium Trucks:	324.567
Heavy Trucks:	324.154

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-0.36	-8.19	0.00	*-0.26*	0.000	0.000
Medium Trucks:	76.31	-17.60	-8.19	0.00	*-0.29*	0.000	0.000
Heavy Trucks:	81.16	-21.56	-8.19	0.00	*-0.35*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.8	58.9	57.6	51.6	60.0	60.6
Medium Trucks:	50.5	48.7	41.2	50.0	56.1	56.2
Heavy Trucks:	51.4	49.5	46.1	50.7	56.9	57.0
Vehicle Noise:	60.0	59.7	58.0	55.6	62.8	63.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.8	58.9	57.6	51.6	60.0	60.6
Medium Trucks:	50.5	48.7	41.2	50.0	56.1	56.2
Heavy Trucks:	51.4	49.5	46.1	50.7	56.9	57.0
Vehicle Noise:	60.0	59.7	58.0	55.6	62.8	63.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Keller Rd.
Lot No: PA 3

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,281 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	93.0 feet
Centerline Dist. to Observer:	113.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,467.7 feet
Road Elevation:	1,435.0 feet
Barrier Elevation:	1,467.7 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,435.000		
Medium Trucks:	1,437.297		
Heavy Trucks:	1,443.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	119.134
Medium Trucks:	118.260
Heavy Trucks:	116.291

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-0.36	-3.84	0.00	*1.60*	-11.500	-14.500
Medium Trucks:	76.31	-17.60	-3.81	0.00	*1.45*	-11.200	-14.200
Heavy Trucks:	81.16	-21.56	-3.73	0.00	*1.10*	-10.500	-13.500

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.2	63.2	61.9	55.9	64.3	65.0
Medium Trucks:	54.9	53.1	45.6	54.3	60.5	60.5
Heavy Trucks:	55.9	53.9	50.5	55.2	61.4	61.5
Vehicle Noise:	64.4	64.1	62.3	60.0	67.2	67.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	51.7	51.7	50.4	44.4	52.8	53.5
Medium Trucks:	43.7	41.9	34.4	43.1	49.3	49.3
Heavy Trucks:	45.4	43.4	40.0	44.7	50.9	51.0
Vehicle Noise:	53.1	52.7	50.9	48.9	56.0	56.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Keller Rd.
Lot No: PA 4 (Keller Rd.)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,281 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	82.0 feet
Centerline Dist. to Observer:	149.0 feet
Barrier Distance to Observer:	67.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,450.0 feet
Road Elevation:	1,420.0 feet
Barrier Elevation:	1,450.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,420.000		
Medium Trucks:	1,422.297		
Heavy Trucks:	1,428.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	152.626
Medium Trucks:	151.847
Heavy Trucks:	150.155

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-0.36	-4.92	0.00	*1.42*	-11.140	-14.140
Medium Trucks:	76.31	-17.60	-4.89	0.00	*1.17*	-10.640	-13.640
Heavy Trucks:	81.16	-21.56	-4.84	0.00	*0.64*	-9.120	-12.120

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.1	62.2	60.8	54.8	63.2	63.9
Medium Trucks:	53.8	52.0	44.5	53.3	59.4	59.5
Heavy Trucks:	54.8	52.8	49.4	54.0	60.2	60.3
Vehicle Noise:	63.3	63.0	61.2	58.9	66.1	66.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	50.9	51.0	49.7	43.7	52.1	52.7
Medium Trucks:	43.2	41.4	33.9	42.6	48.8	48.8
Heavy Trucks:	45.6	43.7	40.3	44.9	51.1	51.2
Vehicle Noise:	52.6	52.1	50.3	48.6	55.7	56.0

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: South PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	4,048 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	158.0 feet
Centerline Dist. to Observer:	168.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,422.6 feet
Road Elevation:	1,424.5 feet
Barrier Elevation:	1,424.5 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,424.500		
Medium Trucks:	1,426.797		
Heavy Trucks:	1,432.506	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.951
Medium Trucks:	156.922
Heavy Trucks:	156.997

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	4.38	-5.04	0.00	*-0.43*	0.000	0.000
Medium Trucks:	76.31	-10.48	-5.04	0.00	*-0.47*	0.000	0.000
Heavy Trucks:	81.16	-8.26	-5.04	0.00	*-0.59*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	66.8	65.5	59.5	67.9	68.5
Medium Trucks:	60.8	58.9	51.1	60.3	66.5	66.5
Heavy Trucks:	67.9	66.0	58.2	67.4	73.5	73.6
Vehicle Noise:	70.8	69.8	66.4	68.7	75.2	75.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	66.8	65.5	59.5	67.9	68.5
Medium Trucks:	60.8	58.9	51.1	60.3	66.5	66.5
Heavy Trucks:	67.9	66.0	58.2	67.4	73.5	73.6
Vehicle Noise:	70.8	69.8	66.4	68.7	75.2	75.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: North PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	4,048 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	382.0 feet
Centerline Dist. to Observer:	392.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,437.0 feet
Road Elevation:	1,431.4 feet
Barrier Elevation:	1,437.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,431.400		
Medium Trucks:	1,433.697		
Heavy Trucks:	1,439.406	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	387.526
Medium Trucks:	387.470
Heavy Trucks:	387.390

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	4.38	-8.96	0.00	*-1.05*	0.000	0.000
Medium Trucks:	76.31	-10.48	-8.96	0.00	*-1.08*	0.000	0.000
Heavy Trucks:	81.16	-8.26	-8.96	0.00	*-1.15*	0.000	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	62.9	61.6	55.5	64.0	64.6
Medium Trucks:	56.9	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	63.9	62.0	54.3	63.5	69.6	69.7
Vehicle Noise:	66.9	65.8	62.4	64.8	71.3	71.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.8	62.9	61.6	55.5	64.0	64.6
Medium Trucks:	56.9	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	63.9	62.0	54.3	63.5	69.6	69.7
Vehicle Noise:	66.9	65.8	62.4	64.8	71.3	71.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: PA 5

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	4,048 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	161.0 feet
Centerline Dist. to Observer:	181.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	1,447.5 feet
Road Elevation:	1,454.0 feet
Barrier Elevation:	1,454.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,454.000		
Medium Trucks:	1,456.297		
Heavy Trucks:	1,462.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	169.458
Medium Trucks:	169.476
Heavy Trucks:	169.673

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	4.38	-5.37	0.00	*0.05*	-5.500	-8.500
Medium Trucks:	76.31	-10.48	-5.37	0.00	*0.03*	-5.300	-8.300
Heavy Trucks:	81.16	-8.26	-5.38	0.00	*0.01*	-5.100	-8.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.4	66.4	65.1	59.1	67.5	68.2
Medium Trucks:	60.5	58.6	50.8	60.0	66.1	66.2
Heavy Trucks:	67.5	65.6	57.8	67.1	73.2	73.2
Vehicle Noise:	70.5	69.4	66.0	68.4	74.9	75.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.9	60.9	59.6	53.6	62.0	62.7
Medium Trucks:	55.2	53.3	45.5	54.7	60.8	60.9
Heavy Trucks:	62.4	60.5	52.7	62.0	68.1	68.1
Vehicle Noise:	65.2	64.1	60.6	63.2	69.7	69.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: Keller Rd.
Lot No: PA 1

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	304.0 feet
Centerline Dist. to Observer:	324.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,463.6 feet
Road Elevation:	1,440.0 feet
Barrier Elevation:	1,463.6 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,440.000		
Medium Trucks:	1,442.297		
Heavy Trucks:	1,448.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	328.243
Medium Trucks:	327.862
Heavy Trucks:	326.982

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-8.24	0.00	*-13.61*	0.000	0.000
Medium Trucks:	76.31	-15.52	-8.24	0.00	*-13.82*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-8.22	0.00	*-14.34*	0.000	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	58.8	57.5	51.5	59.9	60.6
Medium Trucks:	52.6	48.7	41.2	49.9	56.1	56.1
Heavy Trucks:	53.5	49.4	46.0	50.7	56.9	57.0
Vehicle Noise:	62.1	59.7	57.9	55.5	62.7	63.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.8	58.8	57.5	51.5	59.9	60.6
Medium Trucks:	52.6	48.7	41.2	49.9	56.1	56.1
Heavy Trucks:	53.5	49.4	46.0	50.7	56.9	57.0
Vehicle Noise:	62.1	59.7	57.9	55.5	62.7	63.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: Keller Rd.
Lot No: PA 3

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	93.0 feet
Centerline Dist. to Observer:	113.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,467.7 feet
Road Elevation:	1,435.0 feet
Barrier Elevation:	1,467.7 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,435.000		
Medium Trucks:	1,437.297		
Heavy Trucks:	1,443.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	128.962
Medium Trucks:	127.825
Heavy Trucks:	125.137

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-4.18	0.00	*-3.25*	0.000	0.000
Medium Trucks:	76.31	-15.52	-4.15	0.00	*-3.51*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-4.05	0.00	*-4.22*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	62.9	61.6	55.6	64.0	64.6
Medium Trucks:	56.6	52.8	45.3	54.0	60.2	60.2
Heavy Trucks:	57.6	53.6	50.2	54.8	61.0	61.1
Vehicle Noise:	66.2	63.7	62.0	59.6	66.8	67.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	62.9	61.6	55.6	64.0	64.6
Medium Trucks:	56.6	52.8	45.3	54.0	60.2	60.2
Heavy Trucks:	57.6	53.6	50.2	54.8	61.0	61.1
Vehicle Noise:	66.2	63.7	62.0	59.6	66.8	67.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: Keller Rd.
Lot No: PA 4 (Keller Rd.)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	82.0 feet
Centerline Dist. to Observer:	149.0 feet
Barrier Distance to Observer:	67.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,450.0 feet
Road Elevation:	1,420.0 feet
Barrier Elevation:	1,450.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,420.000		
Medium Trucks:	1,422.297		
Heavy Trucks:	1,428.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	160.378
Medium Trucks:	159.504
Heavy Trucks:	157.456

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-5.13	0.00	*-0.18*	0.000	0.000
Medium Trucks:	76.31	-15.52	-5.11	0.00	*-0.28*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-5.05	0.00	*-0.65*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.9	61.9	60.6	54.6	63.0	63.7
Medium Trucks:	55.7	51.8	44.3	53.0	59.2	59.2
Heavy Trucks:	56.6	52.6	49.2	53.8	60.0	60.1
Vehicle Noise:	65.2	62.8	61.0	58.7	65.9	66.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.9	61.9	60.6	54.6	63.0	63.7
Medium Trucks:	55.7	51.8	44.3	53.0	59.2	59.2
Heavy Trucks:	56.6	52.6	49.2	53.8	60.0	60.1
Vehicle Noise:	65.2	62.8	61.0	58.7	65.9	66.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: South PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	158.0 feet
Centerline Dist. to Observer:	168.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,422.6 feet
Road Elevation:	1,424.5 feet
Barrier Elevation:	1,424.5 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,424.500		
Medium Trucks:	1,426.797		
Heavy Trucks:	1,432.506	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	159.781
Medium Trucks:	159.364
Heavy Trucks:	158.468

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-5.11	0.00	*-18.63*	0.000	0.000
Medium Trucks:	76.31	-8.40	-5.10	0.00	*-19.03*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-5.08	0.00	*-20.03*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	66.7	65.4	59.4	67.8	68.4
Medium Trucks:	62.8	58.8	51.0	60.3	66.4	66.4
Heavy Trucks:	69.9	65.9	58.1	67.3	73.5	73.5
Vehicle Noise:	72.8	69.7	66.3	68.7	75.2	75.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	66.7	65.4	59.4	67.8	68.4
Medium Trucks:	62.8	58.8	51.0	60.3	66.4	66.4
Heavy Trucks:	69.9	65.9	58.1	67.3	73.5	73.5
Vehicle Noise:	72.8	69.7	66.3	68.7	75.2	75.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: North PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	382.0 feet
Centerline Dist. to Observer:	392.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,437.0 feet
Road Elevation:	1,431.4 feet
Barrier Elevation:	1,437.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,431.400		
Medium Trucks:	1,433.697		
Heavy Trucks:	1,439.406	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	389.201
Medium Trucks:	388.986
Heavy Trucks:	388.510

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-8.98	0.00	*-21.30*	0.000	0.000
Medium Trucks:	76.31	-8.40	-8.98	0.00	*-21.48*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-8.97	0.00	*-21.93*	0.000	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	62.8	61.5	55.5	63.9	64.6
Medium Trucks:	58.9	55.0	47.2	56.4	62.5	62.6
Heavy Trucks:	66.0	62.0	54.2	63.5	69.6	69.6
Vehicle Noise:	68.9	65.8	62.4	64.8	71.3	71.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.8	62.8	61.5	55.5	63.9	64.6
Medium Trucks:	58.9	55.0	47.2	56.4	62.5	62.6
Heavy Trucks:	66.0	62.0	54.2	63.5	69.6	69.6
Vehicle Noise:	68.9	65.8	62.4	64.8	71.3	71.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: PA 5

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	161.0 feet
Centerline Dist. to Observer:	181.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	32.0 feet
Pad Elevation:	1,447.5 feet
Road Elevation:	1,454.0 feet
Barrier Elevation:	1,454.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,454.000		
Medium Trucks:	1,456.297		
Heavy Trucks:	1,462.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	172.659
Medium Trucks:	172.335
Heavy Trucks:	171.660

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-5.45	0.00	*-10.39*	0.000	0.000
Medium Trucks:	76.31	-8.40	-5.44	0.00	*-10.71*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-5.43	0.00	*-11.51*	0.000	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	66.4	65.1	59.0	67.5	68.1
Medium Trucks:	62.5	58.5	50.7	59.9	66.1	66.1
Heavy Trucks:	69.6	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	72.5	69.4	65.9	68.3	74.8	75.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	66.4	65.1	59.0	67.5	68.1
Medium Trucks:	62.5	58.5	50.7	59.9	66.1	66.1
Heavy Trucks:	69.6	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	72.5	69.4	65.9	68.3	74.8	75.0

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Keller Rd.
Lot No: PA 1

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,281 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	304.0 feet
Centerline Dist. to Observer:	324.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,463.6 feet
Road Elevation:	1,440.0 feet
Barrier Elevation:	1,463.6 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,440.000		
Medium Trucks:	1,442.297		
Heavy Trucks:	1,448.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	325.677
Medium Trucks:	325.420
Heavy Trucks:	324.850

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-0.36	-8.21	0.00	*-3.09*	0.000	0.000
Medium Trucks:	76.31	-17.60	-8.20	0.00	*-3.17*	0.000	0.000
Heavy Trucks:	81.16	-21.56	-8.20	0.00	*-3.39*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.8	58.9	57.6	51.5	60.0	60.6
Medium Trucks:	50.5	48.7	41.2	49.9	56.1	56.2
Heavy Trucks:	51.4	49.4	46.1	50.7	56.9	57.0
Vehicle Noise:	60.0	59.7	57.9	55.5	62.8	63.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.8	58.9	57.6	51.5	60.0	60.6
Medium Trucks:	50.5	48.7	41.2	49.9	56.1	56.2
Heavy Trucks:	51.4	49.4	46.1	50.7	56.9	57.0
Vehicle Noise:	60.0	59.7	57.9	55.5	62.8	63.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Keller Rd.
Lot No: PA 3

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,281 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	93.0 feet
Centerline Dist. to Observer:	113.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,467.7 feet
Road Elevation:	1,435.0 feet
Barrier Elevation:	1,467.7 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,435.000		
Medium Trucks:	1,437.297		
Heavy Trucks:	1,443.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	120.650
Medium Trucks:	120.069
Heavy Trucks:	118.077

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-0.36	-3.89	0.00	*0.00*	-4.900	-7.900
Medium Trucks:	76.31	-17.60	-3.87	0.00	*0.00*	0.000	0.000
Heavy Trucks:	81.16	-21.56	-3.80	0.00	*-0.03*	0.000	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	63.2	61.9	55.9	64.3	64.9
Medium Trucks:	54.8	53.0	45.5	54.3	60.4	60.5
Heavy Trucks:	55.8	53.8	50.4	55.1	61.3	61.4
Vehicle Noise:	64.4	64.0	62.3	59.9	67.1	67.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.2	58.3	57.0	51.0	59.4	60.0
Medium Trucks:	54.8	53.0	45.5	54.3	60.4	60.5
Heavy Trucks:	55.8	53.8	50.4	55.1	61.3	61.4
Vehicle Noise:	61.3	60.5	58.1	58.5	65.2	65.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Keller Rd.
Lot No: PA 4 (Keller Rd.)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	1,281 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	82.0 feet
Centerline Dist. to Observer:	149.0 feet
Barrier Distance to Observer:	67.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,450.0 feet
Road Elevation:	1,420.0 feet
Barrier Elevation:	1,450.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,420.000		
Medium Trucks:	1,422.297		
Heavy Trucks:	1,428.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	153.887
Medium Trucks:	153.108
Heavy Trucks:	151.415

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	-0.36	-4.95	0.00	*0.39*	-7.950	-10.950
Medium Trucks:	76.31	-17.60	-4.93	0.00	*0.27*	-7.290	-10.290
Heavy Trucks:	81.16	-21.56	-4.88	0.00	*0.06*	-5.600	-8.600

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.0	62.1	60.8	54.8	63.2	63.8
Medium Trucks:	53.8	52.0	44.5	53.2	59.4	59.4
Heavy Trucks:	54.7	52.8	49.4	54.0	60.2	60.3
Vehicle Noise:	63.3	63.0	61.2	58.8	66.0	66.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	54.1	54.2	52.9	46.8	55.3	55.9
Medium Trucks:	46.5	44.7	37.2	45.9	52.1	52.1
Heavy Trucks:	49.1	47.2	43.8	48.4	54.6	54.7
Vehicle Noise:	55.8	55.3	53.5	52.0	59.0	59.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: South PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	4,048 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	158.0 feet
Centerline Dist. to Observer:	168.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,422.6 feet
Road Elevation:	1,424.5 feet
Barrier Elevation:	1,424.5 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,424.500		
Medium Trucks:	1,426.797		
Heavy Trucks:	1,432.506	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	157.386
Medium Trucks:	157.226
Heavy Trucks:	156.974

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	4.38	-5.05	0.00	*-5.15*	0.000	0.000
Medium Trucks:	76.31	-10.48	-5.04	0.00	*-5.31*	0.000	0.000
Heavy Trucks:	81.16	-8.26	-5.04	0.00	*-5.72*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	66.8	65.5	59.4	67.9	68.5
Medium Trucks:	60.8	58.9	51.1	60.3	66.5	66.5
Heavy Trucks:	67.9	66.0	58.2	67.4	73.5	73.6
Vehicle Noise:	70.8	69.8	66.3	68.7	75.2	75.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.7	66.8	65.5	59.4	67.9	68.5
Medium Trucks:	60.8	58.9	51.1	60.3	66.5	66.5
Heavy Trucks:	67.9	66.0	58.2	67.4	73.5	73.6
Vehicle Noise:	70.8	69.8	66.3	68.7	75.2	75.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: North PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	4,048 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	382.0 feet
Centerline Dist. to Observer:	392.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,437.0 feet
Road Elevation:	1,431.4 feet
Barrier Elevation:	1,437.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,431.400		
Medium Trucks:	1,433.697		
Heavy Trucks:	1,439.406	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	387.876
Medium Trucks:	387.767
Heavy Trucks:	387.554

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	4.38	-8.97	0.00	*-6.61*	0.000	0.000
Medium Trucks:	76.31	-10.48	-8.96	0.00	*-6.69*	0.000	0.000
Heavy Trucks:	81.16	-8.26	-8.96	0.00	*-6.89*	0.000	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	62.8	61.6	55.5	63.9	64.6
Medium Trucks:	56.9	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	63.9	62.0	54.3	63.5	69.6	69.7
Vehicle Noise:	66.9	65.8	62.4	64.8	71.3	71.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.8	62.8	61.6	55.5	63.9	64.6
Medium Trucks:	56.9	55.0	47.2	56.4	62.6	62.6
Heavy Trucks:	63.9	62.0	54.3	63.5	69.6	69.7
Vehicle Noise:	66.9	65.8	62.4	64.8	71.3	71.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: PA 5

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	6.19%
Peak Hour Volume:	4,048 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	161.0 feet
Centerline Dist. to Observer:	181.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	1,447.5 feet
Road Elevation:	1,454.0 feet
Barrier Elevation:	1,454.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,454.000		
Medium Trucks:	1,456.297		
Heavy Trucks:	1,462.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	170.931
Medium Trucks:	170.845
Heavy Trucks:	170.767

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	4.38	-5.41	0.00	*-1.18*	0.000	0.000
Medium Trucks:	76.31	-10.48	-5.41	0.00	*-1.27*	0.000	0.000
Heavy Trucks:	81.16	-8.26	-5.40	0.00	*-1.52*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.3	66.4	65.1	59.1	67.5	68.1
Medium Trucks:	60.4	58.5	50.7	60.0	66.1	66.1
Heavy Trucks:	67.5	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	70.4	69.4	66.0	68.4	74.8	75.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.3	66.4	65.1	59.1	67.5	68.1
Medium Trucks:	60.4	58.5	50.7	60.0	66.1	66.1
Heavy Trucks:	67.5	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	70.4	69.4	66.0	68.4	74.8	75.0

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
Road Name: Keller Rd.
Lot No: PA 1

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	304.0 feet
Centerline Dist. to Observer:	324.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,463.6 feet
Road Elevation:	1,440.0 feet
Barrier Elevation:	1,463.6 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,440.000		
Medium Trucks:	1,442.297		
Heavy Trucks:	1,448.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	326.839
Medium Trucks:	326.519
Heavy Trucks:	325.794

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-8.22	0.00	*-7.89*	0.000	0.000
Medium Trucks:	76.31	-15.52	-8.22	0.00	*-8.03*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-8.21	0.00	*-8.40*	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:	60.9	58.8	57.5	51.5	59.9	60.6
Medium Trucks:	52.6	48.7	41.2	49.9	56.1	56.1
Heavy Trucks:	53.5	49.4	46.0	50.7	56.9	57.0
Vehicle Noise:	62.1	59.7	57.9	55.5	62.7	63.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	60.9	58.8	57.5	51.5	59.9	60.6
Medium Trucks:	52.6	48.7	41.2	49.9	56.1	56.1
Heavy Trucks:	53.5	49.4	46.0	50.7	56.9	57.0
Vehicle Noise:	62.1	59.7	57.9	55.5	62.7	63.1

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
Road Name: Keller Rd.
Lot No: PA 3

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**6.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	93.0 feet
Centerline Dist. to Observer:	113.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,467.7 feet
Road Elevation:	1,435.0 feet
Barrier Elevation:	1,467.7 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,435.000		
Medium Trucks:	1,437.297		
Heavy Trucks:	1,443.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	124.690
Medium Trucks:	123.681
Heavy Trucks:	121.325

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-4.04	0.00	*-0.98*	0.000	0.000
Medium Trucks:	76.31	-15.52	-4.00	0.00	*-1.11*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-3.92	0.00	*-1.50*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.0	61.7	55.7	64.1	64.8
Medium Trucks:	56.8	52.9	45.4	54.1	60.3	60.4
Heavy Trucks:	57.8	53.7	50.3	55.0	61.2	61.3
Vehicle Noise:	66.3	63.9	62.1	59.8	67.0	67.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.0	63.0	61.7	55.7	64.1	64.8
Medium Trucks:	56.8	52.9	45.4	54.1	60.3	60.4
Heavy Trucks:	57.8	53.7	50.3	55.0	61.2	61.3
Vehicle Noise:	66.3	63.9	62.1	59.8	67.0	67.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
Road Name: Keller Rd.
Lot No: PA 4 (Keller Rd.)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,700 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,070 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	82.0 feet
Centerline Dist. to Observer:	149.0 feet
Barrier Distance to Observer:	67.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,450.0 feet
Road Elevation:	1,420.0 feet
Barrier Elevation:	1,450.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

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

Noise Source Elevations (in feet)

Autos:	1,420.000		
Medium Trucks:	1,422.297		
Heavy Trucks:	1,428.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.278
Medium Trucks:	156.358
Heavy Trucks:	154.601

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	1.72	-5.02	0.00	*0.01*	-5.100	-8.100
Medium Trucks:	76.31	-15.52	-5.02	0.00	*0.00*	0.000	0.000
Heavy Trucks:	81.16	-19.47	-4.97	0.00	*-0.09*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.1	62.1	60.7	54.7	63.1	63.8
Medium Trucks:	55.8	51.9	44.4	53.1	59.3	59.3
Heavy Trucks:	56.7	52.7	49.3	53.9	60.1	60.2
Vehicle Noise:	65.3	62.9	61.1	58.7	66.0	66.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	59.0	57.0	55.6	49.6	58.0	58.7
Medium Trucks:	55.8	51.9	44.4	53.1	59.3	59.3
Heavy Trucks:	56.7	52.7	49.3	53.9	60.1	60.2
Vehicle Noise:	62.1	59.2	56.8	57.4	64.0	64.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: South PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	158.0 feet
Centerline Dist. to Observer:	168.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,422.6 feet
Road Elevation:	1,424.5 feet
Barrier Elevation:	1,424.5 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,424.500		
Medium Trucks:	1,426.797		
Heavy Trucks:	1,432.506	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	158.333
Medium Trucks:	158.043
Heavy Trucks:	157.466

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-5.07	0.00	*-11.77*	0.000	0.000
Medium Trucks:	76.31	-8.40	-5.07	0.00	*-12.05*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-5.05	0.00	*-12.76*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	66.7	65.4	59.4	67.8	68.5
Medium Trucks:	62.8	58.9	51.1	60.3	66.4	66.5
Heavy Trucks:	69.9	65.9	58.2	67.4	73.5	73.6
Vehicle Noise:	72.8	69.7	66.3	68.7	75.2	75.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.8	66.7	65.4	59.4	67.8	68.5
Medium Trucks:	62.8	58.9	51.1	60.3	66.4	66.5
Heavy Trucks:	69.9	65.9	58.2	67.4	73.5	73.6
Vehicle Noise:	72.8	69.7	66.3	68.7	75.2	75.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: North PA 4 (SR-79)

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	382.0 feet
Centerline Dist. to Observer:	392.0 feet
Barrier Distance to Observer:	10.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,437.0 feet
Road Elevation:	1,431.4 feet
Barrier Elevation:	1,437.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,431.400		
Medium Trucks:	1,433.697		
Heavy Trucks:	1,439.406	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	388.435
Medium Trucks:	388.273
Heavy Trucks:	387.928

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-8.97	0.00	*-13.77*	0.000	0.000
Medium Trucks:	76.31	-8.40	-8.97	0.00	*-13.91*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-8.97	0.00	*-14.23*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	62.8	61.5	55.5	63.9	64.6
Medium Trucks:	58.9	55.0	47.2	56.4	62.5	62.6
Heavy Trucks:	66.0	62.0	54.3	63.5	69.6	69.6
Vehicle Noise:	68.9	65.8	62.4	64.8	71.3	71.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.9	62.8	61.5	55.5	63.9	64.6
Medium Trucks:	58.9	55.0	47.2	56.4	62.5	62.6
Heavy Trucks:	66.0	62.0	54.3	63.5	69.6	69.6
Vehicle Noise:	68.9	65.8	62.4	64.8	71.3	71.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
Road Name: Winchester Pkwy. (SR-79)
Lot No: PA 5

Project Name: Keller Crossing
Job Number: 16056
Analyst: N. Johnson

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,400 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,540 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	120 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	161.0 feet
Centerline Dist. to Observer:	181.0 feet
Barrier Distance to Observer:	20.0 feet
Observer Height (Above Pad):	23.0 feet
Pad Elevation:	1,447.5 feet
Road Elevation:	1,454.0 feet
Barrier Elevation:	1,454.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	10
Medium Trucks (2 Axles):	10
Heavy Trucks (3+ Axles):	10

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	75.5%	14.0%	10.5%	92.00%
Medium Trucks:	48.0%	2.0%	50.0%	3.00%
Heavy Trucks:	48.0%	2.0%	50.0%	5.00%

Noise Source Elevations (in feet)

Autos:	1,454.000		
Medium Trucks:	1,456.297		
Heavy Trucks:	1,462.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	171.561
Medium Trucks:	171.356
Heavy Trucks:	170.977

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	67.36	6.47	-5.42	0.00	*-5.07*	0.000	0.000
Medium Trucks:	76.31	-8.40	-5.42	0.00	*-5.27*	0.000	0.000
Heavy Trucks:	81.16	-6.18	-5.41	0.00	*-5.80*	0.000	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	66.4	65.1	59.1	67.5	68.1
Medium Trucks:	62.5	58.5	50.7	59.9	66.1	66.1
Heavy Trucks:	69.6	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	72.5	69.4	66.0	68.3	74.8	75.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	66.4	65.1	59.1	67.5	68.1
Medium Trucks:	62.5	58.5	50.7	59.9	66.1	66.1
Heavy Trucks:	69.6	65.6	57.8	67.0	73.2	73.2
Vehicle Noise:	72.5	69.4	66.0	68.3	74.8	75.0

APPENDIX 10.1:

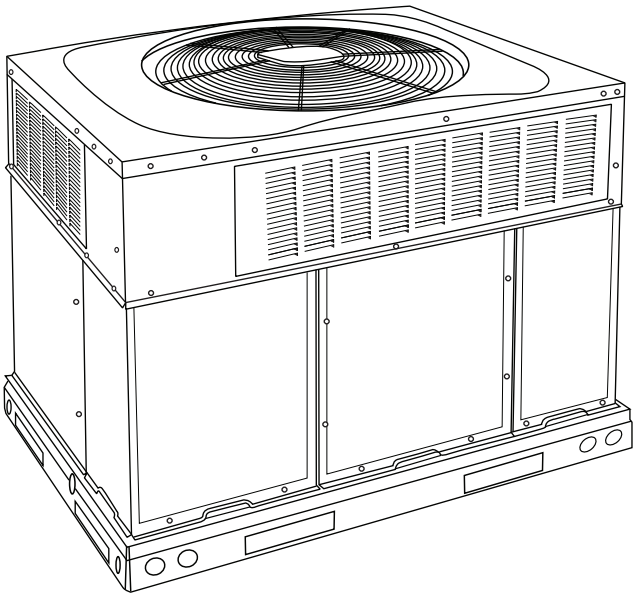
CADNAA OPERATIONAL NOISE MODEL INPUTS

This page intentionally left blank

50VR–A
Performance™ 15 SEER 2–Stage Packaged Heat Pump System with Puron® (R–410A) Refrigerant
Single and Three Phase
2 to 5 Nominal Tons (Sizes 24–60)

Carrier
turn to the experts

Product Data



A09033

Fig. 1 - Unit 50VR-A

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- 15.0-15.5 SEER / 12.0-12.5 EER at 95°F (35°C) OD
- Factory-Installed TXV
- Multi-speed ECM Blower Motor - Standard
- Sound levels as low as 71dBA
- Two Stages of Cooling/Heating
- Dehumidification Feature

FEATURES/BENEFITS

One-piece heat pump unit with optional electric heater, low sound levels, easy installation, low maintenance, and dependable performance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems proving highly reliable, environmentally sound performance.

Easy Installation

Factory-assembled package is a compact, fully self-contained, electric cooling unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard cooling sizes with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow and includes horizontal duct covers. Downflow operation is provided in the field to allow vertical ductwork connections. The basepan seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

Efficient operation High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of up to 15.5 and HSPF of 8.5. (See page 4.)

Durable, dependable components

Scroll Compressors have 2 stages of cooling/heating and are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Multi-speed ECM Blower Motor is standard on all 50VR-A.

Direct-drive PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooing operation down to 40°F (4.4°C) outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Thermostatic Expansion Valve - A hard shutoff, balance port TXV maintains a constant superheat at the evaporator exit (cooling cycle) resulting in higher overall system efficiency.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 71dBA. (See Page 4.)

Easy to service cabinets provide easy 3 panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with a mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. (19.05 mm) wide perimeter flange makes frame mounting on a rooftop easy.

Dehumidification Feature

This unit has independent fan speeds for low stage cooling and high stage cooling. In addition, 208/230 VAC models have the field-selectable capability to run an enhanced dehumidification ('DHUM') speed on high stage cooling (as low as 320CFM per ton). Coupled with the improved dehumidification associated with low stage cooling, the DHUM speed allows for a complete dehumidification solution independent of cooling stage. The dehumidification control must open the control circuit on humidity rise above the dehumidification set point.

NOTE: The enhanced dehumidification feature on high stage cooling does not support use of an economizer.

Standard horizontal metal duct covers with insulation come with the unit and cover the horizontal duct openings. These can be left in place if the units are converted to downflow.

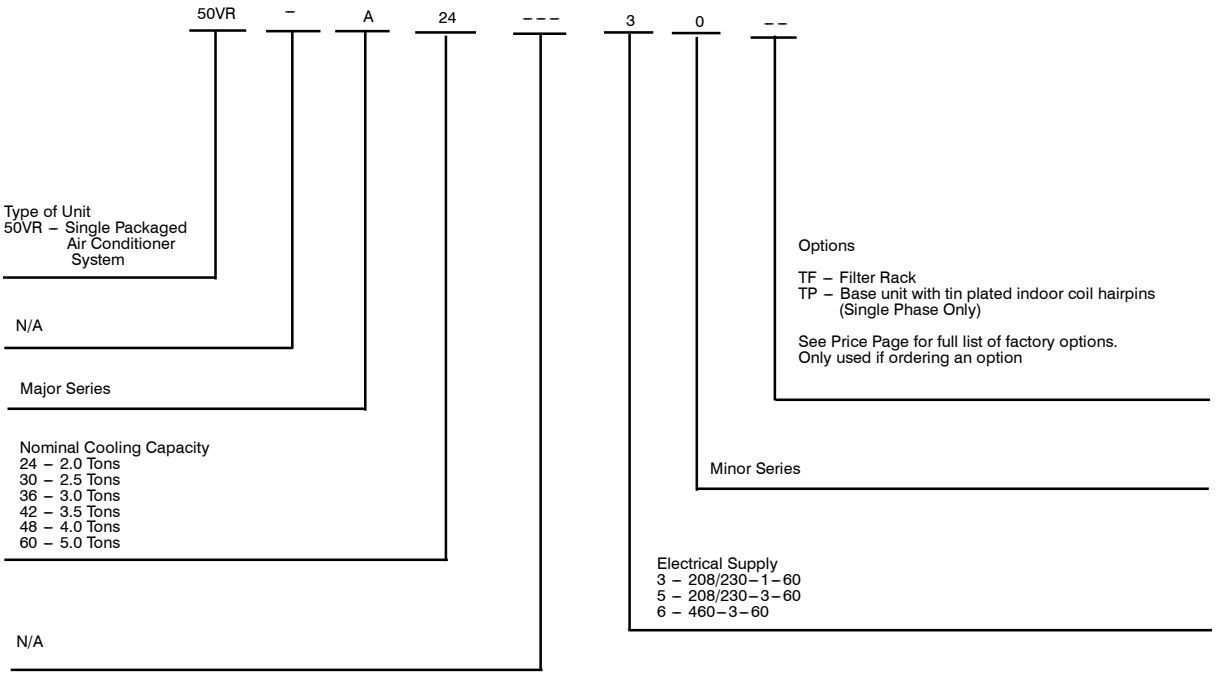
Cabinets are constructed of heavyduty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/electric heater compartment are insulated with foil-faced insulation, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain. An external drain is provided.

Short-Cycling protection for the compressor is incorporated into our defrost control board ensuring a five minute delay (+/-2 minutes) before restarting compressor after shutdown for any reason.

TABLE OF CONTENTS

FEATURES/BENEFITS 1
MODEL NUMBER NOMENCLATURE 3
AHRI CAPACITIES 4
PHYSICAL DATA 5
OPTIONS AND ACCESSORIES 6
BASE UNIT DIMENSIONS 7-8
ROOF CURB ACCESSORY 9
SELECTION PROCEDURE 10
PERFORMANCE DATA 11-35
TYPICAL PIPING AND WIRING 41
APPLICATION DATA 42
ELECTRICAL DATA 43-44
TYPICAL WIRING SCHEMATICS 45-50
CONTROLS 51
GUIDE SPECIFICATIONS 52-54

MODEL NUMBER NOMENCLATURE



c UL us LISTED

AHRI CERTIFIED™ www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program For verification of certification for individual products, go to www.ahridirectory.org.

ASHRAE 90.1 COMPLIANT

energy ENERGY STAR

AHRI* CAPACITIES

Cooling Capacities and Efficiencies

Unit Model 50VR-A	Nominal Tons	Standard CFM (High / Low Stage)	Net Cooling Capacities - Btuh (High Stage)	EER @A**	SEER†
24	2	850 / 650	23000	12.0	15.0
30	2-1/2	1000 / 750	30000	12.0	15.0
36	3	1200 / 900	34000	12.0	15.0
42	3-1/2	1400 / 1050	42000	12.0	15.0
48	4	1600 / 1200	47500	12.5	15.5
60	5	1750 / 1200	57000	12.0	15.0

Heat Pump Heating Capacities and Efficiencies

Unit Model 50VR-A	Heating Capacity (BTUH) @ 47_F (8.3_C)	COP @ 47_F (8.3_C)	Heating Capacity (BTUH) @ 17_F (---8.3_C)	COP @ 17_F (---8.3_C)	HSPF	Heating Cd
24	23,000	3.8	11200	2.2	8.0	0.25
30	29,000	3.8	15400	2.3	8.0	0.25
36	34,000	3.7	17200	2.3	8.0	0.25
42	42,000	3.6	24000	2.5	8.0	0.25
48	47,000	3.7	26000	2.3	8.0	0.25
60	57,000	3.5	32400	2.4	8.5	0.25

LEGEND
dB–Sound Levels (decibels)
db—Dry Bulb
SEER—Seasonal Energy Efficiency Ratio
wb—Wet Bulb
COP–Coefficient of Performance
* Air Conditioning, Heating & Refrigeration Institute.
**At "A" conditions–80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.
† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:
1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F (26.7°C) db, 67°F wb (19.4°C) indoor entering–air temperature and 95°F db (35°C) outdoor entering–air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from AHRIdirectory.org.

A-WEIGHTED SOUND POWER LEVEL (dBA)

Model 50VR-A	Sound Ratings (dBA)	TYPICAL OCTAVE BAND SPECTRUM(dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	73	58.5	65	66.5	67	62	57.5	54.5
30	76	59	63	69	70	63.5	59	53.5
36	73	64	63.5	68	68	65.5	60.5	52.5
42	71	64	62	65	66	63.5	59.5	52.5
48	74	59.5	65	70	67	64.5	60.5	52.5
60	73	68	63	66	66	65	59.5	52.5

NOTE: Tested in accordance with AHRI Standard 270 (not listed in AHRI).

PHYSICAL DATA

UNIT SIZE	24	30	36	42	48	60
NOMINAL CAPACITY (ton)	2	2–1/2	3	3–1/2	4	5
SHIPPING WEIGHT lb.	356	364	420	466	462	511
SHIPPING WEIGHT (kg)	162	165	191	212	210	232
COMPRESSORS	Scroll					
Quantity	1					
REFRIGERANT (R–410A)						
Quantity lb	9.0	10.0	11.0	14.6	12.0	14.8
Quantity (kg)	4.1	4.5	5.0	6.6	5.4	6.7
REFRIGERANT METERING DEVICE	TXV, Indoor TXV					
ORIFICE						
ID (in.)	.032 (2)	.040 (2)	.042 (2)	.042 (2)	.042 (2)	.052 (2)
ID (mm)	0.81 (2)	1.02 (2)	1.07 (2)	1.07 (2)	1.07 (2)	1.32 (2)
OUTDOOR COIL						
Rows...Fins/in.	2...21	2...21	2...21	2...21	2...21	2...21
Face Area (sq ft)	13.6	15.3	13.6	19.4	17.5	23.3
OUTDOOR FAN						
Nominal Cfm	2100	2500	3000	3000	3300	3600
Diameter in.	24	24	26	26	26	26
Diameter (mm)	609.6	609.6	660.4	660.4	660.4	660.4
Motor Hp (Rpm)	1/12 (800)	1/8 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)
INDOOR COIL						
Rows...Fins/in.	3...17	3...17	3...17	3...17	3...17	4...17
Face Area (sq ft)	3.7	3.7	4.7	4.7	5.7	5.7
INDOOR BLOWER						
Nominal Low Stage Cooling Airflow (Cfm)	650	750	900	1050	1200	1400
Nominal High Stage Cooling Airflow (Cfm)	850	1000	1200	1400	1600	1750
Size in.	10x10	10x10	11x10	11x10	11x10	11x10
Size (mm.)	254x254	254x254	279.4x254	279.4x254	279.4x254	279.4x254
Motor HP (RPM)	1/2 (1050)	1/2 (1050)	3/4 (1000)	3/4 (1075)	1.0 (1075)	1.0 (1075)
HIGH–PRESSURE SWITCH (psig) Cut–out	650 +/– 15					
Reset (Auto)	420 +/– 25					
LOW–PRESSURE SWITCH (psig) cut–out	20 +/– 5					
Reset (auto)	45 +/– 5					
RETURN–AIR FILTERS†‡						
Throwaway Size in.	20x20x1	20x24x1	24x30x1		24x36x1	
Throwaway Size (mm)	508x508x25	508x610x25	610x762x25		610x914x25	

† Required filter sizes shown are based on the larger of the AHRI (Air Conditioning Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300 ft/minute for throwaway type or 450 ft/minute for high–capacity type. Air filter pressure drop for non–standard filters must not exceed 0.08 in. W.C.

‡ If using accessory filter rack refer to the filter rack installation instructions for correct filter sizes and quantity.

Electric Heat Pressure Drop Tables (IN. W.C.)

Small Cabinet: 24–30

STATIC	STANDARD CFM (SCFM)											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
5 kW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07
10 kW	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.09	0.10	0.11
15 kW	0.00	0.00	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20 kW	0.00	0.00	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19

Large Cabinet: 36–60

STATIC	STANDARD CFM (SCFM)														
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5 kW	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
10 kW	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
15 kW	0.00	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
20 kW	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16

OPTIONS AND ACCESSORIES

ITEM	DESCRIPTION	FACTORY INSTALLED OPTION	FIELD INSTALLED ACCESSORY
Coil Options	Base unit with tin plated indoor coil hairpins	X	
Compressor Start Kit	Compressor Start Kit assists compressor start–up by providing additional starting torque on sing phase units only.		X
Corporate Thermostats	Thermostats provide control for the system heating and cooling functions.		X
Crankcase Heater	Crankcase Heater provides anti–floodback protection for low–load cooling applications.		X*
Economizer	Vertical Economizer with Jade Honeywell W7220 Controller, Honeywell communicating actuator, and dry bulb sensor. (Contact MicroMetl Customer Service at 1–800–662–4822 to order.)		X
	Horizontal Economizer with Jade Honeywell W7220 Controller, Honeywell communicating actuator, and dry bulb sensor. (Contact MicroMetl Customer Service at 1–800–662–4822 to order.)		X
Electric Heaters	Electric Heat Supplement		X
Filter Rack	Filter Rack features easy installation, serviceability, and high–filtering performance for vertical applications. Includes 1–in. filter.	X	X
Flat Roof Curbs	Flat Roof Curbs in both 11–in (279 mm) and 14–in. (356 mm) sizes are available for roof mounted applications.		X
Low Ambient Kit	Low Ambient Kit (Motormaster II Control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F (–18° C) when properly installed.		X
Manual Outside Air Damper	Manual Outside Air Damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.		X
Square–to–Round Duct Transition Kit	Square–to–Round Duct Transition Kit enable 24–48 size units to be fitted to 14 in (356 mm). round ductwork.		X
Time Guard II	Automatically prevents the compressor from restarting for at least 4 minutes and 45 seconds after shutdown of the compressor. Not required when a corporate programmable thermostat is applied or with a RTU–MP control.		X
Dual Point Electric Heaters	Allows you to power the electric heater and unit contactor separately by having two individual field power supply circuits connected respectively.		X

*Refer to Price Page for application detail.

Electric Heaters

CATALOG ORDERING NO.	NOMINAL CAPACITY (kW)	FUSE QTY	USED WITH SIZES					
			24	30	36	42	48	60
ELECTRIC HEATERS (208/230 — SINGLE PHASE — 60 Hz)								
CPHEATER052A00	5.0	–	X	X	X			
CPHEATER064A00	5.0	4	X	X	X	X	X	X
CPHEATER069A00	7.2	–	X					
CPHEATER070A00	7.2	4	X	X	X	X	X	X
CPHEATER050A00	10.0	4	X	X	X	X	X	X
CPHEATER066A00	15.0	4		X	X	X	X	X
CPHEATER054A00	20.0	6				X	X	X
ELECTRIC HEATERS (208/230 — THREE PHASE — 60 Hz)								
CPHEATER055A00	5.0	–		X	X	X	X	X
CPHEATER056A00	10.0	–		X	X	X	X	
CPHEATER068A00	10.0	6		X	X	X	X	X
CPHEATER058A00	20.0	6		X	X	X	X	X
CPHEATER059A01	20.0	6				X	X	X
ELECTRIC HEATERS (460 — THREE PHASE — 60 Hz)								
CPHEATER061A00	10.0	–			X	X	X	X
CPHEATER062A00	15.0	–			X	X	X	X
CPHEATER063A00	20.0	–				X	X	X

NOTE: Electric heaters are rated at 240v. Refer to Multiplication Factors table for other voltages.
X = Approved combinations.

Minimum Airflow for Safe Electric Heater Operation (CFM)

SIZE	24	30	36	42	48	60
Cfm	800	1000	1200	1400	1600	1750

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM					
		LB	KG	"A"		X		Y		Z	
50VR-A24---30	208/230-1	348	157.9	44-1/8	1121	20-1/2	520.7	15-3/4	400.1	16-5/8	422.3
50VR-A30---(3/5)0	208/230-1, 208/230-3-60	356	161.5	46-1/8	1172	20-1/2	520.7	15-3/4	400.1	17-3/8	441.3

UNIT	VOLTAGE	CORNER WEIGHT LB/KG							
		"1"		"2"		"3"		"4"	
50VR-A24---30	208/230	41.8	23.7	55.7	31.6	83.5	47.4	139.2	55.2
50VR-A30---(3,5)0	208/230	42.7	24.2	57.0	32.3	85.4	48.4	142.4	56.5

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	INCHES [MM]
TOP OF UNIT	14 [355.6]
DUCT SIDE OF UNIT	2 [50.8]
SIDE OPPOSITE DUCTS	14 [355.6]
BOTTOM OF UNIT	0 [0.0]
ELECTRICAL PANEL	36 [914.4]

NEC. REQUIRED CLEARANCES.

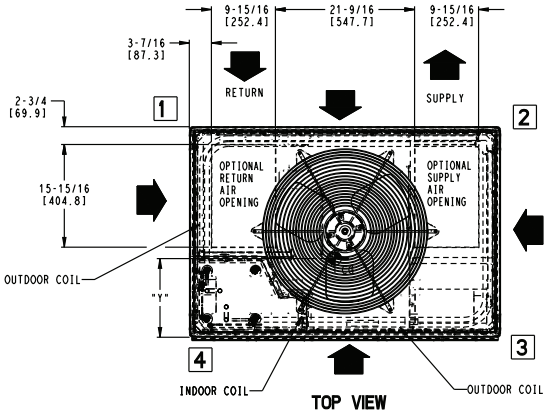
	INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

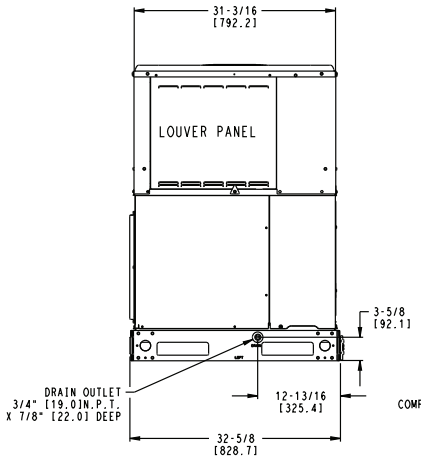
	INCHES [MM]
EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE	42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	48 [1219.2]
SIDE OPPOSITE DUCTS	36 [914.0]
DUCT PANEL	12 [304.8]*

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

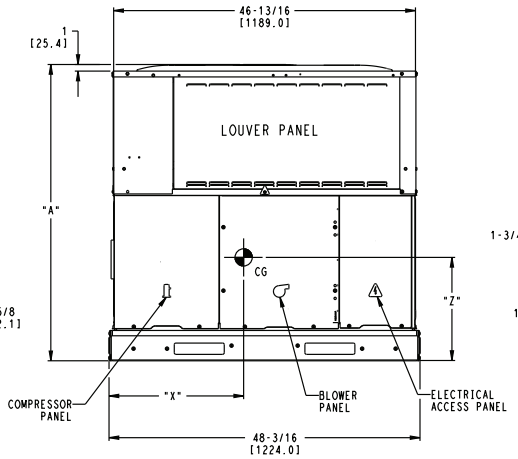
DIMENSIONS IN [] ARE IN MILLIMETERS



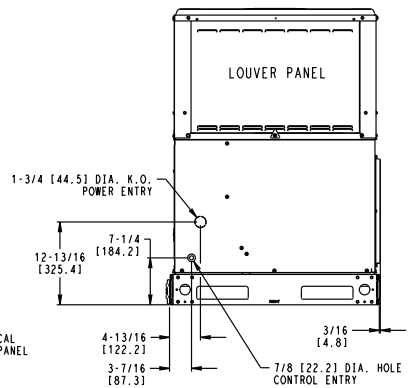
TOP VIEW



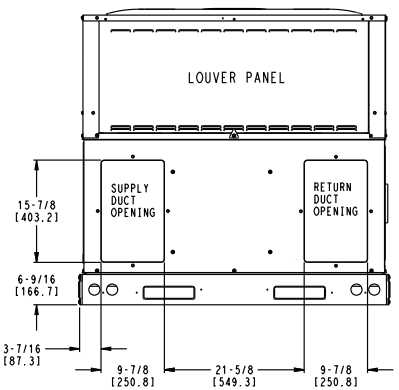
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



REAR VIEW

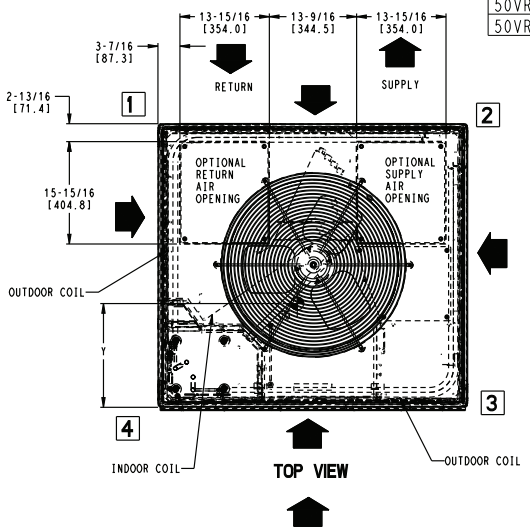
50VR500140	REV -

50VR-A

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM					
		LB	KG	"A"		X		Y		Z	
50VR-A36---(3/5/6)0	208/230-1, 208/230-3-60, 460-3	413	187.3	44-3/4	1137	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VR-A42---(3/5/6)0	208/230-1, 208/230-3-60, 460-3	444	201.4	50-3/4	1289	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VR-A48---(3/5/6)0	208/230-1, 208/230-3-60, 460-3	447	202.8	48-3/4	1238	20-1/4	514.4	17-1/2	444.5	17-5/8	447.7
50VR-A60---(3/5/6)0	208/230-1, 208/230-3-60, 460-3	503	228.2	54-3/4	1391	20-1/4	514.4	17-1/2	444.5	18	457.2

UNIT	VOLTAGE	CORNER WEIGHTS LB/KG							
		"1"		"2"		"3"		"4"	
50VR-A36---(3/5/6)0	208/230/460	49.6	28.1	66.1	37.5	99.1	56.2	165.2	65.6
50VR-A42---(3/5/6)0	208/230/460	53.3	30.2	71.0	40.3	106.6	60.4	177.6	70.5
50VR-A48---(3/5/6)0	208/230/460	53.6	30.4	71.5	40.6	107.3	60.8	178.8	71.0
50VR-A60---(3/5/6)0	208/230/460	60.4	34.2	80.5	45.6	120.7	68.4	201.2	79.9

NOTE: ALL TABLE DATA RELEVANT FOR ALL FACTORY INSTALLED OPTIONS EXCEPT ECONOMIZER



TOP VIEW

REQUIRED CLEARANCES TO COMBUSTIBLE MATL.

	INCHES [MM]
TOP OF UNIT	14 [355.6]
DUCT SIDE OF UNIT	2 [50.8]
SIDE OPPOSITE DUCTS	14 [355.6]
BOTTOM OF UNIT	0 [0.0]
ELECTRICAL PANEL	36 [914.4]

NEC. REQUIRED CLEARANCES.

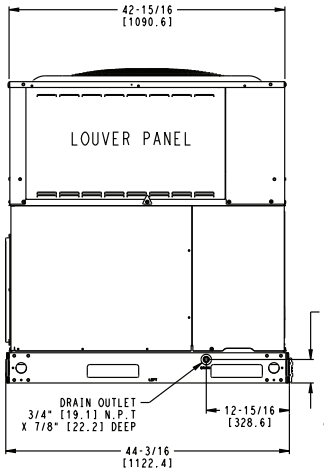
	INCHES [MM]
BETWEEN UNITS, POWER ENTRY SIDE	42 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42 [1066.8]

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

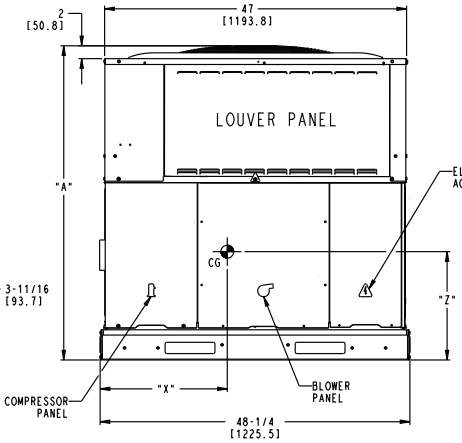
	INCHES [MM]
EVAP. COIL ACCESS SIDE	36 [914.0]
POWER ENTRY SIDE	42 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	48 [1219.2]
SIDE OPPOSITE DUCTS	36 [914.0]
DUCT PANEL	12 [304.8]*

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 [304.8] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

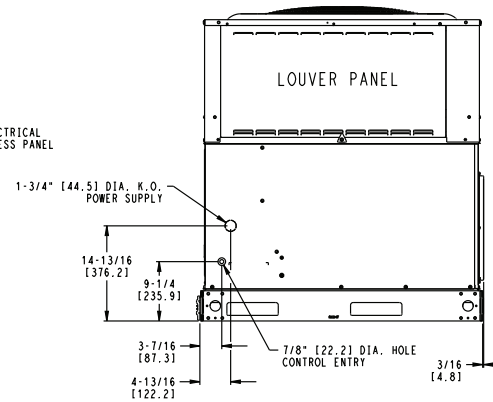
DIMENSIONS IN [] ARE IN MM



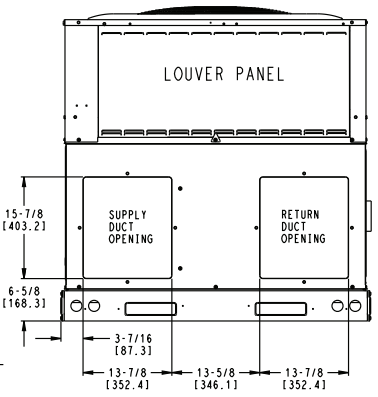
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW

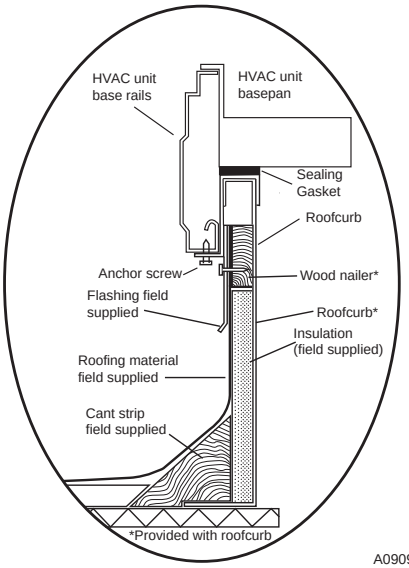


REAR VIEW

50VR500141	REV -

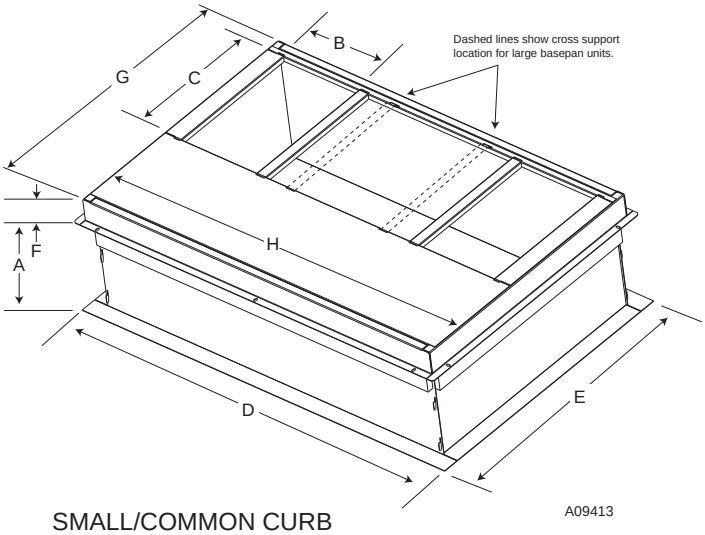
A13173

ROOF CURB ACCESSORY – 50VR–A24–60



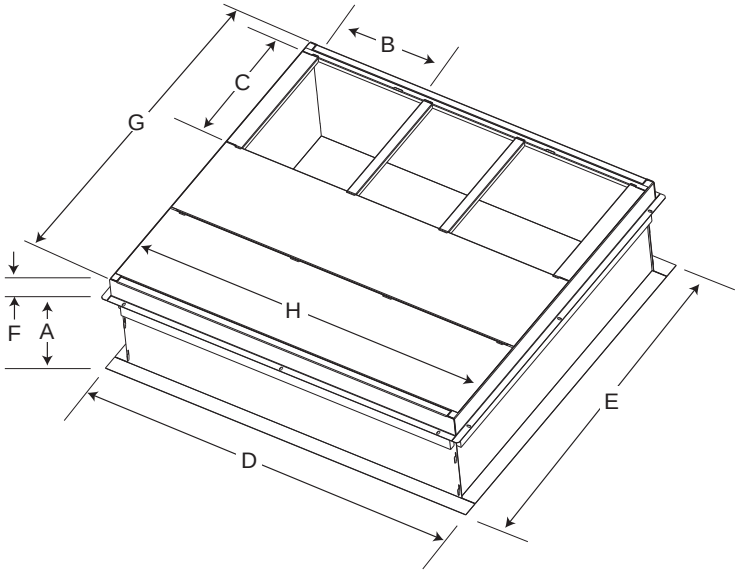
A09090

ROOF CURB DETAIL



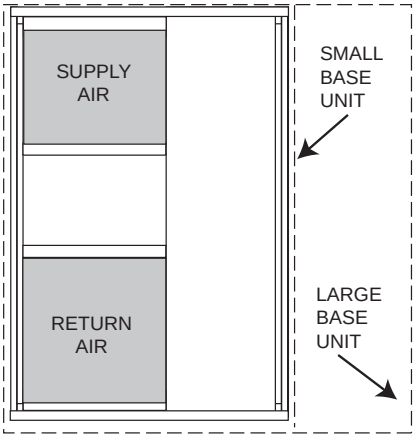
SMALL/COMMON CURB

A09413



LARGE CURB

A09415



UNIT PLACEMENT ON COMMON CURB

A09094

SMALL OR LARGE BASE UNIT

A09414

UNIT SIZE	CATALOG NUMBER	A IN. (mm)	B (small/common base) IN. (mm)*	B (large base) IN. (mm)*	C IN. (mm)	D IN. (mm)	E IN. (mm)	F IN. (mm)	G IN. (mm)	H IN. (mm)
Small or Large	CPRFCURB010A00	11 (279)	10 (254)	14 (356)	16 (406)	47.8 (1214)	32.4 (822)	2.7 (69)	30.6 (778)	46.1 (1170)
	CPRFCURB011A00	14 (356)								
Large	CPRFCURB012A00	11 (279)	14 (356)				43.9 (1116)		42.2 (1072)	
	CPRFCURB013A00	14 (356)								

* Part Numbers CPRCURB010A00 and CPRCURB011A00 can be used on both small and large basepan units. The cross supports must be located based on whether the unit is a small basepan or a large basepan.

NOTES:

1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied, as required, to unit being installed.
3. Roof curb is made of 16–gauge steel.
4. Attach ductwork to curb (flanges of duct rest on curb).
5. Insulated panels: 1–in. (25.4 mm) thick fiberglass 1 lb. density.

SELECTION PROCEDURE (WITH EXAMPLE)

1. Determine cooling and heating requirements at design conditions:

Given:

Required Cooling Capacity (TC) . . . . . 34,000 Btuh
Sensible Heat Capacity (SHC) . . . . . 24,000 Btuh
Required Heating Capacity . . . . . 12,500 Btuh
Condenser Entering Air Temperature . . . . . 95°F(35°C)
Indoor–Air Temperature . . . . . 80°F (26°C) edb
67°F (19°C) ewb
Evaporator Air Quantity . . . . . 1200 CFM
External Static Pressure . . . . . 0.20 IN. W.C.
Electrical Characteristics 230–1–60

2. Select unit based on required cooling capacity.

Enter Net Cooling Capacities table at condenser entering temperature of 95°F (35°C), indoor air entering at 1200 cfm and 67°F (19°C) ewb (entering wet bulb). The unit will provide a total capacity of 34,200 Btuh and a SHC of 24,500 Btuh.

3. Select electric heat.

The required heating capacity is 15,000 Btuh.

Determine additional electric heat capacity in kW.

$$\frac{15{,}000 \text{ Btuh}}{3{,}414 \text{ Btuh/kW}} = 4.4\text{kW of heat required}$$

Enter the electric Heater Packages table for 208/240, single–phase, 50VR–A36 unit. The 5 kW heater at 240v most closely satisfies the heating required. To calculate kW at the 208v, multiply the heater kW by multiplication factor 0.75 found in the Wattage Multiplication Factors table.

5 kW x 0.75 = 3.75 kW

3.75 kW x 3414 = 12802.50 Btuh

4. Determine fan speed and power requirements at design conditions.

Before entering the air delivery tables, calculate the total static pressure required. From the given example, the Wet Coil Pressure Drop Table, and the Filter Pressure Drop Table:

External Static Pressure	0.200 IN. W.C.
Filter	0.000 IN. W.C.
Wet Coil Pressure Drop	0.130 IN. W.C.
Total Static Pressure	0.330 IN. W.C.

Enter the table for Wet Coil Air Delivery—horizontal discharge, 230. At 0.33 IN. W.C. ESP (external static pressure) and medium speed, the fan will deliver 1293 cfm. Adjusting for 208v, the motor delivers 114 cfm (deduct 10%).

5. Select unit that corresponds to power source available.

The Electrical Data Table shows that the unit is designed to operate at 208–1–60.

16056 - Keller Crossing Specific Plan

CadnaA Noise Prediction Model: 16056-02_Operation.cna
Date: 06.11.24
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates			
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)	
R1		R1	30.0	27.2	33.9	0.0	0.0	0.0		x	Total	5.00	r	6303874.03	2176211.86	5.00	
R2		R2	30.7	28.0	34.7	0.0	0.0	0.0		x	Total	5.00	r	6302320.11	2175213.73	5.00	
R3		R3	34.8	32.1	38.8	0.0	0.0	0.0		x	Total	5.00	r	6302413.90	2173359.86	5.00	
R4		R4	33.6	30.9	37.6	0.0	0.0	0.0		x	Total	5.00	r	6302869.94	2172837.64	5.00	
R5		R5	34.4	31.6	38.4	0.0	0.0	0.0		x	Total	5.00	r	6303972.29	2172761.39	5.00	
R6		R6	32.7	30.0	36.7	0.0	0.0	0.0		x	Total	5.00	r	6305863.49	2173702.01	5.00	

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC001		AC001	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305090.19	2174643.90	3.00
AC002		AC002	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305042.45	2174674.29	3.00
AC003		AC003	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304985.16	2174700.33	3.00
AC004		AC004	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304942.62	2174724.63	3.00
AC005		AC005	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304890.54	2174742.86	3.00
AC006		AC006	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304841.93	2174762.83	3.00
AC007		AC007	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304784.64	2174781.92	3.00
AC008		AC008	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304736.90	2174809.70	3.00
AC009		AC009	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304688.28	2174836.61	3.00
AC010		AC010	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304645.75	2174862.65	3.00
AC011		AC011	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304600.61	2174890.43	3.00
AC012		AC012	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304553.74	2174924.29	3.00
AC013		AC013	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305004.26	2174510.22	3.00
AC014		AC014	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304953.91	2174535.40	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC015		AC015	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304905.30	2174562.31	3.00
AC016		AC016	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304859.29	2174587.48	3.00
AC017		AC017	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304802.87	2174607.45	3.00
AC018		AC018	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304751.65	2174622.20	3.00
AC019		AC019	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304699.57	2174648.24	3.00
AC020		AC020	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304656.17	2174681.23	3.00
AC021		AC021	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304604.95	2174703.80	3.00
AC022		AC022	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304558.08	2174732.45	3.00
AC023		AC023	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304512.07	2174764.56	3.00
AC024		AC024	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304466.06	2174792.34	3.00
AC025		AC025	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304952.17	2174433.83	3.00
AC026		AC026	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304908.77	2174466.82	3.00
AC027		AC027	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304861.03	2174491.13	3.00
AC028		AC028	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304809.81	2174510.22	3.00
AC029		AC029	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304758.60	2174531.92	3.00
AC030		AC030	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304704.78	2174555.36	3.00
AC031		AC031	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304650.96	2174571.86	3.00
AC032		AC032	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304605.82	2174597.03	3.00
AC033		AC033	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304555.47	2174628.28	3.00
AC034		AC034	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304509.46	2174656.06	3.00
AC035		AC035	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304457.38	2174682.97	3.00
AC036		AC036	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304413.98	2174710.74	3.00
AC037		AC037	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304848.87	2174281.92	3.00
AC038		AC038	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304807.21	2174308.83	3.00
AC039		AC039	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304766.41	2174334.01	3.00
AC040		AC040	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304723.01	2174356.58	3.00
AC041		AC041	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304674.40	2174373.07	3.00
AC042		AC042	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304631.86	2174399.98	3.00
AC043		AC043	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304587.59	2174419.08	3.00
AC044		AC044	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304537.24	2174439.04	3.00
AC045		AC045	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304496.44	2174463.35	3.00
AC046		AC046	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304394.01	2174521.51	3.00
AC047		AC047	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304354.95	2174545.81	3.00
AC048		AC048	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304315.02	2174575.33	3.00
AC049		AC049	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304504.26	2174952.93	3.00
AC050		AC050	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304461.72	2174984.18	3.00
AC051		AC051	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304413.11	2175018.04	3.00
AC052		AC052	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304367.97	2175044.08	3.00
AC053		AC053	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304290.71	2175070.99	3.00
AC054		AC054	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304412.24	2174813.17	3.00
AC055		AC055	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304370.58	2174844.42	3.00
AC056		AC056	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304326.31	2174874.81	3.00
AC057		AC057	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304283.77	2174908.66	3.00
AC058		AC058	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304233.42	2174938.17	3.00
AC059		AC059	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304185.68	2174966.82	3.00
AC060		AC060	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304367.10	2174739.39	3.00
AC061		AC061	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304317.62	2174768.04	3.00
AC062		AC062	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304277.69	2174798.42	3.00
AC063		AC063	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304230.82	2174827.06	3.00
AC064		AC064	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304182.21	2174858.31	3.00
AC065		AC065	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304138.81	2174886.96	3.00
AC066		AC066	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304125.78	2174989.39	3.00
AC067		AC067	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304060.68	2174993.73	3.00
AC068		AC068	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304006.86	2174981.58	3.00
AC069		AC069	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303956.51	2174959.88	3.00
AC070		AC070	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303900.96	2174943.38	3.00
AC071		AC071	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303861.90	2174910.40	3.00
AC072		AC072	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303825.44	2174885.22	3.00
AC073		AC073	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303777.69	2174859.18	3.00
AC074		AC074	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303736.03	2174829.67	3.00
AC075		AC075	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303697.83	2174804.49	3.00
AC076		AC076	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303655.30	2174778.45	3.00
AC077		AC077	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303606.69	2174751.54	3.00
AC078		AC078	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303659.64	2174695.12	3.00
AC079		AC079	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303706.51	2174649.11	3.00
AC080		AC080	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303737.76	2174612.65	3.00
AC081		AC081	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303780.30	2174569.25	3.00
AC082		AC082	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303824.57	2174527.58	3.00
AC083		AC083	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303883.60	2174617.86	3.00
AC084		AC084	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303834.99	2174667.34	3.00
AC085		AC085	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303806.34	2174702.93	3.00
AC086		AC086	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303773.35	2174749.81	3.00
AC087		AC087	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303925.26	2174851.37	3.00
AC088		AC088	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303974.74	2174809.70	3.00
AC089		AC089	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304012.07	2174763.70	3.00
AC090		AC090	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304061.55	2174737.65	3.00
AC091		AC091	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304108.42	2174710.74	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC092		AC092	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304147.49	2174682.97	3.00
AC093		AC093	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304190.02	2174656.92	3.00
AC094		AC094	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304235.16	2174629.15	3.00
AC095		AC095	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304276.83	2174604.84	3.00
AC096		AC096	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304118.84	2174539.74	3.00
AC097		AC097	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304032.03	2174590.95	3.00
AC098		AC098	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304008.60	2174552.76	3.00
AC099		AC099	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304100.61	2174505.88	3.00
AC100		AC100	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304074.57	2174470.29	3.00
AC101		AC101	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303986.90	2174518.90	3.00
AC102		AC102	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304052.87	2174439.91	3.00
AC103		AC103	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303966.93	2174486.79	3.00
AC104		AC104	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304028.56	2174406.92	3.00
AC105		AC105	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303943.49	2174454.67	3.00
AC106		AC106	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304007.73	2174373.07	3.00
AC107		AC107	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303920.06	2174422.55	3.00
AC108		AC108	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303987.76	2174335.74	3.00
AC109		AC109	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303902.69	2174386.96	3.00
AC110		AC110	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303968.67	2174302.76	3.00
AC111		AC111	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303880.99	2174353.11	3.00
AC112		AC112	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303854.95	2174323.59	3.00
AC113		AC113	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303946.10	2174270.64	3.00
AC114		AC114	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303923.53	2174235.92	3.00
AC115		AC115	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303828.91	2174285.40	3.00
AC116		AC116	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303899.22	2174202.93	3.00
AC117		AC117	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303800.26	2174249.81	3.00
AC118		AC118	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303873.18	2174168.21	3.00
AC119		AC119	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303772.49	2174215.08	3.00
AC120		AC120	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303852.35	2174130.88	3.00
AC121		AC121	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303743.84	2174182.97	3.00
AC122		AC122	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303848.87	2174084.01	3.00
AC123		AC123	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303851.48	2174038.00	3.00
AC124		AC124	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303856.69	2173991.13	3.00
AC125		AC125	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303777.69	2174031.06	3.00
AC126		AC126	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303709.12	2174160.40	3.00
AC127		AC127	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303734.29	2174025.85	3.00
AC128		AC128	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303670.06	2174135.22	3.00
AC129		AC129	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303691.76	2174005.88	3.00
AC130		AC130	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303634.46	2174107.45	3.00
AC131		AC131	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303657.03	2173991.13	3.00
AC132		AC132	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303597.14	2174085.74	3.00
AC133		AC133	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303616.24	2173986.79	3.00
AC134		AC134	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303574.57	2173985.05	3.00
AC135		AC135	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303553.74	2174070.12	3.00
AC136		AC136	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303509.46	2174057.10	3.00
AC137		AC137	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303543.32	2173965.08	3.00
AC138		AC138	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303504.26	2173964.22	3.00
AC139		AC139	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303463.46	2174048.42	3.00
AC140		AC140	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303465.19	2173952.06	3.00
AC141		AC141	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303425.26	2173955.54	3.00
AC142		AC142	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303417.45	2174039.74	3.00
AC143		AC143	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303376.65	2174038.00	3.00
AC144		AC144	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303385.33	2173944.25	3.00
AC145		AC145	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303343.67	2173944.25	3.00
AC146		AC146	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303337.59	2174038.87	3.00
AC147		AC147	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303297.66	2174033.66	3.00
AC148		AC148	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303305.47	2173934.70	3.00
AC149		AC149	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303257.73	2173930.36	3.00
AC150		AC150	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303249.05	2174031.06	3.00
AC151		AC151	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303437.42	2174748.07	3.00
AC152		AC152	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303466.93	2174697.72	3.00
AC153		AC153	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303497.31	2174660.40	3.00
AC154		AC154	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303526.83	2174611.79	3.00
AC155		AC155	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303555.47	2174574.46	3.00
AC156		AC156	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303589.33	2174538.00	3.00
AC157		AC157	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303618.84	2174499.81	3.00
AC158		AC158	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303650.96	2174466.82	3.00
AC159		AC159	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303684.81	2174426.02	3.00
AC160		AC160	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303728.21	2174392.17	3.00
AC161		AC161	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303668.32	2174317.52	3.00
AC162		AC162	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303624.92	2174359.18	3.00
AC163		AC163	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303591.06	2174400.85	3.00
AC164		AC164	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303552.87	2174435.57	3.00
AC165		AC165	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303517.28	2174482.45	3.00
AC166		AC166	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303481.69	2174520.64	3.00
AC167		AC167	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303444.36	2174569.25	3.00
AC168		AC168	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303414.85	2174610.92	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC169		AC169	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303381.86	2174658.66	3.00
AC170		AC170	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303334.12	2174693.38	3.00
AC171		AC171	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303266.41	2174695.12	3.00
AC172		AC172	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303256.86	2174511.96	3.00
AC173		AC173	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303292.45	2174467.69	3.00
AC174		AC174	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303334.99	2174426.89	3.00
AC175		AC175	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303372.31	2174384.36	3.00
AC176		AC176	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303408.77	2174347.03	3.00
AC177		AC177	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303452.17	2174309.70	3.00
AC178		AC178	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303552.00	2174222.90	3.00
AC179		AC179	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303491.24	2174195.99	3.00
AC180		AC180	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303430.47	2174186.44	3.00
AC181		AC181	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303375.78	2174181.23	3.00
AC182		AC182	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303266.41	2174169.08	3.00
AC183		AC183	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303255.12	2174223.77	3.00
AC184		AC184	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303252.52	2174273.24	3.00
AC185		AC185	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303251.65	2174314.91	3.00
AC186		AC186	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303227.35	2174370.47	3.00
AC187		AC187	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303093.67	2174255.02	3.00
AC188		AC188	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303092.80	2174206.40	3.00
AC189		AC189	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303097.14	2174156.92	3.00
AC190		AC190	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303139.67	2174026.72	3.00
AC191		AC191	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303144.01	2173919.08	3.00
AC192		AC192	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303082.38	2173912.13	3.00
AC193		AC193	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303083.25	2174014.56	3.00
AC194		AC194	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303027.69	2174019.77	3.00
AC195		AC195	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303032.90	2173913.00	3.00
AC196		AC196	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302973.01	2173909.53	3.00
AC197		AC197	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302973.87	2174012.83	3.00
AC198		AC198	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302917.45	2174014.56	3.00
AC199		AC199	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302925.26	2173906.92	3.00
AC200		AC200	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302867.97	2174013.70	3.00
AC201		AC201	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302870.58	2173906.92	3.00
AC202		AC202	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302913.11	2174158.66	3.00
AC203		AC203	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302914.85	2174212.48	3.00
AC204		AC204	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302916.58	2174266.30	3.00
AC205		AC205	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302743.84	2174305.36	3.00
AC206		AC206	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302732.56	2174241.13	3.00
AC207		AC207	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302735.16	2174184.70	3.00
AC208		AC208	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302736.90	2174131.75	3.00
AC209		AC209	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302738.63	2174071.86	3.00
AC210		AC210	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302735.16	2174028.45	3.00
AC211		AC211	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302737.76	2173972.90	3.00
AC212		AC212	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302735.16	2173920.81	3.00
AC213		AC213	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302737.76	2173862.65	3.00
AC214		AC214	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302741.24	2173807.97	3.00
AC215		AC215	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302737.76	2173754.15	3.00
AC216		AC216	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302736.90	2173699.46	3.00
AC217		AC217	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302736.03	2173643.90	3.00
AC218		AC218	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302738.63	2173586.61	3.00
AC219		AC219	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302738.63	2173533.66	3.00
AC220		AC220	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302736.90	2173475.50	3.00
AC221		AC221	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302873.18	2173756.75	3.00
AC222		AC222	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302928.74	2173753.28	3.00
AC223		AC223	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302982.56	2173753.28	3.00
AC224		AC224	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303038.11	2173752.41	3.00
AC225		AC225	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303094.53	2173753.28	3.00
AC226		AC226	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303145.75	2173755.02	3.00
AC227		AC227	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303151.83	2173656.92	3.00
AC228		AC228	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303091.93	2173656.06	3.00
AC229		AC229	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303038.98	2173659.53	3.00
AC230		AC230	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302984.29	2173660.40	3.00
AC231		AC231	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302928.74	2173661.27	3.00
AC232		AC232	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302871.44	2173658.66	3.00
AC233		AC233	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303156.17	2173489.39	3.00
AC234		AC234	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303099.74	2173484.18	3.00
AC235		AC235	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303045.06	2173480.71	3.00
AC236		AC236	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302986.90	2173481.58	3.00
AC237		AC237	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302933.08	2173479.84	3.00
AC238		AC238	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302873.18	2173486.79	3.00
AC239		AC239	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302875.78	2173395.64	3.00
AC240		AC240	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302931.34	2173394.77	3.00
AC241		AC241	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302991.24	2173396.51	3.00
AC242		AC242	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303040.71	2173396.51	3.00
AC243		AC243	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303100.61	2173398.24	3.00
AC244		AC244	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303159.64	2173403.45	3.00
AC245		AC245	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302735.16	2173428.63	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC246		AC246	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302731.69	2173377.41	3.00
AC247		AC247	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6302731.69	2173320.99	3.00
AC248		AC248	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303273.35	2173783.66	3.00
AC249		AC249	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303310.68	2173786.27	3.00
AC250		AC250	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303350.61	2173787.13	3.00
AC251		AC251	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303391.41	2173788.00	3.00
AC252		AC252	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303433.94	2173791.47	3.00
AC253		AC253	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303486.03	2173795.81	3.00
AC254		AC254	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303499.92	2173708.14	3.00
AC255		AC255	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303460.85	2173707.27	3.00
AC256		AC256	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303414.85	2173706.40	3.00
AC257		AC257	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303362.76	2173702.93	3.00
AC258		AC258	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303312.42	2173679.49	3.00
AC259		AC259	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303306.34	2173619.60	3.00
AC260		AC260	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303312.42	2173570.12	3.00
AC261		AC261	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303320.23	2173527.58	3.00
AC262		AC262	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303325.44	2173485.92	3.00
AC263		AC263	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303326.31	2173448.59	3.00
AC264		AC264	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303325.44	2173410.40	3.00
AC265		AC265	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303331.51	2173362.65	3.00
AC266		AC266	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303344.53	2173311.44	3.00
AC267		AC267	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303400.96	2173273.24	3.00
AC268		AC268	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303683.94	2173347.90	3.00
AC269		AC269	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303471.27	2173292.34	3.00
AC270		AC270	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303531.17	2173311.44	3.00
AC271		AC271	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303566.76	2173321.86	3.00
AC272		AC272	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303606.69	2173332.27	3.00
AC273		AC273	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303644.88	2173339.22	3.00
AC274		AC274	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303722.14	2173352.24	3.00
AC275		AC275	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303760.33	2173358.31	3.00
AC276		AC276	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303802.00	2173360.92	3.00
AC277		AC277	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303838.46	2173366.13	3.00
AC278		AC278	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303874.92	2173369.60	3.00
AC279		AC279	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303917.45	2173372.20	3.00
AC280		AC280	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303954.78	2173373.07	3.00
AC281		AC281	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303992.97	2173377.41	3.00
AC282		AC282	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304033.77	2173378.28	3.00
AC283		AC283	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304082.38	2173380.88	3.00
AC284		AC284	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304124.92	2173390.43	3.00
AC285		AC285	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304168.32	2173413.00	3.00
AC286		AC286	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304204.78	2173444.25	3.00
AC287		AC287	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304244.71	2173468.56	3.00
AC288		AC288	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304269.88	2173498.07	3.00
AC289		AC289	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304301.13	2173531.06	3.00
AC290		AC290	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304324.57	2173566.65	3.00
AC291		AC291	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304346.27	2173597.90	3.00
AC292		AC292	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304373.18	2173627.41	3.00
AC293		AC293	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304394.01	2173663.00	3.00
AC294		AC294	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304419.19	2173702.06	3.00
AC295		AC295	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304450.44	2173734.18	3.00
AC296		AC296	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304323.70	2173779.32	3.00
AC297		AC297	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304286.37	2173807.97	3.00
AC298		AC298	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304244.71	2173834.88	3.00
AC299		AC299	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304202.17	2173847.90	3.00
AC300		AC300	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304202.17	2173847.90	3.00
AC301		AC301	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304161.37	2173855.71	3.00
AC302		AC302	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304118.84	2173863.52	3.00
AC303		AC303	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304071.10	2173866.99	3.00
AC304		AC304	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304034.64	2173866.13	3.00
AC305		AC305	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303990.37	2173864.39	3.00
AC306		AC306	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303947.83	2173856.58	3.00
AC307		AC307	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303906.17	2173855.71	3.00
AC308		AC308	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303868.84	2173844.42	3.00
AC309		AC309	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303826.31	2173841.82	3.00
AC310		AC310	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303783.77	2173832.27	3.00
AC311		AC311	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303745.58	2173827.06	3.00
AC312		AC312	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303703.91	2173821.86	3.00
AC313		AC313	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303664.85	2173818.38	3.00
AC314		AC314	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303627.52	2173808.83	3.00
AC315		AC315	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303584.99	2173806.23	3.00
AC316		AC316	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303602.35	2173723.77	3.00
AC317		AC317	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303644.88	2173728.97	3.00
AC318		AC318	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303684.81	2173735.92	3.00
AC319		AC319	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303723.87	2173738.52	3.00
AC320		AC320	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303764.67	2173744.60	3.00
AC321		AC321	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303802.00	2173752.41	3.00
AC322		AC322	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303840.19	2173756.75	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC323		AC323	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303885.33	2173760.22	3.00
AC324		AC324	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303925.26	2173764.56	3.00
AC325		AC325	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303965.19	2173768.04	3.00
AC326		AC326	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304005.99	2173772.38	3.00
AC327		AC327	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304045.92	2173774.11	3.00
AC328		AC328	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304091.06	2173774.98	3.00
AC329		AC329	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304136.20	2173766.30	3.00
AC330		AC330	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304178.74	2173751.54	3.00
AC331		AC331	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304223.01	2173738.52	3.00
AC332		AC332	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304268.15	2173710.74	3.00
AC333		AC333	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304174.40	2173621.33	3.00
AC334		AC334	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304076.31	2173636.96	3.00
AC335		AC335	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304018.15	2173625.67	3.00
AC336		AC336	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303980.82	2173623.07	3.00
AC337		AC337	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303937.42	2173616.99	3.00
AC338		AC338	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303893.15	2173617.86	3.00
AC339		AC339	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303855.82	2173610.05	3.00
AC340		AC340	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303815.89	2173603.97	3.00
AC341		AC341	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303772.49	2173599.63	3.00
AC342		AC342	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303732.56	2173592.69	3.00
AC343		AC343	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303696.10	2173585.74	3.00
AC344		AC344	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303659.64	2173581.40	3.00
AC345		AC345	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303617.10	2173570.99	3.00
AC346		AC346	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303577.17	2173568.38	3.00
AC347		AC347	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303536.37	2173564.91	3.00
AC348		AC348	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303492.97	2173559.70	3.00
AC349		AC349	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303448.70	2173557.10	3.00
AC350		AC350	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303460.85	2173445.99	3.00
AC351		AC351	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303507.73	2173452.93	3.00
AC352		AC352	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303550.26	2173461.61	3.00
AC353		AC353	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303585.85	2173469.42	3.00
AC354		AC354	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303626.65	2173475.50	3.00
AC355		AC355	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303665.71	2173484.18	3.00
AC356		AC356	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303707.38	2173490.26	3.00
AC357		AC357	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303745.58	2173494.60	3.00
AC358		AC358	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303786.37	2173501.54	3.00
AC359		AC359	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303826.31	2173515.43	3.00
AC360		AC360	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303861.90	2173523.24	3.00
AC361		AC361	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303906.17	2173524.98	3.00
AC362		AC362	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303946.10	2173525.85	3.00
AC363		AC363	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6303986.03	2173531.06	3.00
AC364		AC364	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304028.56	2173528.45	3.00
AC365		AC365	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304071.10	2173539.74	3.00
AC366		AC366	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304115.37	2173557.10	3.00
AC367		AC367	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304147.49	2173579.67	3.00
AC368		AC368	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305273.84	2174691.23	3.00
AC369		AC369	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305253.87	2174660.63	3.00
AC370		AC370	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305234.99	2174631.99	3.00
AC371		AC371	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305221.97	2174610.72	3.00
AC372		AC372	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305202.66	2174581.64	3.00
AC373		AC373	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305311.17	2174511.33	3.00
AC374		AC374	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305343.50	2174561.67	3.00
AC375		AC375	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305362.38	2174590.32	3.00
AC376		AC376	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305330.48	2174540.41	3.00
AC377		AC377	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305382.35	2174620.92	3.00
AC378		AC378	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305153.70	2174521.01	3.00
AC379		AC379	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305185.82	2174500.61	3.00
AC380		AC380	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305204.05	2174488.45	3.00
AC381		AC381	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305234.86	2174468.49	3.00
AC382		AC382	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305264.38	2174448.96	3.00
AC383		AC383	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305133.30	2174379.95	3.00
AC384		AC384	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305115.07	2174392.10	3.00
AC385		AC385	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305082.95	2174412.50	3.00
AC386		AC386	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305193.63	2174340.45	3.00
AC387		AC387	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305164.12	2174359.98	3.00
AC388		AC388	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305103.35	2174375.17	3.00
AC389		AC389	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305121.58	2174363.02	3.00
AC390		AC390	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305181.91	2174323.52	3.00
AC391		AC391	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305071.24	2174395.57	3.00
AC392		AC392	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305152.40	2174343.05	3.00
AC393		AC393	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305032.61	2174264.93	3.00
AC394		AC394	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305050.84	2174252.78	3.00
AC395		AC395	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305000.49	2174285.33	3.00
AC396		AC396	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305081.65	2174232.81	3.00
AC397		AC397	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305111.17	2174213.28	3.00
AC398		AC398	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305101.18	2174196.35	3.00
AC399		AC399	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305071.67	2174215.88	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC400		AC400	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304990.51	2174268.40	3.00
AC401		AC401	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305040.85	2174235.85	3.00
AC402		AC402	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305022.62	2174248.00	3.00
AC403		AC403	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304966.64	2174126.91	3.00
AC404		AC404	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304948.41	2174139.06	3.00
AC405		AC405	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304916.29	2174159.46	3.00
AC406		AC406	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304997.45	2174106.94	3.00
AC407		AC407	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304932.35	2174070.49	3.00
AC408		AC408	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304882.00	2174103.04	3.00
AC409		AC409	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304963.16	2174050.52	3.00
AC410		AC410	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304914.12	2174082.64	3.00
AC411		AC411	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304992.68	2174030.99	3.00
AC412		AC412	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305027.83	2174086.54	3.00
AC413		AC413	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304923.23	2173919.44	3.00
AC414		AC414	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304812.56	2173991.49	3.00
AC415		AC415	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304844.67	2173971.09	3.00
AC416		AC416	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304893.72	2173938.97	3.00
AC417		AC417	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304862.90	2173958.94	3.00
AC418		AC418	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304799.53	2173975.00	3.00
AC419		AC419	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304849.88	2173942.45	3.00
AC420		AC420	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304880.70	2173922.48	3.00
AC421		AC421	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304831.65	2173954.60	3.00
AC422		AC422	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304910.21	2173902.95	3.00
AC423		AC423	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304728.79	2173865.19	3.00
AC424		AC424	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304760.91	2173844.79	3.00
AC425		AC425	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304809.95	2173812.67	3.00
AC426		AC426	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304779.14	2173832.64	3.00
AC427		AC427	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304839.46	2173793.14	3.00
AC428		AC428	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304799.10	2173794.88	3.00
AC429		AC429	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304768.28	2173814.84	3.00
AC430		AC430	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304750.06	2173827.00	3.00
AC431		AC431	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304828.61	2173775.35	3.00
AC432		AC432	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304717.94	2173847.40	3.00
AC433		AC433	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304719.24	2173672.92	3.00
AC434		AC434	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304670.19	2173705.03	3.00
AC435		AC435	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304688.42	2173692.88	3.00
AC436		AC436	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304748.75	2173653.38	3.00
AC437		AC437	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304638.08	2173725.43	3.00
AC438		AC438	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304651.10	2173636.46	3.00
AC439		AC439	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304711.43	2173596.96	3.00
AC440		AC440	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304681.91	2173616.49	3.00
AC441		AC441	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304632.87	2173648.61	3.00
AC442		AC442	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304600.75	2173669.01	3.00
AC443		AC443	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304640.68	2173488.02	3.00
AC444		AC444	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304611.17	2173507.55	3.00
AC445		AC445	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304530.00	2173560.07	3.00
AC446		AC446	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304562.12	2173539.67	3.00
AC447		AC447	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304580.35	2173527.52	3.00
AC448		AC448	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304569.93	2173508.85	3.00
AC449		AC449	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304630.26	2173469.36	3.00
AC450		AC450	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304519.59	2173541.41	3.00
AC451		AC451	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304551.70	2173521.01	3.00
AC452		AC452	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304600.75	2173488.89	3.00
AC453		AC453	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304453.18	2173428.99	3.00
AC454		AC454	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304491.37	2173436.37	3.00
AC455		AC455	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304472.71	2173407.72	3.00
AC456		AC456	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304452.75	2173376.91	3.00
AC457		AC457	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304439.73	2173357.81	3.00
AC458		AC458	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304420.63	2173327.00	3.00
AC459		AC459	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304602.49	2173365.19	3.00
AC460		AC460	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304563.86	2173305.73	3.00
AC461		AC461	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304550.84	2173286.63	3.00
AC462		AC462	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304583.82	2173336.54	3.00
AC463		AC463	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304531.74	2173255.82	3.00
AC464		AC464	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304688.42	2173382.55	3.00
AC465		AC465	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304667.16	2173353.04	3.00
AC466		AC466	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304653.70	2173334.37	3.00
AC467		AC467	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304632.00	2173305.29	3.00
AC468		AC468	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304618.98	2173285.76	3.00
AC469		AC469	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304597.71	2173257.12	3.00
AC470		AC470	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304798.23	2173304.43	3.00
AC471		AC471	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304777.40	2173275.78	3.00
AC472		AC472	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304755.26	2173246.70	3.00
AC473		AC473	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304742.24	2173227.60	3.00
AC474		AC474	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304720.98	2173198.96	3.00
AC475		AC475	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304735.30	2173181.60	3.00
AC476		AC476	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304757.87	2173211.54	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC477		AC477	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304771.76	2173231.51	3.00
AC478		AC478	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304793.89	2173261.46	3.00
AC479		AC479	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304812.12	2173288.37	3.00
AC480		AC480	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304918.46	2173212.85	3.00
AC481		AC481	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304898.06	2173184.20	3.00
AC482		AC482	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304877.66	2173155.55	3.00
AC483		AC483	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304862.90	2173136.46	3.00
AC484		AC484	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304841.64	2173107.81	3.00
AC485		AC485	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304754.40	2173456.77	3.00
AC486		AC486	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304783.91	2173435.94	3.00
AC487		AC487	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304803.01	2173421.61	3.00
AC488		AC488	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304832.09	2173400.35	3.00
AC489		AC489	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304851.62	2173386.46	3.00
AC490		AC490	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304879.83	2173365.19	3.00
AC491		AC491	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304899.36	2173351.74	3.00
AC492		AC492	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304928.44	2173330.47	3.00
AC493		AC493	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304941.46	2173349.13	3.00
AC494		AC494	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304912.38	2173370.40	3.00
AC495		AC495	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304864.64	2173405.12	3.00
AC496		AC496	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304845.11	2173419.01	3.00
AC497		AC497	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304796.93	2173454.60	3.00
AC498		AC498	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304816.03	2173440.28	3.00
AC499		AC499	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304892.85	2173383.85	3.00
AC500		AC500	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304767.42	2173475.43	3.00
AC501		AC501	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304898.49	2173539.67	3.00
AC502		AC502	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304928.44	2173518.40	3.00
AC503		AC503	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304948.84	2173503.65	3.00
AC504		AC504	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304977.49	2173481.94	3.00
AC505		AC505	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304997.45	2173467.62	3.00
AC506		AC506	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305026.10	2173446.79	3.00
AC507		AC507	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305039.55	2173465.45	3.00
AC508		AC508	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305009.60	2173488.02	3.00
AC509		AC509	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304990.51	2173501.04	3.00
AC510		AC510	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304960.99	2173522.74	3.00
AC511		AC511	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304941.46	2173537.50	3.00
AC512		AC512	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304912.82	2173557.90	3.00
AC513		AC513	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305115.07	2173570.92	3.00
AC514		AC514	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305084.26	2173592.19	3.00
AC515		AC515	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305065.59	2173606.51	3.00
AC516		AC516	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305036.51	2173627.34	3.00
AC517		AC517	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305016.98	2173640.80	3.00
AC518		AC518	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304988.34	2173662.93	3.00
AC519		AC519	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304968.37	2173677.26	3.00
AC520		AC520	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304940.16	2173697.22	3.00
AC521		AC521	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304911.51	2173718.49	3.00
AC522		AC522	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304924.10	2173735.85	3.00
AC523		AC523	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304952.75	2173715.88	3.00
AC524		AC524	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304979.66	2173695.49	3.00
AC525		AC525	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305000.49	2173679.43	3.00
AC526		AC526	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305029.14	2173659.90	3.00
AC527		AC527	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305048.67	2173645.57	3.00
AC528		AC528	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305079.48	2173623.87	3.00
AC529		AC529	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305097.71	2173609.55	3.00
AC530		AC530	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305127.23	2173589.15	3.00
AC531		AC531	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6304993.11	2173846.96	3.00
AC532		AC532	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305021.76	2173825.26	3.00
AC533		AC533	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305052.14	2173803.56	3.00
AC534		AC534	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305070.80	2173789.67	3.00
AC535		AC535	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305099.88	2173767.53	3.00
AC536		AC536	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305121.15	2173753.21	3.00
AC537		AC537	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305148.49	2173733.25	3.00
AC538		AC538	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305168.02	2173718.92	3.00
AC539		AC539	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305197.10	2173697.22	3.00
AC540		AC540	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305247.89	2173773.61	3.00
AC541		AC541	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305216.64	2173795.31	3.00
AC542		AC542	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305196.67	2173810.07	3.00
AC543		AC543	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305168.89	2173831.34	3.00
AC544		AC544	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305148.49	2173844.36	3.00
AC545		AC545	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305120.28	2173866.06	3.00
AC546		AC546	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305100.32	2173879.51	3.00
AC547		AC547	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305072.54	2173901.21	3.00
AC548		AC548	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305042.59	2173922.48	3.00
AC549		AC549	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305053.01	2173943.75	3.00
AC550		AC550	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305082.95	2173923.35	3.00
AC551		AC551	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305102.92	2173910.76	3.00
AC552		AC552	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305134.17	2173889.93	3.00
AC553		AC553	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305123.75	2174060.94	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC554		AC554	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305153.70	2174040.97	3.00
AC555		AC555	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305174.53	2174028.38	3.00
AC556		AC556	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305204.48	2174008.42	3.00
AC557		AC557	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305215.77	2174027.08	3.00
AC558		AC558	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305185.82	2174047.05	3.00
AC559		AC559	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305165.85	2174059.63	3.00
AC560		AC560	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305135.47	2174078.73	3.00
AC561		AC561	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305206.65	2174187.67	3.00
AC562		AC562	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305237.03	2174168.58	3.00
AC563		AC563	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305257.43	2174155.12	3.00
AC564		AC564	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305286.51	2174136.46	3.00
AC565		AC565	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305298.67	2174154.25	3.00
AC566		AC566	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305267.85	2174173.78	3.00
AC567		AC567	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305247.89	2174187.24	3.00
AC568		AC568	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305217.94	2174206.77	3.00
AC569		AC569	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305288.25	2174314.84	3.00
AC570		AC570	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305319.93	2174294.44	3.00
AC571		AC571	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305339.46	2174281.86	3.00
AC572		AC572	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305369.85	2174262.33	3.00
AC573		AC573	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305380.70	2174281.86	3.00
AC574		AC574	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305349.88	2174302.69	3.00
AC575		AC575	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305329.05	2174314.84	3.00
AC576		AC576	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305299.10	2174333.94	3.00
AC577		AC577	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305373.32	2174449.83	3.00
AC578		AC578	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305405.87	2174428.12	3.00
AC579		AC579	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305426.70	2174415.54	3.00
AC580		AC580	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305456.65	2174396.01	3.00
AC581		AC581	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305467.94	2174415.10	3.00
AC582		AC582	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305437.56	2174435.94	3.00
AC583		AC583	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305416.29	2174448.52	3.00
AC584		AC584	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305386.77	2174467.62	3.00
AC585		AC585	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305537.38	2174524.48	3.00
AC586		AC586	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305508.30	2174543.58	3.00
AC587		AC587	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305488.34	2174556.16	3.00
AC588		AC588	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305458.39	2174575.69	3.00
AC589		AC589	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305732.57	2174895.78	3.00
AC590		AC590	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305767.32	2174861.03	3.00
AC591		AC591	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305799.59	2174836.21	3.00
AC592		AC592	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305829.37	2174803.95	3.00
AC593		AC593	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305864.12	2174764.23	3.00
AC594		AC594	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305891.43	2174729.48	3.00
AC595		AC595	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305911.28	2174689.77	3.00
AC596		AC596	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305931.14	2174647.57	3.00
AC597		AC597	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305730.09	2174828.77	3.00
AC598		AC598	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305874.05	2174657.50	3.00
AC599		AC599	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305893.91	2174615.30	3.00
AC600		AC600	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305854.20	2174697.21	3.00
AC601		AC601	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305826.89	2174731.96	3.00
AC602		AC602	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305695.34	2174863.52	3.00
AC603		AC603	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305762.36	2174803.95	3.00
AC604		AC604	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305792.14	2174771.68	3.00
AC605		AC605	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305797.11	2174667.43	3.00
AC606		AC606	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305673.00	2174798.98	3.00
AC607		AC607	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305638.25	2174833.73	3.00
AC608		AC608	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305769.80	2174702.18	3.00
AC609		AC609	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305816.96	2174627.71	3.00
AC610		AC610	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305705.27	2174774.16	3.00
AC611		AC611	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305735.05	2174741.89	3.00
AC612		AC612	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305836.82	2174585.52	3.00
AC613		AC613	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305633.29	2174764.23	3.00
AC614		AC614	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305757.39	2174632.68	3.00
AC615		AC615	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305665.55	2174739.41	3.00
AC616		AC616	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305695.34	2174707.14	3.00
AC617		AC617	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305730.09	2174667.43	3.00
AC618		AC618	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305598.54	2174798.98	3.00
AC619		AC619	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305797.11	2174550.77	3.00
AC620		AC620	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305777.25	2174592.96	3.00
AC621		AC621	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305558.82	2174769.20	3.00
AC622		AC622	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305757.39	2174520.98	3.00
AC623		AC623	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305593.57	2174734.45	3.00
AC624		AC624	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305737.54	2174563.18	3.00
AC625		AC625	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305625.84	2174709.62	3.00
AC626		AC626	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305690.37	2174637.64	3.00
AC627		AC627	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305717.68	2174602.89	3.00
AC628		AC628	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305655.63	2174677.36	3.00
AC629		AC629	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305519.11	2174731.96	3.00
AC630		AC630	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305677.96	2174565.66	3.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
AC631		AC631	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305650.66	2174600.41	3.00
AC632		AC632	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305697.82	2174525.95	3.00
AC633		AC633	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305553.86	2174697.21	3.00
AC634		AC634	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305586.13	2174672.39	3.00
AC635		AC635	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305615.91	2174640.12	3.00
AC636		AC636	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305717.68	2174483.75	3.00
AC637		AC637	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305675.48	2174449.00	3.00
AC638		AC638	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305573.71	2174605.38	3.00
AC639		AC639	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305635.77	2174530.91	3.00
AC640		AC640	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305608.46	2174565.66	3.00
AC641		AC641	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305511.66	2174662.46	3.00
AC642		AC642	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305655.63	2174491.20	3.00
AC643		AC643	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305476.91	2174697.21	3.00
AC644		AC644	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305543.93	2174637.64	3.00
AC645		AC645	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305700.30	2174409.29	3.00
AC646		AC646	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305737.54	2174436.59	3.00
AC647		AC647	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305779.73	2174471.34	3.00
AC648		AC648	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305819.45	2174506.09	3.00
AC649		AC649	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305856.68	2174545.80	3.00
AC650		AC650	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305901.36	2174575.59	3.00
AC651		AC651	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305933.62	2174612.82	3.00
AC652		AC652	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305434.72	2174724.52	3.00
AC653		AC653	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305481.88	2174761.75	3.00
AC654		AC654	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305524.07	2174803.95	3.00
AC655		AC655	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305563.79	2174833.73	3.00
AC656		AC656	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305605.98	2174861.03	3.00
AC657		AC657	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305658.11	2174895.78	3.00
AC658		AC658	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305700.30	2174920.61	3.00
AC659		AC659	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305345.36	2174734.45	3.00
AC660		AC660	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305390.04	2174759.27	3.00
AC661		AC661	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305434.72	2174796.50	3.00
AC662		AC662	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305330.47	2174779.12	3.00
AC663		AC663	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305377.63	2174796.50	3.00
AC664		AC664	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305581.16	2174471.34	3.00
AC665		AC665	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305625.84	2174429.14	3.00
AC666		AC666	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305581.16	2174426.66	3.00
AC667		AC667	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305839.30	2174866.00	3.00
AC668		AC668	76.0	76.0	76.0	Lw	76		675.00	0.00	270.00	3.00	r	6305879.02	2174801.46	3.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
PARK01		PARK01	73.0	73.0	73.0	48.9	48.9	48.9	Lw	73		900.00	0.00	270.00	0.	r
PARK02		PARK02	73.0	73.0	73.0	50.4	50.4	50.4	Lw	73		900.00	0.00	270.00	0.	r
PARK03		PARK03	73.0	73.0	73.0	50.0	50.0	50.0	Lw	73		900.00	0.00	270.00	0.	r
PARK04		PARK04	73.0	73.0	73.0	48.9	48.9	48.9	Lw	73		900.00	0.00	270.00	0.	r
PARK05		PARK05	73.0	73.0	73.0	52.0	52.0	52.0	Lw	73		900.00	0.00	270.00	0.	r
PARK06		PARK06	73.0	73.0	73.0	49.0	49.0	49.0	Lw	73		900.00	0.00	270.00	0.	r
PARK07		PARK07	73.0	73.0	73.0	48.5	48.5	48.5	Lw	73		900.00	0.00	270.00	0.	r
PARK08		PARK08	73.0	73.0	73.0	48.0	48.0	48.0	Lw	73		900.00	0.00	270.00	0.	r
PARK09		PARK09	73.0	73.0	73.0	48.5	48.5	48.5	Lw	73		900.00	0.00	270.00	0.	r
PARK10		PARK10	73.0	73.0	73.0	48.5	48.5	48.5	Lw	73		900.00	0.00	270.00	0.	r
PARK11		PARK11	73.0	73.0	73.0	51.7	51.7	51.7	Lw	73		900.00	0.00	270.00	0.	r

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
PARK01	PARK01	0.00	r		6304704.02	2173460.17	0.00	0.00
					6304679.37	2173476.83	0.00	0.00
					6304729.72	2173555.30	0.00	0.00
					6304752.98	2173535.17	0.00	0.00
PARK02	PARK02	0.00	r		6304808.54	2173562.60	0.00	0.00
					6304859.58	2173525.10	0.00	0.00
					6304845.00	2173498.36	0.00	0.00
					6304789.79	2173539.68	0.00	0.00

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
PARK03	PARK03	0.00	r			6304855.41	2173642.46	0.00	0.00
						6304872.08	2173667.11	0.00	0.00
						6304930.76	2173624.05	0.00	0.00
						6304913.75	2173599.40	0.00	0.00
PARK04	PARK04	0.00	r			6304864.79	2173708.43	0.00	0.00
						6304840.83	2173726.14	0.00	0.00
						6304891.18	2173804.61	0.00	0.00
						6304915.14	2173786.90	0.00	0.00
PARK05	PARK05	0.00	r			6304943.61	2173830.30	0.00	0.00
						6304919.30	2173847.67	0.00	0.00
						6304944.65	2173886.55	0.00	0.00
						6304967.57	2173866.76	0.00	0.00
PARK06	PARK06	0.00	r			6304995.00	2173910.51	0.00	0.00
						6304974.16	2173922.32	0.00	0.00
						6305024.51	2174010.86	0.00	0.00
						6305048.47	2173993.15	0.00	0.00
PARK07	PARK07	0.00	r			6305136.66	2174128.22	0.00	0.00
						6305078.33	2174038.98	0.00	0.00
						6305055.07	2174053.22	0.00	0.00
						6305114.44	2174147.37	0.00	0.00
PARK08	PARK08	0.00	r			6305160.97	2174166.42	0.00	0.00
						6305134.93	2174181.69	0.00	0.00
						6305195.69	2174277.18	0.00	0.00
						6305220.34	2174257.73	0.00	0.00
PARK09	PARK09	0.00	r			6305241.87	2174291.42	0.00	0.00
						6305221.04	2174303.57	0.00	0.00
						6305275.21	2174398.71	0.00	0.00
						6305301.94	2174383.78	0.00	0.00
PARK10	PARK10	0.00	r			6305329.37	2174425.44	0.00	0.00
						6305308.19	2174439.33	0.00	0.00
						6305364.79	2174535.17	0.00	0.00
						6305388.75	2174518.15	0.00	0.00
PARK11	PARK11	0.00	r			6305412.01	2174553.22	0.00	0.00
						6305390.48	2174566.07	0.00	0.00
						6305414.79	2174612.25	0.00	0.00
						6305440.83	2174598.36	0.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00001	x	0		36.00	r	6305280.80	2174694.06	36.00	0.00
									6305304.24	2174678.87	36.00	0.00
									6305301.63	2174674.53	36.00	0.00
									6305317.26	2174664.98	36.00	0.00
									6305304.67	2174649.79	36.00	0.00
									6305266.91	2174674.96	36.00	0.00
BUILDING			BUILDING00002	x	0		36.00	r	6305342.43	2174650.66	36.00	0.00
									6305356.32	2174641.98	36.00	0.00
									6305358.06	2174644.58	36.00	0.00
									6305382.80	2174628.09	36.00	0.00
									6305369.34	2174608.56	36.00	0.00
									6305329.41	2174635.03	36.00	0.00
BUILDING			BUILDING00003	x	0		36.00	r	6305362.83	2174599.01	36.00	0.00
									6305335.92	2174557.77	36.00	0.00
									6305311.18	2174571.66	36.00	0.00
									6305314.22	2174576.44	36.00	0.00
									6305301.63	2174585.99	36.00	0.00
									6305322.90	2174620.27	36.00	0.00
									6305335.92	2174612.46	36.00	0.00
									6305338.52	2174615.07	36.00	0.00
BUILDING			BUILDING00004	x	0		36.00	r	6305262.14	2174665.41	36.00	0.00
									6305285.57	2174649.35	36.00	0.00
									6305283.40	2174646.32	36.00	0.00
									6305296.86	2174638.07	36.00	0.00
									6305276.02	2174603.35	36.00	0.00
									6305262.57	2174611.59	36.00	0.00
									6305259.53	2174606.82	36.00	0.00
									6305234.79	2174623.31	36.00	0.00
BUILDING			BUILDING00005	x	0		36.00	r	6305228.72	2174614.20	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6305253.46	2174599.44	36.00	0.00
									6305251.28	2174595.53	36.00	0.00
									6305266.04	2174586.85	36.00	0.00
									6305243.04	2174552.13	36.00	0.00
									6305230.02	2174559.94	36.00	0.00
									6305226.55	2174556.91	36.00	0.00
									6305201.37	2174573.83	36.00	0.00
BUILDING			BUILDING00006	x	0		36.00	r	6305291.65	2174569.49	36.00	0.00
									6305304.67	2174562.11	36.00	0.00
									6305305.10	2174564.72	36.00	0.00
									6305331.15	2174548.66	36.00	0.00
									6305303.37	2174508.29	36.00	0.00
									6305277.76	2174522.18	36.00	0.00
									6305281.23	2174526.96	36.00	0.00
									6305268.65	2174535.20	36.00	0.00
BUILDING			BUILDING00007	x	0		36.00	r	6305146.25	2174521.32	36.00	0.00
									6305187.92	2174493.54	36.00	0.00
									6305173.59	2174468.36	36.00	0.00
									6305168.39	2174470.97	36.00	0.00
									6305159.27	2174457.95	36.00	0.00
									6305124.98	2174480.52	36.00	0.00
									6305134.53	2174493.54	36.00	0.00
									6305131.49	2174497.44	36.00	0.00
BUILDING			BUILDING00008	x	0		36.00	r	6305197.03	2174487.46	36.00	0.00
									6305238.26	2174462.29	36.00	0.00
									6305223.07	2174436.25	36.00	0.00
									6305217.86	2174439.28	36.00	0.00
									6305210.05	2174424.96	36.00	0.00
									6305175.33	2174447.96	36.00	0.00
									6305184.44	2174461.42	36.00	0.00
									6305180.10	2174464.46	36.00	0.00
BUILDING			BUILDING00009	x	0		36.00	r	6305246.51	2174455.34	36.00	0.00
									6305267.78	2174442.76	36.00	0.00
									6305252.15	2174418.02	36.00	0.00
									6305248.25	2174420.62	36.00	0.00
									6305239.57	2174408.03	36.00	0.00
									6305222.21	2174417.58	36.00	0.00
BUILDING			BUILDING00010	x	0		36.00	r	6305108.92	2174454.91	36.00	0.00
									6305142.78	2174432.77	36.00	0.00
									6305134.10	2174419.32	36.00	0.00
									6305138.00	2174416.28	36.00	0.00
									6305121.08	2174392.41	36.00	0.00
									6305080.71	2174420.19	36.00	0.00
									6305095.90	2174444.06	36.00	0.00
									6305099.81	2174441.45	36.00	0.00
BUILDING			BUILDING00011	x	0		36.00	r	6305158.84	2174421.92	36.00	0.00
									6305193.13	2174400.22	36.00	0.00
									6305184.44	2174386.77	36.00	0.00
									6305188.78	2174383.29	36.00	0.00
									6305172.29	2174360.29	36.00	0.00
									6305130.63	2174386.33	36.00	0.00
									6305146.25	2174411.07	36.00	0.00
									6305149.72	2174408.03	36.00	0.00
BUILDING			BUILDING00012	x	0		36.00	r	6305205.28	2174392.84	36.00	0.00
									6305222.21	2174381.12	36.00	0.00
									6305213.52	2174367.67	36.00	0.00
									6305217.00	2174365.07	36.00	0.00
									6305201.37	2174339.89	36.00	0.00
									6305180.54	2174353.78	36.00	0.00
BUILDING			BUILDING00013	x	0		36.00	r	6305064.22	2174393.28	36.00	0.00
									6305105.02	2174366.80	36.00	0.00
									6305090.26	2174342.50	36.00	0.00
									6305085.92	2174344.67	36.00	0.00
									6305076.81	2174331.65	36.00	0.00
									6305043.39	2174354.21	36.00	0.00
									6305051.63	2174366.80	36.00	0.00
									6305048.16	2174370.27	36.00	0.00
BUILDING			BUILDING00014	x	0		36.00	r	6305113.70	2174361.16	36.00	0.00
									6305156.23	2174334.68	36.00	0.00
									6305140.61	2174309.94	36.00	0.00
									6305136.70	2174312.11	36.00	0.00
									6305127.59	2174299.09	36.00	0.00
									6305092.43	2174321.66	36.00	0.00
									6305101.98	2174334.25	36.00	0.00
									6305098.07	2174336.85	36.00	0.00
BUILDING			BUILDING00015	x	0		36.00	r	6305164.05	2174328.61	36.00	0.00
									6305185.31	2174316.02	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6305169.25	2174291.28	36.00	0.00
									6305165.78	2174293.02	36.00	0.00
									6305157.10	2174278.69	36.00	0.00
									6305141.04	2174290.85	36.00	0.00
BUILDING			BUILDING00016	x	0		36.00	r	6305026.02	2174327.31	36.00	0.00
									6305060.75	2174305.17	36.00	0.00
									6305051.63	2174291.71	36.00	0.00
									6305057.27	2174289.54	36.00	0.00
									6305039.48	2174265.67	36.00	0.00
									6304997.38	2174292.58	36.00	0.00
									6305013.87	2174316.89	36.00	0.00
									6305016.91	2174313.42	36.00	0.00
BUILDING			BUILDING00017	x	0		36.00	r	6305064.22	2174284.34	36.00	0.00
									6305068.56	2174281.73	36.00	0.00
									6305076.37	2174294.75	36.00	0.00
									6305111.53	2174273.05	36.00	0.00
									6305102.85	2174259.60	36.00	0.00
									6305106.32	2174256.56	36.00	0.00
									6305090.26	2174233.12	36.00	0.00
									6305048.16	2174259.60	36.00	0.00
BUILDING			BUILDING00018	x	0		36.00	r	6305122.38	2174265.24	36.00	0.00
									6305140.17	2174253.95	36.00	0.00
									6305130.63	2174242.24	36.00	0.00
									6305135.40	2174237.90	36.00	0.00
									6305119.34	2174213.59	36.00	0.00
									6305097.64	2174227.91	36.00	0.00
BUILDING			BUILDING00019	x	0		36.00	r	6304981.32	2174265.67	36.00	0.00
									6305023.42	2174239.63	36.00	0.00
									6305007.80	2174214.46	36.00	0.00
									6305002.59	2174217.06	36.00	0.00
									6304994.34	2174204.48	36.00	0.00
									6304960.49	2174226.18	36.00	0.00
									6304971.34	2174240.93	36.00	0.00
									6304964.83	2174243.10	36.00	0.00
BUILDING			BUILDING00020	x	0		36.00	r	6305031.23	2174233.99	36.00	0.00
									6305072.90	2174207.08	36.00	0.00
									6305058.14	2174181.47	36.00	0.00
									6305054.24	2174184.94	36.00	0.00
									6305044.25	2174171.06	36.00	0.00
									6305010.83	2174194.06	36.00	0.00
									6305019.95	2174208.38	36.00	0.00
									6305015.17	2174210.55	36.00	0.00
BUILDING			BUILDING00021	x	0		36.00	r	6305082.88	2174201.87	36.00	0.00
									6305103.28	2174187.98	36.00	0.00
									6305086.79	2174161.94	36.00	0.00
									6305082.01	2174165.41	36.00	0.00
									6305075.50	2174153.26	36.00	0.00
									6305057.27	2174164.54	36.00	0.00
BUILDING			BUILDING00022	x	0		36.00	r	6304943.56	2174199.70	36.00	0.00
									6304977.41	2174178.00	36.00	0.00
									6304969.17	2174164.54	36.00	0.00
									6304975.24	2174161.51	36.00	0.00
									6304956.15	2174137.20	36.00	0.00
									6304915.35	2174165.85	36.00	0.00
									6304929.67	2174189.28	36.00	0.00
									6304934.88	2174186.25	36.00	0.00
BUILDING			BUILDING00023	x	0		36.00	r	6304994.77	2174167.58	36.00	0.00
									6305028.19	2174145.45	36.00	0.00
									6305019.51	2174131.56	36.00	0.00
									6305024.29	2174128.95	36.00	0.00
									6305008.23	2174105.95	36.00	0.00
									6304965.69	2174132.43	36.00	0.00
									6304979.58	2174155.86	36.00	0.00
									6304985.66	2174153.26	36.00	0.00
BUILDING			BUILDING00024	x	0		36.00	r	6305040.78	2174136.77	36.00	0.00
									6305058.14	2174125.92	36.00	0.00
									6305049.90	2174112.90	36.00	0.00
									6305054.24	2174109.86	36.00	0.00
									6305037.31	2174086.42	36.00	0.00
									6305015.61	2174099.44	36.00	0.00
BUILDING			BUILDING00025	x	0		36.00	r	6304874.55	2174101.00	36.00	0.00
									6304915.87	2174073.92	36.00	0.00
									6304899.55	2174048.92	36.00	0.00
									6304895.73	2174051.35	36.00	0.00
									6304889.13	2174039.89	36.00	0.00
									6304853.37	2174060.03	36.00	0.00
									6304861.70	2174073.92	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6304858.58	2174077.74	36.00	0.00
BUILDING			BUILDING00026	x	0		36.00	r	6304924.55	2174068.36	36.00	0.00
									6304965.87	2174041.98	36.00	0.00
									6304950.59	2174016.28	36.00	0.00
									6304945.38	2174018.36	36.00	0.00
									6304938.09	2174006.21	36.00	0.00
									6304903.72	2174028.43	36.00	0.00
									6304913.44	2174040.93	36.00	0.00
									6304907.53	2174045.10	36.00	0.00
BUILDING			BUILDING00027	x	0		36.00	r	6304974.20	2174036.42	36.00	0.00
									6304995.03	2174022.53	36.00	0.00
									6304979.41	2173997.53	36.00	0.00
									6304975.59	2174001.00	36.00	0.00
									6304967.26	2173987.46	36.00	0.00
									6304950.24	2173998.57	36.00	0.00
BUILDING			BUILDING00028	x	0		36.00	r	6304836.70	2174035.03	36.00	0.00
									6304871.08	2174013.16	36.00	0.00
									6304862.05	2173999.96	36.00	0.00
									6304865.87	2173996.84	36.00	0.00
									6304849.90	2173973.23	36.00	0.00
									6304808.23	2173999.61	36.00	0.00
									6304823.85	2174024.61	36.00	0.00
									6304827.67	2174021.84	36.00	0.00
BUILDING			BUILDING00029	x	0		36.00	r	6304886.35	2174001.70	36.00	0.00
									6304920.03	2173981.21	36.00	0.00
									6304911.70	2173966.63	36.00	0.00
									6304916.22	2173964.54	36.00	0.00
									6304900.59	2173940.24	36.00	0.00
									6304859.27	2173967.67	36.00	0.00
									6304873.51	2173991.98	36.00	0.00
									6304877.67	2173989.20	36.00	0.00
BUILDING			BUILDING00030	x	0		36.00	r	6304933.92	2173972.53	36.00	0.00
									6304950.59	2173961.07	36.00	0.00
									6304941.91	2173947.18	36.00	0.00
									6304945.73	2173945.45	36.00	0.00
									6304929.41	2173921.14	36.00	0.00
									6304908.58	2173934.34	36.00	0.00
BUILDING			BUILDING00031	x	0		36.00	r	6304791.22	2173974.27	36.00	0.00
									6304833.58	2173947.18	36.00	0.00
									6304818.30	2173921.49	36.00	0.00
									6304813.78	2173924.27	36.00	0.00
									6304805.45	2173912.46	36.00	0.00
									6304770.73	2173934.34	36.00	0.00
									6304778.72	2173947.88	36.00	0.00
									6304775.94	2173950.66	36.00	0.00
BUILDING			BUILDING00032	x	0		36.00	r	6304841.91	2173941.98	36.00	0.00
									6304883.92	2173914.20	36.00	0.00
									6304868.30	2173889.20	36.00	0.00
									6304864.83	2173891.63	36.00	0.00
									6304856.49	2173879.13	36.00	0.00
									6304820.73	2173901.35	36.00	0.00
									6304829.76	2173914.89	36.00	0.00
									6304825.94	2173916.98	36.00	0.00
BUILDING			BUILDING00033	x	0		36.00	r	6304892.95	2173908.99	36.00	0.00
									6304913.78	2173895.45	36.00	0.00
									6304896.42	2173871.49	36.00	0.00
									6304892.95	2173873.57	36.00	0.00
									6304884.62	2173860.73	36.00	0.00
									6304867.26	2173871.49	36.00	0.00
BUILDING			BUILDING00034	x	0		36.00	r	6304754.06	2173907.95	36.00	0.00
									6304788.78	2173886.07	36.00	0.00
									6304779.76	2173873.57	36.00	0.00
									6304784.62	2173870.10	36.00	0.00
									6304767.95	2173846.49	36.00	0.00
									6304725.59	2173872.53	36.00	0.00
									6304741.56	2173897.18	36.00	0.00
									6304745.73	2173894.06	36.00	0.00
BUILDING			BUILDING00035	x	0		36.00	r	6304804.06	2173875.31	36.00	0.00
									6304838.78	2173853.09	36.00	0.00
									6304830.10	2173839.54	36.00	0.00
									6304834.27	2173837.11	36.00	0.00
									6304817.95	2173812.81	36.00	0.00
									6304776.63	2173840.24	36.00	0.00
									6304791.91	2173864.54	36.00	0.00
									6304796.42	2173862.11	36.00	0.00
BUILDING			BUILDING00036	x	0		36.00	r	6304851.28	2173845.45	36.00	0.00
									6304868.65	2173833.64	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6304859.62	2173820.79	36.00	0.00
									6304863.44	2173817.32	36.00	0.00
									6304847.12	2173793.02	36.00	0.00
									6304826.98	2173807.25	36.00	0.00
BUILDING			BUILDING00037	x	0		36.00	r	6304709.62	2173847.18	36.00	0.00
									6304751.28	2173819.75	36.00	0.00
									6304736.01	2173794.75	36.00	0.00
									6304731.49	2173797.18	36.00	0.00
									6304723.51	2173785.03	36.00	0.00
									6304687.74	2173806.91	36.00	0.00
									6304698.16	2173819.41	36.00	0.00
									6304692.60	2173823.57	36.00	0.00
BUILDING			BUILDING00038	x	0		36.00	r	6304743.99	2173789.54	36.00	0.00
									6304759.62	2173813.85	36.00	0.00
									6304801.98	2173787.81	36.00	0.00
									6304786.41	2173762.58	36.00	0.00
									6304782.25	2173764.31	36.00	0.00
									6304774.61	2173751.12	36.00	0.00
									6304739.19	2173774.04	36.00	0.00
									6304747.87	2173786.54	36.00	0.00
BUILDING			BUILDING00039	x	0		36.00	r	6304809.68	2173781.33	36.00	0.00
									6304830.86	2173768.13	36.00	0.00
									6304814.88	2173742.79	36.00	0.00
									6304811.76	2173745.56	36.00	0.00
									6304803.08	2173731.67	36.00	0.00
									6304785.37	2173743.13	36.00	0.00
BUILDING			BUILDING00040	x	0		36.00	r	6304663.50	2173767.44	36.00	0.00
									6304698.57	2173745.22	36.00	0.00
									6304689.88	2173732.37	36.00	0.00
									6304693.01	2173730.29	36.00	0.00
									6304677.73	2173705.63	36.00	0.00
									6304635.02	2173732.02	36.00	0.00
									6304651.00	2173757.37	36.00	0.00
									6304654.82	2173754.59	36.00	0.00
BUILDING			BUILDING00041	x	0		36.00	r	6304713.15	2173735.15	36.00	0.00
									6304748.22	2173713.97	36.00	0.00
									6304739.19	2173700.42	36.00	0.00
									6304743.70	2173696.95	36.00	0.00
									6304727.73	2173672.99	36.00	0.00
									6304685.37	2173700.42	36.00	0.00
									6304701.00	2173724.73	36.00	0.00
									6304704.82	2173720.91	36.00	0.00
BUILDING			BUILDING00042	x	0		36.00	r	6304761.07	2173705.29	36.00	0.00
									6304777.04	2173695.22	36.00	0.00
									6304769.05	2173679.59	36.00	0.00
									6304771.83	2173677.85	36.00	0.00
									6304756.55	2173653.20	36.00	0.00
									6304735.02	2173667.09	36.00	0.00
BUILDING			BUILDING00043	x	0		36.00	r	6304593.36	2173668.13	36.00	0.00
									6304635.02	2173641.05	36.00	0.00
									6304620.09	2173615.70	36.00	0.00
									6304615.93	2173617.79	36.00	0.00
									6304607.59	2173605.63	36.00	0.00
									6304571.83	2173627.85	36.00	0.00
									6304581.55	2173640.35	36.00	0.00
									6304578.08	2173644.17	36.00	0.00
BUILDING			BUILDING00044	x	0		36.00	r	6304643.36	2173635.49	36.00	0.00
									6304685.72	2173608.41	36.00	0.00
									6304670.44	2173583.76	36.00	0.00
									6304665.93	2173585.84	36.00	0.00
									6304657.94	2173572.99	36.00	0.00
									6304623.57	2173595.22	36.00	0.00
									6304631.55	2173608.76	36.00	0.00
									6304628.08	2173611.19	36.00	0.00
BUILDING			BUILDING00045	x	0		36.00	r	6304694.05	2173602.85	36.00	0.00
									6304715.58	2173588.97	36.00	0.00
									6304698.57	2173564.66	36.00	0.00
									6304695.44	2173567.44	36.00	0.00
									6304687.11	2173553.90	36.00	0.00
									6304669.75	2173565.35	36.00	0.00
BUILDING			BUILDING00046	x	0		36.00	r	6304556.20	2173601.81	36.00	0.00
									6304590.23	2173579.59	36.00	0.00
									6304581.90	2173566.40	36.00	0.00
									6304586.76	2173563.62	36.00	0.00
									6304570.09	2173539.66	36.00	0.00
									6304528.43	2173566.05	36.00	0.00
									6304543.36	2173591.05	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6304547.87	2173588.27	36.00	0.00
BUILDING			BUILDING00047	x	0		36.00	r	6304604.82	2173568.83	36.00	0.00
									6304640.58	2173547.65	36.00	0.00
									6304632.25	2173534.45	36.00	0.00
									6304636.41	2173531.33	36.00	0.00
									6304620.79	2173506.67	36.00	0.00
									6304578.77	2173533.06	36.00	0.00
									6304593.01	2173558.06	36.00	0.00
									6304597.52	2173554.94	36.00	0.00
BUILDING			BUILDING00048	x	0		36.00	r	6304652.38	2173539.66	36.00	0.00
									6304669.40	2173527.16	36.00	0.00
									6304662.11	2173513.62	36.00	0.00
									6304665.58	2173510.84	36.00	0.00
									6304648.91	2173487.58	36.00	0.00
									6304628.77	2173501.47	36.00	0.00
BUILDING			BUILDING00049	x	0		36.00	r	6304511.07	2173540.70	36.00	0.00
									6304552.38	2173513.62	36.00	0.00
									6304537.80	2173487.92	36.00	0.00
									6304533.63	2173491.05	36.00	0.00
									6304525.65	2173477.85	36.00	0.00
									6304491.27	2173500.42	36.00	0.00
									6304500.65	2173515.35	36.00	0.00
									6304496.13	2173517.44	36.00	0.00
BUILDING			BUILDING00050	x	0		36.00	r	6304561.76	2173508.06	36.00	0.00
									6304604.12	2173481.67	36.00	0.00
									6304587.45	2173455.98	36.00	0.00
									6304583.29	2173457.72	36.00	0.00
									6304575.30	2173445.22	36.00	0.00
									6304540.93	2173467.79	36.00	0.00
									6304550.30	2173482.37	36.00	0.00
									6304546.48	2173484.80	36.00	0.00
BUILDING			BUILDING00051	x	0		36.00	r	6304611.76	2173475.42	36.00	0.00
									6304632.25	2173462.92	36.00	0.00
									6304617.32	2173436.19	36.00	0.00
									6304612.80	2173440.01	36.00	0.00
									6304604.47	2173426.12	36.00	0.00
									6304587.11	2173437.92	36.00	0.00
BUILDING			BUILDING00052	x	0		36.00	r	6304465.58	2173479.24	36.00	0.00
									6304483.29	2173468.13	36.00	0.00
									6304474.95	2173454.94	36.00	0.00
									6304478.77	2173452.16	36.00	0.00
									6304461.76	2173428.55	36.00	0.00
									6304441.62	2173441.40	36.00	0.00
BUILDING			BUILDING00053	x	0		36.00	r	6304499.26	2173438.27	36.00	0.00
									6304524.61	2173423.34	36.00	0.00
									6304521.48	2173418.48	36.00	0.00
									6304534.33	2173410.84	36.00	0.00
									6304525.30	2173393.83	36.00	0.00
									6304485.72	2173418.13	36.00	0.00
BUILDING			BUILDING00054	x	0		36.00	r	6304480.51	2173409.45	36.00	0.00
									6304504.47	2173394.17	36.00	0.00
									6304502.38	2173390.35	36.00	0.00
									6304515.93	2173380.98	36.00	0.00
									6304492.66	2173345.91	36.00	0.00
									6304480.16	2173354.59	36.00	0.00
									6304477.38	2173350.42	36.00	0.00
									6304453.43	2173368.13	36.00	0.00
BUILDING			BUILDING00055	x	0		36.00	r	6304447.52	2173358.76	36.00	0.00
									6304472.52	2173342.79	36.00	0.00
									6304470.44	2173338.97	36.00	0.00
									6304482.59	2173330.63	36.00	0.00
									6304461.41	2173296.60	36.00	0.00
									6304448.22	2173305.29	36.00	0.00
									6304445.09	2173300.77	36.00	0.00
									6304420.79	2173317.79	36.00	0.00
BUILDING			BUILDING00056	x	0		36.00	r	6304560.02	2173394.52	36.00	0.00
									6304574.26	2173386.19	36.00	0.00
									6304576.00	2173389.31	36.00	0.00
									6304601.69	2173373.34	36.00	0.00
									6304588.15	2173352.85	36.00	0.00
									6304549.95	2173376.81	36.00	0.00
BUILDING			BUILDING00057	x	0		36.00	r	6304557.25	2173359.80	36.00	0.00
									6304581.90	2173343.13	36.00	0.00
									6304555.86	2173302.85	36.00	0.00
									6304529.82	2173318.13	36.00	0.00
									6304532.59	2173322.65	36.00	0.00
									6304520.09	2173330.98	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6304540.58	2173365.01	36.00	0.00
									6304555.16	2173355.63	36.00	0.00
BUILDING			BUILDING00058	x	0		36.00	r	6304508.63	2173314.31	36.00	0.00
									6304522.18	2173305.29	36.00	0.00
									6304525.30	2173309.45	36.00	0.00
									6304549.61	2173293.48	36.00	0.00
									6304523.22	2173252.16	36.00	0.00
									6304498.22	2173267.09	36.00	0.00
									6304500.65	2173270.91	36.00	0.00
									6304487.11	2173280.29	36.00	0.00
BUILDING			BUILDING00059	x	0		36.00	r	6305448.61	2174576.36	36.00	0.00
									6305491.58	2174549.45	36.00	0.00
									6305476.82	2174524.28	36.00	0.00
									6305471.61	2174527.31	36.00	0.00
									6305464.23	2174514.29	36.00	0.00
									6305427.34	2174534.69	36.00	0.00
									6305439.06	2174549.88	36.00	0.00
									6305434.29	2174552.49	36.00	0.00
BUILDING			BUILDING00060	x	0		36.00	r	6305498.96	2174544.68	36.00	0.00
									6305541.06	2174517.33	36.00	0.00
									6305526.73	2174492.16	36.00	0.00
									6305522.39	2174494.33	36.00	0.00
									6305513.28	2174480.01	36.00	0.00
									6305478.56	2174503.01	36.00	0.00
									6305488.54	2174518.20	36.00	0.00
									6305483.76	2174520.80	36.00	0.00
BUILDING			BUILDING00061	x	0		36.00	r	6305412.15	2174509.08	36.00	0.00
									6305446.87	2174489.12	36.00	0.00
									6305437.76	2174474.80	36.00	0.00
									6305442.10	2174472.19	36.00	0.00
									6305424.74	2174446.58	36.00	0.00
									6305384.37	2174474.80	36.00	0.00
									6305399.13	2174499.54	36.00	0.00
									6305403.90	2174495.20	36.00	0.00
BUILDING			BUILDING00062	x	0		36.00	r	6305462.06	2174477.40	36.00	0.00
									6305496.79	2174456.57	36.00	0.00
									6305487.67	2174441.81	36.00	0.00
									6305492.01	2174438.34	36.00	0.00
									6305476.39	2174415.33	36.00	0.00
									6305433.85	2174441.38	36.00	0.00
									6305449.48	2174466.12	36.00	0.00
									6305453.82	2174463.08	36.00	0.00
BUILDING			BUILDING00063	x	0		36.00	r	6305366.14	2174448.76	36.00	0.00
									6305408.68	2174421.85	36.00	0.00
									6305394.35	2174397.11	36.00	0.00
									6305390.88	2174399.28	36.00	0.00
									6305380.47	2174385.82	36.00	0.00
									6305347.05	2174408.82	36.00	0.00
									6305356.16	2174422.28	36.00	0.00
									6305352.69	2174424.88	36.00	0.00
BUILDING			BUILDING00064	x	0		36.00	r	6305417.36	2174416.64	36.00	0.00
									6305459.46	2174389.29	36.00	0.00
									6305443.83	2174365.86	36.00	0.00
									6305440.80	2174368.03	36.00	0.00
									6305432.98	2174355.01	36.00	0.00
									6305396.53	2174375.84	36.00	0.00
									6305408.24	2174391.03	36.00	0.00
									6305402.60	2174393.63	36.00	0.00
BUILDING			BUILDING00065	x	0		36.00	r	6305373.96	2174343.29	36.00	0.00
									6305410.41	2174322.02	36.00	0.00
									6305400.87	2174307.70	36.00	0.00
									6305405.64	2174305.09	36.00	0.00
									6305389.15	2174280.79	36.00	0.00
									6305347.91	2174309.00	36.00	0.00
									6305361.80	2174332.87	36.00	0.00
									6305368.31	2174328.96	36.00	0.00
BUILDING			BUILDING00066	x	0		36.00	r	6305324.04	2174376.27	36.00	0.00
									6305360.07	2174354.14	36.00	0.00
									6305351.82	2174341.98	36.00	0.00
									6305354.86	2174338.08	36.00	0.00
									6305339.67	2174314.21	36.00	0.00
									6305296.70	2174340.25	36.00	0.00
									6305313.63	2174364.55	36.00	0.00
									6305317.10	2174363.25	36.00	0.00
BUILDING			BUILDING00067	x	0		36.00	r	6305331.42	2174282.09	36.00	0.00
									6305372.22	2174255.18	36.00	0.00
									6305357.90	2174231.74	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6305354.42	2174233.48	36.00	0.00
									6305344.88	2174220.46	36.00	0.00
									6305309.72	2174243.03	36.00	0.00
									6305319.27	2174257.78	36.00	0.00
									6305315.80	2174259.52	36.00	0.00
BUILDING			BUILDING00068	x	0		36.00	r	6305279.77	2174315.94	36.00	0.00
									6305322.31	2174287.30	36.00	0.00
									6305306.68	2174262.56	36.00	0.00
									6305303.21	2174265.16	36.00	0.00
									6305293.66	2174252.14	36.00	0.00
									6305259.37	2174275.58	36.00	0.00
									6305269.35	2174289.47	36.00	0.00
									6305264.15	2174291.64	36.00	0.00
BUILDING			BUILDING00069	x	0		36.00	r	6305242.45	2174249.10	36.00	0.00
									6305277.17	2174227.83	36.00	0.00
									6305268.05	2174213.51	36.00	0.00
									6305273.26	2174210.91	36.00	0.00
									6305257.20	2174186.60	36.00	0.00
									6305214.67	2174212.64	36.00	0.00
									6305230.29	2174238.69	36.00	0.00
									6305235.07	2174235.21	36.00	0.00
BUILDING			BUILDING00070	x	0		36.00	r	6305293.66	2174216.12	36.00	0.00
									6305327.08	2174193.98	36.00	0.00
									6305319.27	2174181.83	36.00	0.00
									6305324.04	2174178.36	36.00	0.00
									6305309.72	2174156.22	36.00	0.00
									6305265.88	2174181.39	36.00	0.00
									6305280.64	2174205.70	36.00	0.00
									6305284.11	2174201.79	36.00	0.00
BUILDING			BUILDING00071	x	0		36.00	r	6305198.17	2174187.90	36.00	0.00
									6305239.41	2174161.43	36.00	0.00
									6305224.65	2174134.52	36.00	0.00
									6305219.88	2174138.43	36.00	0.00
									6305212.93	2174125.40	36.00	0.00
									6305176.91	2174147.97	36.00	0.00
									6305186.02	2174160.13	36.00	0.00
									6305182.98	2174163.16	36.00	0.00
BUILDING			BUILDING00072	x	0		36.00	r	6305248.96	2174155.79	36.00	0.00
									6305291.06	2174128.44	36.00	0.00
									6305275.00	2174103.27	36.00	0.00
									6305269.79	2174105.44	36.00	0.00
									6305262.84	2174093.29	36.00	0.00
									6305227.25	2174115.42	36.00	0.00
									6305236.80	2174128.88	36.00	0.00
									6305232.90	2174132.35	36.00	0.00
BUILDING			BUILDING00073	x	0		36.00	r	6305159.55	2174121.93	36.00	0.00
									6305195.14	2174099.80	36.00	0.00
									6305187.32	2174086.78	36.00	0.00
									6305191.66	2174082.87	36.00	0.00
									6305174.74	2174059.43	36.00	0.00
									6305132.20	2174085.91	36.00	0.00
									6305147.83	2174111.08	36.00	0.00
									6305151.30	2174108.04	36.00	0.00
BUILDING			BUILDING00074	x	0		36.00	r	6305212.06	2174089.81	36.00	0.00
									6305245.48	2174068.11	36.00	0.00
									6305237.24	2174054.66	36.00	0.00
									6305241.14	2174051.62	36.00	0.00
									6305226.39	2174027.75	36.00	0.00
									6305183.42	2174053.79	36.00	0.00
									6305197.74	2174078.10	36.00	0.00
									6305202.51	2174075.06	36.00	0.00
BUILDING			BUILDING00075	x	0		36.00	r	6305115.71	2174061.17	36.00	0.00
									6305157.81	2174033.82	36.00	0.00
									6305142.18	2174008.22	36.00	0.00
									6305137.84	2174011.26	36.00	0.00
									6305129.16	2173999.10	36.00	0.00
									6305094.88	2174020.80	36.00	0.00
									6305103.99	2174034.26	36.00	0.00
									6305099.22	2174036.86	36.00	0.00
BUILDING			BUILDING00076	x	0		36.00	r	6305166.06	2174029.05	36.00	0.00
									6305208.59	2174001.27	36.00	0.00
									6305193.40	2173977.40	36.00	0.00
									6305189.06	2173979.14	36.00	0.00
									6305180.38	2173965.25	36.00	0.00
									6305144.79	2173988.25	36.00	0.00
									6305154.77	2174002.14	36.00	0.00
									6305151.30	2174004.74	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00077	x	0		36.00	r	6305076.21	2173985.21	36.00	0.00
									6305112.24	2173963.51	36.00	0.00
									6305104.42	2173950.93	36.00	0.00
									6305109.20	2173946.58	36.00	0.00
									6305091.84	2173921.85	36.00	0.00
									6305049.74	2173950.06	36.00	0.00
									6305066.23	2173974.80	36.00	0.00
									6305069.70	2173972.19	36.00	0.00
BUILDING			BUILDING00078	x	0		36.00	r	6305127.86	2173953.53	36.00	0.00
									6305163.89	2173931.83	36.00	0.00
									6305154.77	2173917.51	36.00	0.00
									6305159.98	2173913.60	36.00	0.00
									6305143.49	2173890.16	36.00	0.00
									6305100.08	2173917.51	36.00	0.00
									6305115.28	2173943.11	36.00	0.00
									6305120.48	2173939.64	36.00	0.00
BUILDING			BUILDING00079	x	0		36.00	r	6305034.55	2173923.15	36.00	0.00
									6305055.81	2173907.96	36.00	0.00
									6305028.90	2173871.93	36.00	0.00
									6305011.98	2173884.08	36.00	0.00
									6305020.66	2173894.94	36.00	0.00
									6305016.32	2173899.71	36.00	0.00
BUILDING			BUILDING00080	x	0		36.00	r	6305062.76	2173902.75	36.00	0.00
									6305103.56	2173873.23	36.00	0.00
									6305086.20	2173849.80	36.00	0.00
									6305082.29	2173851.97	36.00	0.00
									6305074.04	2173838.95	36.00	0.00
									6305041.06	2173863.25	36.00	0.00
									6305050.60	2173876.27	36.00	0.00
									6305046.70	2173879.31	36.00	0.00
BUILDING			BUILDING00081	x	0		36.00	r	6305111.37	2173867.16	36.00	0.00
									6305152.17	2173836.78	36.00	0.00
									6305134.81	2173813.34	36.00	0.00
									6305131.33	2173815.94	36.00	0.00
									6305122.65	2173803.79	36.00	0.00
									6305087.93	2173828.53	36.00	0.00
									6305098.78	2173841.98	36.00	0.00
									6305095.31	2173843.72	36.00	0.00
BUILDING			BUILDING00082	x	0		36.00	r	6305159.98	2173831.57	36.00	0.00
									6305200.78	2173802.92	36.00	0.00
									6305183.85	2173778.62	36.00	0.00
									6305180.38	2173781.22	36.00	0.00
									6305171.70	2173768.63	36.00	0.00
									6305137.84	2173792.51	36.00	0.00
									6305147.83	2173805.53	36.00	0.00
									6305143.92	2173809.00	36.00	0.00
BUILDING			BUILDING00083	x	0		36.00	r	6305209.03	2173796.85	36.00	0.00
									6305249.39	2173767.33	36.00	0.00
									6305232.46	2173742.59	36.00	0.00
									6305227.69	2173745.63	36.00	0.00
									6305220.31	2173734.78	36.00	0.00
									6305186.02	2173757.35	36.00	0.00
									6305196.87	2173771.24	36.00	0.00
									6305192.10	2173773.84	36.00	0.00
BUILDING			BUILDING00084	x	0		36.00	r	6304985.07	2173846.76	36.00	0.00
									6305005.90	2173832.44	36.00	0.00
									6304979.86	2173795.98	36.00	0.00
									6304963.37	2173806.83	36.00	0.00
									6304972.91	2173821.58	36.00	0.00
									6304968.14	2173823.76	36.00	0.00
BUILDING			BUILDING00085	x	0		36.00	r	6305013.71	2173826.36	36.00	0.00
									6305053.64	2173796.85	36.00	0.00
									6305037.58	2173772.11	36.00	0.00
									6305034.11	2173775.14	36.00	0.00
									6305023.70	2173763.43	36.00	0.00
									6304990.71	2173786.86	36.00	0.00
									6305000.69	2173799.88	36.00	0.00
									6304996.79	2173802.05	36.00	0.00
BUILDING			BUILDING00086	x	0		36.00	r	6305061.89	2173790.77	36.00	0.00
									6305103.56	2173761.26	36.00	0.00
									6305085.33	2173736.95	36.00	0.00
									6305081.85	2173739.12	36.00	0.00
									6305074.04	2173727.40	36.00	0.00
									6305039.75	2173752.14	36.00	0.00
									6305050.17	2173765.16	36.00	0.00
									6305046.70	2173767.77	36.00	0.00
BUILDING			BUILDING00087	x	0		36.00	r	6305110.50	2173755.61	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6305150.87	2173726.53	36.00	0.00
									6305135.24	2173702.66	36.00	0.00
									6305129.60	2173705.70	36.00	0.00
									6305121.35	2173691.81	36.00	0.00
									6305088.37	2173716.98	36.00	0.00
									6305098.35	2173728.70	36.00	0.00
									6305094.44	2173732.61	36.00	0.00
BUILDING			BUILDING00088	x	0		36.00	r	6305159.11	2173720.02	36.00	0.00
									6305200.34	2173691.81	36.00	0.00
									6305182.98	2173667.51	36.00	0.00
									6305178.64	2173670.11	36.00	0.00
									6305169.96	2173656.65	36.00	0.00
									6305136.98	2173681.39	36.00	0.00
									6305146.09	2173693.55	36.00	0.00
									6305143.05	2173696.58	36.00	0.00
BUILDING			BUILDING00089	x	0		36.00	r	6304950.34	2173777.31	36.00	0.00
									6304968.14	2173766.46	36.00	0.00
									6304941.66	2173729.14	36.00	0.00
									6304919.96	2173743.03	36.00	0.00
									6304938.19	2173766.46	36.00	0.00
									6304941.66	2173764.73	36.00	0.00
BUILDING			BUILDING00090	x	0		36.00	r	6304979.42	2173756.48	36.00	0.00
									6305011.98	2173734.78	36.00	0.00
									6305002.43	2173720.02	36.00	0.00
									6305007.64	2173716.12	36.00	0.00
									6304989.41	2173693.98	36.00	0.00
									6304949.48	2173721.76	36.00	0.00
									6304965.54	2173745.20	36.00	0.00
									6304970.31	2173743.03	36.00	0.00
BUILDING			BUILDING00091	x	0		36.00	r	6305015.01	2173710.91	36.00	0.00
									6305020.22	2173709.17	36.00	0.00
									6305027.17	2173721.32	36.00	0.00
									6305061.02	2173697.89	36.00	0.00
									6305051.47	2173684.43	36.00	0.00
									6305055.38	2173681.39	36.00	0.00
									6305038.89	2173658.82	36.00	0.00
									6304997.65	2173687.90	36.00	0.00
BUILDING			BUILDING00092	x	0		36.00	r	6305075.78	2173686.60	36.00	0.00
									6305110.07	2173662.30	36.00	0.00
									6305100.08	2173648.84	36.00	0.00
									6305103.99	2173645.80	36.00	0.00
									6305085.76	2173623.23	36.00	0.00
									6305047.13	2173652.31	36.00	0.00
									6305061.89	2173675.32	36.00	0.00
									6305066.23	2173673.15	36.00	0.00
BUILDING			BUILDING00093	x	0		36.00	r	6305124.82	2173651.01	36.00	0.00
									6305158.68	2173627.57	36.00	0.00
									6305149.13	2173613.69	36.00	0.00
									6305153.04	2173611.08	36.00	0.00
									6305134.81	2173587.21	36.00	0.00
									6305094.44	2173616.29	36.00	0.00
									6305111.37	2173640.60	36.00	0.00
									6305115.71	2173637.56	36.00	0.00
BUILDING			BUILDING00094	x	0		36.00	r	6304903.47	2173719.15	36.00	0.00
									6304923.43	2173704.83	36.00	0.00
									6304897.83	2173669.68	36.00	0.00
									6304881.33	2173679.66	36.00	0.00
									6304890.01	2173693.98	36.00	0.00
									6304885.67	2173696.58	36.00	0.00
BUILDING			BUILDING00095	x	0		36.00	r	6304930.81	2173699.62	36.00	0.00
									6304972.05	2173669.24	36.00	0.00
									6304955.12	2173644.07	36.00	0.00
									6304949.91	2173647.11	36.00	0.00
									6304942.53	2173636.69	36.00	0.00
									6304908.68	2173660.13	36.00	0.00
									6304918.23	2173672.28	36.00	0.00
									6304913.89	2173675.32	36.00	0.00
BUILDING			BUILDING00096	x	0		36.00	r	6304978.99	2173663.60	36.00	0.00
									6305019.79	2173634.08	36.00	0.00
									6305003.30	2173609.78	36.00	0.00
									6304998.52	2173612.38	36.00	0.00
									6304990.71	2173600.23	36.00	0.00
									6304956.85	2173624.54	36.00	0.00
									6304965.97	2173637.99	36.00	0.00
									6304962.50	2173639.73	36.00	0.00
BUILDING			BUILDING00097	x	0		36.00	r	6305027.60	2173628.88	36.00	0.00
									6305068.40	2173598.93	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6305052.78	2173575.93	36.00	0.00
									6305049.30	2173577.23	36.00	0.00
									6305040.19	2173565.51	36.00	0.00
									6305005.47	2173588.08	36.00	0.00
									6305015.01	2173601.10	36.00	0.00
									6305011.98	2173603.70	36.00	0.00
BUILDING			BUILDING00098	x	0		36.00	r	6305076.21	2173593.29	36.00	0.00
									6305117.45	2173564.64	36.00	0.00
									6305099.65	2173539.03	36.00	0.00
									6305095.31	2173541.64	36.00	0.00
									6305088.37	2173529.92	36.00	0.00
									6305053.64	2173554.22	36.00	0.00
									6305063.19	2173566.38	36.00	0.00
									6305059.29	2173569.85	36.00	0.00
BUILDING			BUILDING00099	x	0		36.00	r	6304938.63	2173598.06	36.00	0.00
									6304973.35	2173574.19	36.00	0.00
									6304961.63	2173561.17	36.00	0.00
									6304966.40	2173559.00	36.00	0.00
									6304950.78	2173535.99	36.00	0.00
									6304909.98	2173564.21	36.00	0.00
									6304926.47	2173588.08	36.00	0.00
									6304930.38	2173585.04	36.00	0.00
BUILDING			BUILDING00100	x	0		36.00	r	6304975.95	2173552.92	36.00	0.00
									6304978.99	2173550.75	36.00	0.00
									6304987.24	2173564.21	36.00	0.00
									6305021.96	2173539.47	36.00	0.00
									6305012.41	2173527.75	36.00	0.00
									6305016.32	2173523.41	36.00	0.00
									6304998.96	2173500.40	36.00	0.00
									6304957.72	2173529.92	36.00	0.00
BUILDING			BUILDING00101	x	0		36.00	r	6305022.83	2173517.77	36.00	0.00
									6305027.60	2173515.16	36.00	0.00
									6305034.55	2173528.18	36.00	0.00
									6305068.40	2173504.31	36.00	0.00
									6305060.15	2173491.29	36.00	0.00
									6305064.06	2173488.25	36.00	0.00
									6305047.13	2173465.68	36.00	0.00
									6305005.47	2173494.33	36.00	0.00
BUILDING			BUILDING00102	x	0		36.00	r	6304890.88	2173540.77	36.00	0.00
									6304931.68	2173509.95	36.00	0.00
									6304914.75	2173487.38	36.00	0.00
									6304910.85	2173489.99	36.00	0.00
									6304902.17	2173477.83	36.00	0.00
									6304869.18	2173501.27	36.00	0.00
									6304878.73	2173513.86	36.00	0.00
									6304875.26	2173516.90	36.00	0.00
BUILDING			BUILDING00103	x	0		36.00	r	6304939.93	2173504.74	36.00	0.00
									6304980.73	2173475.23	36.00	0.00
									6304964.23	2173452.23	36.00	0.00
									6304959.03	2173455.27	36.00	0.00
									6304949.48	2173440.94	36.00	0.00
									6304917.36	2173466.12	36.00	0.00
									6304927.78	2173480.44	36.00	0.00
									6304923.00	2173482.18	36.00	0.00
BUILDING			BUILDING00104	x	0		36.00	r	6304988.10	2173469.59	36.00	0.00
									6305029.34	2173440.07	36.00	0.00
									6305012.41	2173415.33	36.00	0.00
									6305006.77	2173418.81	36.00	0.00
									6304998.09	2173406.22	36.00	0.00
									6304965.54	2173430.53	36.00	0.00
									6304975.52	2173443.55	36.00	0.00
									6304971.18	2173445.72	36.00	0.00
BUILDING			BUILDING00105	x	0		36.00	r	6304792.36	2173516.46	36.00	0.00
									6304827.51	2173493.03	36.00	0.00
									6304817.53	2173480.44	36.00	0.00
									6304822.31	2173477.40	36.00	0.00
									6304803.64	2173453.53	36.00	0.00
									6304762.84	2173483.48	36.00	0.00
									6304781.07	2173507.78	36.00	0.00
									6304785.85	2173504.31	36.00	0.00
BUILDING			BUILDING00106	x	0		36.00	r	6304830.55	2173471.76	36.00	0.00
									6304834.46	2173469.59	36.00	0.00
									6304842.71	2173482.18	36.00	0.00
									6304876.13	2173457.87	36.00	0.00
									6304865.71	2173445.28	36.00	0.00
									6304870.92	2173442.24	36.00	0.00
									6304853.12	2173417.51	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
									6304811.89	2173448.32	36.00	0.00
BUILDING			BUILDING00107	x	0		36.00	r	6304876.99	2173436.17	36.00	0.00
									6304883.07	2173434.00	36.00	0.00
									6304890.45	2173447.02	36.00	0.00
									6304923.87	2173423.15	36.00	0.00
									6304914.32	2173409.69	36.00	0.00
									6304919.53	2173405.35	36.00	0.00
									6304900.87	2173382.78	36.00	0.00
									6304860.07	2173412.73	36.00	0.00
BUILDING			BUILDING00108	x	0		36.00	r	6304926.47	2173401.45	36.00	0.00
									6304931.25	2173398.41	36.00	0.00
									6304939.93	2173411.86	36.00	0.00
									6304972.91	2173387.12	36.00	0.00
									6304963.37	2173374.10	36.00	0.00
									6304967.71	2173371.50	36.00	0.00
									6304949.91	2173347.63	36.00	0.00
									6304909.55	2173377.57	36.00	0.00
BUILDING			BUILDING00109	x	0		36.00	r	6304745.48	2173458.30	36.00	0.00
									6304785.85	2173429.22	36.00	0.00
									6304770.66	2173404.92	36.00	0.00
									6304765.01	2173408.39	36.00	0.00
									6304755.03	2173394.07	36.00	0.00
									6304723.35	2173420.98	36.00	0.00
									6304732.90	2173432.70	36.00	0.00
									6304729.42	2173434.00	36.00	0.00
BUILDING			BUILDING00110	x	0		36.00	r	6304794.53	2173422.28	36.00	0.00
									6304834.46	2173394.50	36.00	0.00
									6304818.40	2173370.20	36.00	0.00
									6304813.63	2173371.93	36.00	0.00
									6304805.81	2173360.65	36.00	0.00
									6304771.09	2173382.78	36.00	0.00
									6304781.51	2173398.84	36.00	0.00
									6304777.17	2173400.58	36.00	0.00
BUILDING			BUILDING00111	x	0		36.00	r	6304842.71	2173387.12	36.00	0.00
									6304883.50	2173358.91	36.00	0.00
									6304865.28	2173335.04	36.00	0.00
									6304862.24	2173336.78	36.00	0.00
									6304854.42	2173325.93	36.00	0.00
									6304820.14	2173348.93	36.00	0.00
									6304829.25	2173362.82	36.00	0.00
									6304827.08	2173364.12	36.00	0.00
BUILDING			BUILDING00112	x	0		36.00	r	6304891.75	2173351.97	36.00	0.00
									6304931.68	2173323.32	36.00	0.00
									6304914.75	2173299.88	36.00	0.00
									6304910.85	2173301.62	36.00	0.00
									6304901.73	2173289.03	36.00	0.00
									6304868.75	2173312.47	36.00	0.00
									6304878.30	2173328.53	36.00	0.00
									6304874.82	2173330.70	36.00	0.00
BUILDING			BUILDING00113	x	0		36.00	r	6304879.60	2173243.89	36.00	0.00
									6304892.18	2173235.21	36.00	0.00
									6304895.22	2173237.82	36.00	0.00
									6304919.09	2173220.89	36.00	0.00
									6304905.64	2173200.06	36.00	0.00
									6304867.88	2173226.97	36.00	0.00
BUILDING			BUILDING00114	x	0		36.00	r	6304858.76	2173214.38	36.00	0.00
									6304871.35	2173205.27	36.00	0.00
									6304874.39	2173208.74	36.00	0.00
									6304898.26	2173192.24	36.00	0.00
									6304869.18	2173151.88	36.00	0.00
									6304845.31	2173168.37	36.00	0.00
									6304847.48	2173172.71	36.00	0.00
									6304835.33	2173182.26	36.00	0.00
BUILDING			BUILDING00115	x	0		36.00	r	6304862.24	2173143.20	36.00	0.00
									6304834.46	2173103.70	36.00	0.00
									6304809.29	2173119.76	36.00	0.00
									6304811.89	2173123.67	36.00	0.00
									6304799.74	2173133.65	36.00	0.00
									6304823.61	2173167.07	36.00	0.00
									6304837.06	2173157.09	36.00	0.00
									6304840.54	2173160.13	36.00	0.00
BUILDING			BUILDING00116	x	0		36.00	r	6304819.70	2173291.20	36.00	0.00
									6304844.01	2173274.71	36.00	0.00
									6304842.27	2173270.80	36.00	0.00
									6304853.99	2173261.26	36.00	0.00
									6304843.57	2173244.76	36.00	0.00
									6304805.38	2173270.80	36.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height		Coordinates			
							Begin		x	y	z	Ground
							(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING			BUILDING00117	x	0		36.00	r	6304800.17	2173262.99	36.00	0.00
									6304824.04	2173246.06	36.00	0.00
									6304821.00	2173242.16	36.00	0.00
									6304833.16	2173233.04	36.00	0.00
									6304810.59	2173199.62	36.00	0.00
									6304797.57	2173207.87	36.00	0.00
									6304794.53	2173205.27	36.00	0.00
									6304771.09	2173222.63	36.00	0.00
BUILDING			BUILDING00118	x	0		36.00	r	6304764.15	2173213.08	36.00	0.00
									6304788.02	2173197.02	36.00	0.00
									6304785.85	2173192.24	36.00	0.00
									6304798.00	2173183.13	36.00	0.00
									6304775.00	2173151.01	36.00	0.00
									6304762.41	2173160.56	36.00	0.00
									6304758.94	2173155.79	36.00	0.00
									6304735.93	2173173.58	36.00	0.00
BUILDING			BUILDING00119	x	0		36.00	r	6304759.37	2173335.47	36.00	0.00
									6304771.96	2173326.36	36.00	0.00
									6304774.56	2173330.27	36.00	0.00
									6304798.00	2173312.47	36.00	0.00
									6304784.11	2173292.51	36.00	0.00
									6304747.22	2173319.85	36.00	0.00
BUILDING			BUILDING00120	x	0		36.00	r	6304737.67	2173307.70	36.00	0.00
									6304751.13	2173298.15	36.00	0.00
									6304754.16	2173302.05	36.00	0.00
									6304777.60	2173283.39	36.00	0.00
									6304748.52	2173243.89	36.00	0.00
									6304724.65	2173261.26	36.00	0.00
									6304727.69	2173264.73	36.00	0.00
									6304714.67	2173273.84	36.00	0.00
BUILDING			BUILDING00121	x	0		36.00	r	6304702.08	2173258.22	36.00	0.00
									6304715.97	2173249.10	36.00	0.00
									6304717.71	2173251.71	36.00	0.00
									6304742.88	2173235.21	36.00	0.00
									6304712.93	2173195.28	36.00	0.00
									6304688.19	2173211.78	36.00	0.00
									6304690.80	2173216.55	36.00	0.00
									6304679.51	2173225.23	36.00	0.00
BUILDING			BUILDING00122	x	0		36.00	r	6304696.44	2173385.82	36.00	0.00
									6304719.88	2173369.33	36.00	0.00
									6304718.14	2173364.55	36.00	0.00
									6304729.86	2173355.01	36.00	0.00
									6304705.99	2173322.02	36.00	0.00
									6304693.83	2173330.27	36.00	0.00
									6304691.23	2173327.23	36.00	0.00
									6304666.49	2173345.89	36.00	0.00
BUILDING			BUILDING00123	x	0		36.00	r	6304659.98	2173335.47	36.00	0.00
									6304684.72	2173320.28	36.00	0.00
									6304682.55	2173315.51	36.00	0.00
									6304694.70	2173307.70	36.00	0.00
									6304671.26	2173274.28	36.00	0.00
									6304657.38	2173283.39	36.00	0.00
									6304656.07	2173279.92	36.00	0.00
									6304631.77	2173296.85	36.00	0.00
BUILDING			BUILDING00124	x	0		36.00	r	6304626.13	2173288.16	36.00	0.00
									6304649.56	2173272.11	36.00	0.00
									6304647.39	2173267.33	36.00	0.00
									6304659.98	2173259.08	36.00	0.00
									6304636.54	2173224.36	36.00	0.00
									6304623.09	2173234.35	36.00	0.00
									6304620.48	2173230.44	36.00	0.00
									6304597.48	2173248.23	36.00	0.00

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph)

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)

RoadsGeo

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		

APPENDIX 11.1:

CADNAA ON-SITE CONSTRUCTION NOISE MODEL INPUTS

This page intentionally left blank

16056 - Keller Crossing Specific Plan

CadnaA Noise Prediction Model: 16056-05_Construction.cna
Date: 13.01.26
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (ft)	**6561.70**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (ft)	**3280.80**
Min. Length of Section (ft)	**3.30**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**328.08**
Search Radius Rcvr	**328.08**
Max. Distance Source - Rcvr	**3280.84 3280.84**
Min. Distance Rvcr - Reflector	**3.28 3.28**
Min. Distance Source - Reflector	**0.33**
Industrial (ISO 9613 (1996))	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (°F)	**50**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (mph)	**6.7**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	59.7	-45.0	56.7	80.0	0.0	0.0				5.00	r	6303874.03	2176211.86	5.00
R2		R2	61.8	-42.9	58.8	80.0	0.0	0.0				5.00	r	6302320.11	2175213.73	5.00
R3		R3	63.3	-41.5	60.2	80.0	0.0	0.0				5.00	r	6302413.90	2173359.86	5.00
R4		R4	66.7	-38.1	63.7	80.0	0.0	0.0				5.00	r	6302869.94	2172837.64	5.00
R5		R5	64.5	-40.3	61.5	80.0	0.0	0.0				5.00	r	6303972.29	2172761.39	5.00
R6		R6	61.3	-43.5	58.3	80.0	0.0	0.0				5.00	r	6305863.49	2173702.01	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		SITEBOUNDARY00001	126.8	22.0	22.0	67.8	-37.0	-37.0	PWL-Pt	122					8	r

Name	ID	Height			Coordinates			
		Begin		End	x	y	z	Ground
		(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	SITEBOUNDARY00001	8.00	r		6302545.16	2175547.15	8.00	0.00
					6304262.19	2175546.33	8.00	0.00
					6306673.31	2175543.67	8.00	0.00
					6306265.93	2174984.19	8.00	0.00
					6305715.94	2174228.85	8.00	0.00
					6305655.96	2174093.52	8.00	0.00
					6304844.87	2172979.57	8.00	0.00
					6304811.78	2172981.65	8.00	0.00
					6304761.16	2172853.64	8.00	0.00
					6304648.22	2172858.25	8.00	0.00
					6304206.79	2172861.04	8.00	0.00
					6303877.42	2172859.40	8.00	0.00
					6303548.23	2172859.47	8.00	0.00
					6303217.68	2172859.55	8.00	0.00
					6302613.81	2172859.69	8.00	0.00
					6302589.00	2172836.65	8.00	0.00
					6302560.94	2172837.18	8.00	0.00
					6302560.34	2172947.04	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(ft)	(ft)	(ft)	(ft)	(ft)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph)

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)

RoadsGeo

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		

16056 - Keller Crossing Specific Plan

CadnaA Noise Prediction Model: 16056-03_Construction_Mit.cna
Date: 13.01.26
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (ft)	**6561.70**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (ft)	**3280.80**
Min. Length of Section (ft)	**3.30**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**328.08**
Search Radius Rcvr	**328.08**
Max. Distance Source - Rcvr	**3280.84 3280.84**
Min. Distance Rvcr - Reflector	**3.28 3.28**
Min. Distance Source - Reflector	**0.33**
Industrial (ISO 9613 (1996))	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (°F)	**50**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (mph)	**6.7**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	59.7	-45.0	56.7	0.0	0.0	0.0		x	Total	5.00	r	6303874.03	2176211.86	5.00
R2		R2	61.8	-42.9	58.8	0.0	0.0	0.0		x	Total	5.00	r	6302320.11	2175213.73	5.00
R3		R3	63.3	-41.5	60.2	0.0	0.0	0.0		x	Total	5.00	r	6302413.90	2173359.86	5.00
R4		R4	61.1	-43.6	58.1	0.0	0.0	0.0		x	Total	5.00	r	6302869.94	2172837.64	5.00
R5		R5	59.7	-45.1	56.7	0.0	0.0	0.0		x	Total	5.00	r	6303972.29	2172761.39	5.00
R6		R6	61.3	-43.5	58.3	0.0	0.0	0.0		x	Total	5.00	r	6305863.49	2173702.01	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		SITEBOUNDARY00001	126.8	22.0	22.0	67.8	-37.0	-37.0	PWL-Pt	122					8	r

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	SITEBOUNDARY00001	8.00	r			6302545.16	2175547.15	8.00	0.00
						6304262.19	2175546.33	8.00	0.00
						6306673.31	2175543.67	8.00	0.00
						6306265.93	2174984.19	8.00	0.00
						6305715.94	2174228.85	8.00	0.00
						6305655.96	2174093.52	8.00	0.00
						6304844.87	2172979.57	8.00	0.00
						6304811.78	2172981.65	8.00	0.00
						6304761.16	2172853.64	8.00	0.00
						6304648.22	2172858.25	8.00	0.00
						6304206.79	2172861.04	8.00	0.00
						6303877.42	2172859.40	8.00	0.00
						6303548.23	2172859.47	8.00	0.00
						6303217.68	2172859.55	8.00	0.00
						6302613.81	2172859.69	8.00	0.00
						6302589.00	2172836.65	8.00	0.00
						6302560.94	2172837.18	8.00	0.00
						6302560.34	2172947.04	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
				left	right		horz.	vert.	Begin		End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
B1			B1						8.00	r		6302589.31	2172834.53	8.00	0.00
												6302614.12	2172857.57	8.00	0.00
												6302724.28	2172857.54	8.00	0.00
												6302766.81	2172857.53	8.00	0.00
B2			B2						8.00	r		6302784.52	2172857.53	8.00	0.00
												6304758.96	2172853.57	8.00	0.00

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(ft)	(ft)	(ft)	(ft)	(ft)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph)

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)

RoadsGeo

Name	Height		Coordinates				Dist	LSlope
	Begin	End	x	y	z	Ground	(ft)	(%)
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)		

This page intentionally left blank

APPENDIX 11.2:

CADNAA OFF-SITE CONSTRUCTION NOISE MODEL INPUTS

This page intentionally left blank

16056 - Keller Crossing Specific Plan

CadnaA Noise Prediction Model: 16056-03_Off-site_Construction.cna
Date: 13.01.26
Analyst: B. Maddux

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (ft)	**6561.70**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (ft)	**3280.80**
Min. Length of Section (ft)	**3.30**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**328.08**
Search Radius Rcvr	**328.08**
Max. Distance Source - Rcvr	**3280.84 3280.84**
Min. Distance Rvcr - Reflector	**3.28 3.28**
Min. Distance Source - Reflector	**0.33**
Industrial (ISO 9613 (1996))	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (°F)	**50**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (mph)	**6.7**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
R1		R1	78.8	-26.0	75.8	0.0	0.0	0.0		x	Total	5.00	r	6304408.15	2174519.64	5.00
R2		R2	75.2	-29.6	72.2	0.0	0.0	0.0		x	Total	5.00	r	6304434.28	2174520.47	5.00
R3		R3	71.6	-33.1	68.6	0.0	0.0	0.0		x	Total	5.00	r	6304483.10	2174521.52	5.00
R4		R4	67.9	-36.9	64.9	0.0	0.0	0.0		x	Total	5.00	r	6304582.88	2174521.76	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
			123.2	18.4	18.4	86.5	-18.3	-18.3	PWL-Pt	118.4					8	r

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
		8.00	r			6304375.00	2176148.00	8.00	0.00
						6304375.00	2172803.00	8.00	0.00
						6304390.00	2172803.00	8.00	0.00
						6304390.00	2176148.00	8.00	0.00

Barrier(s)

Name	Sel.	M.	ID	Absorption		Z-Ext.	Cantilever		Height		Coordinates			
				left	right		horz.	vert.	Begin	End	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)

Building(s)

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates				
							Begin	x	y	z	Ground	
							(ft)	(ft)	(ft)	(ft)	(ft)	

Ground Absorption(s)

Name	Sel.	M.	ID	G	Coordinates	
					x	y
					(ft)	(ft)

Contour(s)

Name	Sel.	M.	ID	OnlyPts	Height		Coordinates		
					Begin	End	x	y	z
					(ft)	(ft)	(ft)	(ft)	(ft)

Vertical Area Source(s)

Name	ID	Height				Coordinates			
		Begin		End		x	y	z	Ground
		(ft)		(ft)		(ft)	(ft)	(ft)	(ft)

Rail

Name	Sel.	M.	ID	Lw'		Train Class	Correct.	Vmax
				Day	Night		Track	
				(dBA)	(dBA)		(dB)	(km(mph)

Sound Level Spectra

Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin	

Roads

Name	Sel.	M.	ID	Lme			Count Data		exact Count Data						Speed Limit		SCS	Surface		Gradient	Mult. Reflection		
				Day	Evening	Night	DTV	Str.class.	M			p (%)			Auto	Truck	Dist.	Dstro	Type		Drefl	Hbuild	Dist.
				(dBA)	(dBA)	(dBA)			Day	Evening	Night	Day	Evening	Night	(mph)	(mph)		(dB)		(%)	(dB)	(ft)	(ft)

RoadsGeo

Name	Height				Coordinates				Dist	LSlope
	Begin		End		x	y	z	Ground	(ft)	(%)
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)		