

APPENDIX 4.13 - 1

NOISE IMPACT ANALYSIS



The Anaheim Festival SPA

NOISE IMPACT ANALYSIS

CITY OF ANAHEIM

PREPARED BY:

William Maddux, INCE
bmaddux@urbanxroads.com
(619) 788-1971

NOVEMBER 4, 2024

TABLE OF CONTENTS

TABLE OF CONTENTS	I
LIST OF EXHIBITS	II
LIST OF TABLES	III
LIST OF ABBREVIATED TERMS	IV
EXECUTIVE SUMMARY	1
On-Site Transportation Noise Analysis	1
Off-Site Traffic Noise Analysis.....	2
Operational Noise Analysis	2
Construction Noise Analysis	2
Construction Vibration Analysis	3
Summary of Significance Findings	3
1 INTRODUCTION	5
1.1 Site Location	5
1.2 Project Description.....	5
2 FUNDAMENTALS	9
2.1 Range of Noise	9
2.2 Noise Descriptors	10
2.3 Sound Propagation.....	10
2.4 Noise Control	11
2.5 Noise Barrier Attenuation.....	12
2.6 Land Use Compatibility With Noise	12
2.7 Community Response to Noise	12
2.8 Vibration	13
3 REGULATORY SETTING	15
3.1 State of California Noise Requirements.....	15
3.2 State of California Building Standards	15
3.3 City of Anaheim Noise Element	15
3.4 Outdoor Living Areas for Exterior Noise Analysis	18
3.5 Operational Noise Standard.....	19
3.6 Construction Noise Standards.....	19
3.7 Construction Vibration Standards.....	20
3.8 Airport Land Use Compatibility Plan	20
4 SIGNIFICANCE CRITERIA	21
4.1 Noise Level Increases (Threshold A)	21
4.2 Vibration (Threshold B).....	22
4.3 CEQA Guidelines Not Further Analyzed (Threshold C)	22
4.4 Significance Criteria Summary	22
5 EXISTING NOISE LEVEL MEASUREMENTS	25
5.1 Measurement Procedure and Criteria	25
5.2 Noise Measurement Locations	25
5.3 Noise Measurement Results	27
6 TRAFFIC NOISE METHODS AND PROCEDURES	29

6.1	FHWA Traffic Noise Prediction Model	29
7	ON-SITE TRANSPORTATION NOISE IMPACTS	33
7.1	On-Site Exterior Noise Analysis	33
7.2	On-Site Interior Noise Analysis	33
8	OFF-SITE TRAFFIC NOISE IMPACTS	37
8.1	Traffic Noise level contours	37
8.2	Existing Condition Project Traffic Noise Levels	38
8.3	EAA Condition Project Traffic Noise Levels	38
8.4	GPBO TRAFFIC NOISE LEVEL INCREASES	38
9	RECEIVER LOCATIONS	49
10	OPERATIONAL NOISE IMPACTS	51
10.1	Operational Noise Sources	51
10.2	Reference Noise Levels	52
10.3	CadnaA Noise Prediction Model	54
10.4	Project Operational Noise Levels	54
10.5	Project Operational Noise Level Compliance	55
10.6	Project Operational Noise Level Increases	56
11	CONSTRUCTION IMPACTS	59
11.1	Construction Noise Levels	59
11.2	Construction Reference Noise Levels	59
11.3	Construction Noise Analysis	61
11.4	Construction Noise Level Compliance	62
11.5	Off-Site Construction Traffic Noise	62
11.6	Construction Vibration Impacts	63
12	REFERENCES	65
13	CERTIFICATION	67

LIST OF EXHIBITS

EXHIBIT 1-A: SPA PROPOSED DEVELOPMENT AREAS	6
EXHIBIT 1-B: SITE PLAN	7
EXHIBIT 2-A: TYPICAL NOISE LEVELS	9
EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION	13
EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION	14
EXHIBIT 3-A: LAND USE COMPATIBILITY FOR COMMUNITY NOISE EXPOSURE	17
EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS	26
EXHIBIT 9-A: RECEIVER LOCATIONS	50
EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS	53
EXHIBIT 11-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS	60

LIST OF TABLES

TABLE ES-1: SUMMARY OF SIGNIFICANCE FINDINGS	3
TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY	23
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS	28
TABLE 6-1: ON SITE ROADWAY PARAMATERS	30
TABLE 6-2: TIME OF DAY VEHICLE SPLITS	30
TABLE 6-3: DISTRIBUTION OF FLOW BY VEHICLE TYPE (VEHICLE MIX)	30
TABLE 6-4: OFF-SITE ROADWAY PARAMETERS.....	31
TABLE 6-5: OFF-SITE AVERAGE DAILY TRAFFIC VOLUMES.....	32
TABLE 7-1: EXTERIOR NOISE LEVELS (DBA CNEL)	34
TABLE 7-2: FIRST FLOOR INTERIOR TRAFFIC NOISE LEVELS	34
TABLE 7-3: SECOND FLOOR INTERIOR TRAFFIC NOISE LEVELS	35
TABLE 7-4: THIRD FLOOR INTERIOR TRAFFIC NOISE LEVELS.....	35
TABLE 7-5: FOURTH FLOOR INTERIOR TRAFFIC NOISE LEVELS	36
TABLE 7-6: FIFTH FLOOR INTERIOR TRAFFIC NOISE LEVELS.....	36
TABLE 8-1: EXISTING CONDITIONS NOISE LEVEL CONTOURS	39
TABLE 8-2: EAA CONDITIONS NOISE LEVEL CONTOURS	40
TABLE 8-3: EAAP CONDITIONS NOISE LEVEL CONTOURS	41
TABLE 8-4: GPBO NO PROJECT CONDITIONS NOISE LEVEL CONTOURS	42
TABLE 8-5: GPBO WITH PROJECT CONDITIONS NOISE LEVEL CONTOURS	43
TABLE 8-6: EXISTING OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS	44
TABLE 8-7: EAA OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS.....	45
TABLE 8-8: GPBO OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS	46
TABLE 8-9: CUMULATIVE PROJECT TRAFFIC NOISE INCREASES	47
TABLE 10-1: REFERENCE NOISE LEVELS	52
TABLE 10-2: PROJECT DAYTIME OPERATIONAL NOISE LEVELS.....	55
TABLE 10-3: PROJECT NIGHTTIME OPERATIONAL NOISE LEVELS	55
TABLE 10-4: OPERATIONAL NOISE LEVEL COMPLIANCE.....	56
TABLE 10-5: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES.....	57
TABLE 10-6: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES.....	57
TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS	61
TABLE 11-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY.....	62
TABLE 11-3: CONSTRUCTION NOISE LEVEL COMPLIANCE	62
TABLE 11-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT	63
TABLE 11-5: PROJECT CONSTRUCTION VIBRATION LEVELS.....	64

LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
AELUP	Airport Environs Land Use Plan
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
INCE	Institute of Noise Control Engineering
Leq	Equivalent continuous (average) sound level
Lmax	Maximum level measured over the time interval
Lmin	Minimum level measured over the time interval
MM	Mitigation Measure
mph	Miles per hour
OCTA	Orange County Transportation Agency
PPV	Peak Particle Velocity
Project	The Anaheim Festival SPA
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 Anaheim Festival SPA ("Project"). The Project site is located south of Santa Ana Canyon Road and west of Roosevelt Road in the City of Anaheim. The Project is proposed to include the development of 447 multifamily residential dwelling units. This noise study has been prepared to satisfy the requirements of the City of Anaheim noise level standards and ensure that adequate noise abatement measures are incorporated into the Project's development. In addition, recommendations for exterior and interior noise abatement are identified based on the latest Project site and grading plans.

ON-SITE TRANSPORTATION NOISE ANALYSIS

An on-site exterior noise impact analysis has been completed to determine the transportation-related noise levels and to identify potential necessary abatement measures for the proposed Project. It is expected that the primary source of transportation-related noise impacts to the Project site will be traffic noise from SR-91 and Festival Drive.

EXTERIOR NOISE ANALYSIS

The exterior noise levels at the Project site will range from 54.7 to 62.3 dBA CNEL at building façades of residential units. Based on the City of Anaheim 65 dBA CNEL exterior noise level standard no exterior noise barriers or enclosures for balconies or decks are recommended in this analysis. Therefore, the analysis shows that the Project-exposure to on-site exterior traffic noise levels would be *less than significant*.

INTERIOR NOISE ABATEMENT

To satisfy the City of Anaheim 45 dBA CNEL interior noise level criteria, residential units will require a Noise Reduction (NR) of up to 18.2 dBA at all floors, which will require a windows-closed condition and a means of mechanical ventilation (e.g. air conditioning) to meet the City of Anaheim 45 dBA CNEL interior noise standard for residential land uses. It is recommended that the Project provide the following or equivalent noise abatement measures on all appropriate building plans:

- **Windows:** All residential units require windows that have well-fitted, well-weather-stripped assemblies, with minimum sound transmission class (STC) ratings of 27.
- **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:** 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.

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on sixteen 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 *The Anaheim Festival SPA No 6 Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (1) To assess the off-site noise level impacts associated with the proposed Project, noise level contour boundaries were developed for Existing, Existing Plus Approved Plus Ambient Growth (EAA), Existing Plus Approved Plus Ambient Growth Plus Project (EAAP), and General Plan Buildout (GBPO) with and without Project traffic conditions. Land uses along roadway segments analyzed would experience Project related traffic noise level increases of up to 1.7 dBA CNEL. Therefore, the analysis shows that the Project-related traffic noise level increases under all scenarios would be *less than significant*.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the potential noise sources within the Project site, this analysis estimates the Project-related operational (stationary-source) noise levels at the nearby noise-sensitive receiver locations. The Project-related operational noise sources are expected to include trash enclosure activity, roof-top air conditioning units, parking lot vehicle movements, and parking garage activities.

The analysis shows that the unmitigated Project-related operational noise levels will satisfy the City of Anaheim exterior noise level standards at all the off-site receiver locations in the Project study area. Further, this analysis demonstrates that the Project will contribute a *less than significant* operational noise level impact to the existing ambient noise environment at all the nearby sensitive receiver locations during the daytime and nighttime hours. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the trash enclosure activity, roof-top air conditioning units, parking lot vehicle movements, and parking garage activities will be *less than significant*.

CONSTRUCTION NOISE ANALYSIS

On-site construction noise represents a short-term increase on the ambient noise levels associated with the development of the Project on nearby receivers. Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the Project site boundary. Using sample reference noise levels to represent the planned construction activities of the Project site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the City of Anaheim General Plan and Municipal Codes do not identify specific construction noise level limits, this analysis relies on the 80 dBA L_{eq} threshold

identified by the Federal Transit Administration (FTA) to quantify and determine potential construction noise level impacts. This analysis shows that the Project-related short-term construction noise levels are estimated to range from 42.1 to 62.6 dBA L_{eq} and will satisfy the 80 dBA L_{eq} threshold. Therefore, the noise level impacts at the nearby sensitive receiver locations due to Project construction activities are considered *less than significant*.

CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). At the nearest receivers Project construction vibration velocity levels are estimated to range from less than 0.01 to 0.01 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec), the typical Project construction vibration levels will not exceed the City of Anaheim thresholds at properties located adjacent to the Project site. Therefore, vibration impacts due to Project construction activities would be *less than significant*.

SUMMARY OF SIGNIFICANCE FINDINGS

The results of The Anaheim Festival SPA 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. (2). 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 SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
On-Site	7	<i>Less Than Significant</i>	-
Off-Site Traffic Noise	8	<i>Less Than Significant</i>	-
Operational Noise	10	<i>Less Than Significant</i>	-
Construction Noise	11	<i>Less Than Significant</i>	-
Construction Vibration		<i>Less Than Significant</i>	-

This page intentionally left blank

1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed The Anaheim Festival SPA ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for noise analysis, and evaluates the future exterior noise environment on and off-site, potential operational noise impact, and the potential short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed Project site is located south of Santa Ana Canyon Road and west of Roosevelt Road in the City of Anaheim, as shown in Exhibit 1-A. State Route 91 (SR-91) Freeway is located approximately 1,180 feet north of the Project site. The Project site is occupied by two commercial buildings. Fullerton Municipal Airport is located approximately 12 miles northwest of the Project site and the Corona Municipal Airport is located approximately 8 miles east of the Project site.

1.2 PROJECT DESCRIPTION

The existing Specific Plan (SP) is divided into four Development Areas (DA) by land use. DA 1 is the Scenic Commercial area fronting Santa Ana Canyon Road between Festival Drive and Roosevelt Road, DA 2 is the Regional Commercial use that contains the department stores, grocer, other food/retail uses, and the vacant cinema, DA 3 is the Visitor Commercial area located west of Festival Drive which includes the existing hotel, and DA 4 is the Senior Residential area south of Festival Drive. The proposed Specific Plan Amendment (SPA) proposes the implementation of a new 16.2-acre mixed-use development area on the upper level of the commercial center as a new DA 5 (which is a portion of the old DA 2). Exhibit 1-A illustrates the proposed DA locations for the SPA.

Specifically, the Project proposes to demolish the existing 62,676 square foot vacant cinema and develop in its place 447 multifamily residential dwelling units while retaining the remaining existing commercial uses within the new DA 5. Approximately 13,310 square feet of existing retail would be retained in DA 2 as a result of the new DA 5 (resulting in a net reduction of 49,366 square feet of retail space). The retail within DA 5 will include the following existing uses: 6,475 square feet of restaurant use, 9,200 square feet of office use, 38,160 square foot fitness/gym, 13,276 square feet of tutor/retail space, and 11,033 square foot medical office building. A preliminary site plan for the proposed multifamily residential development is shown on Exhibit 1-B. The Project will be developed within a single phase with an anticipated opening year of 2029.

EXHIBIT 1-A: SPA PROPOSED DEVELOPMENT AREAS

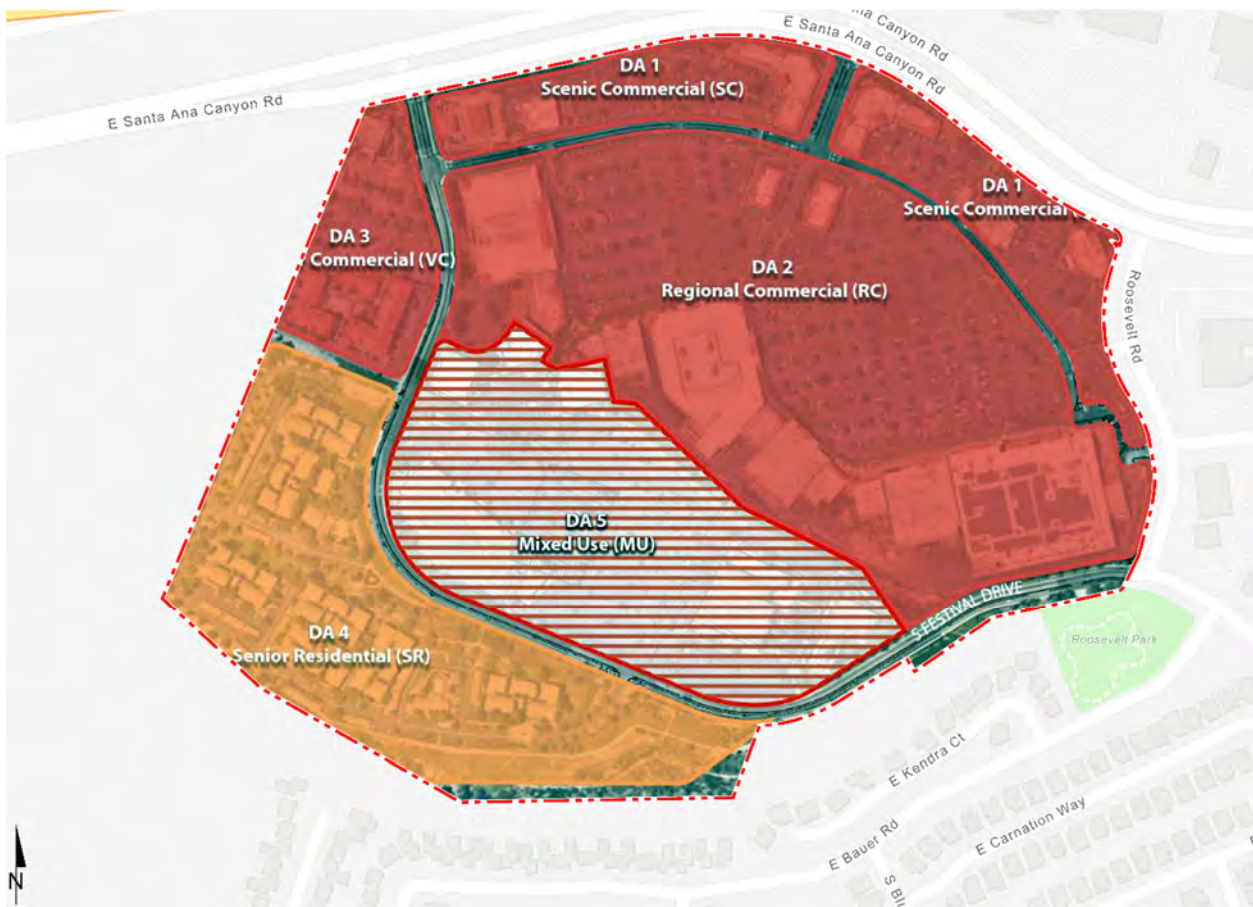
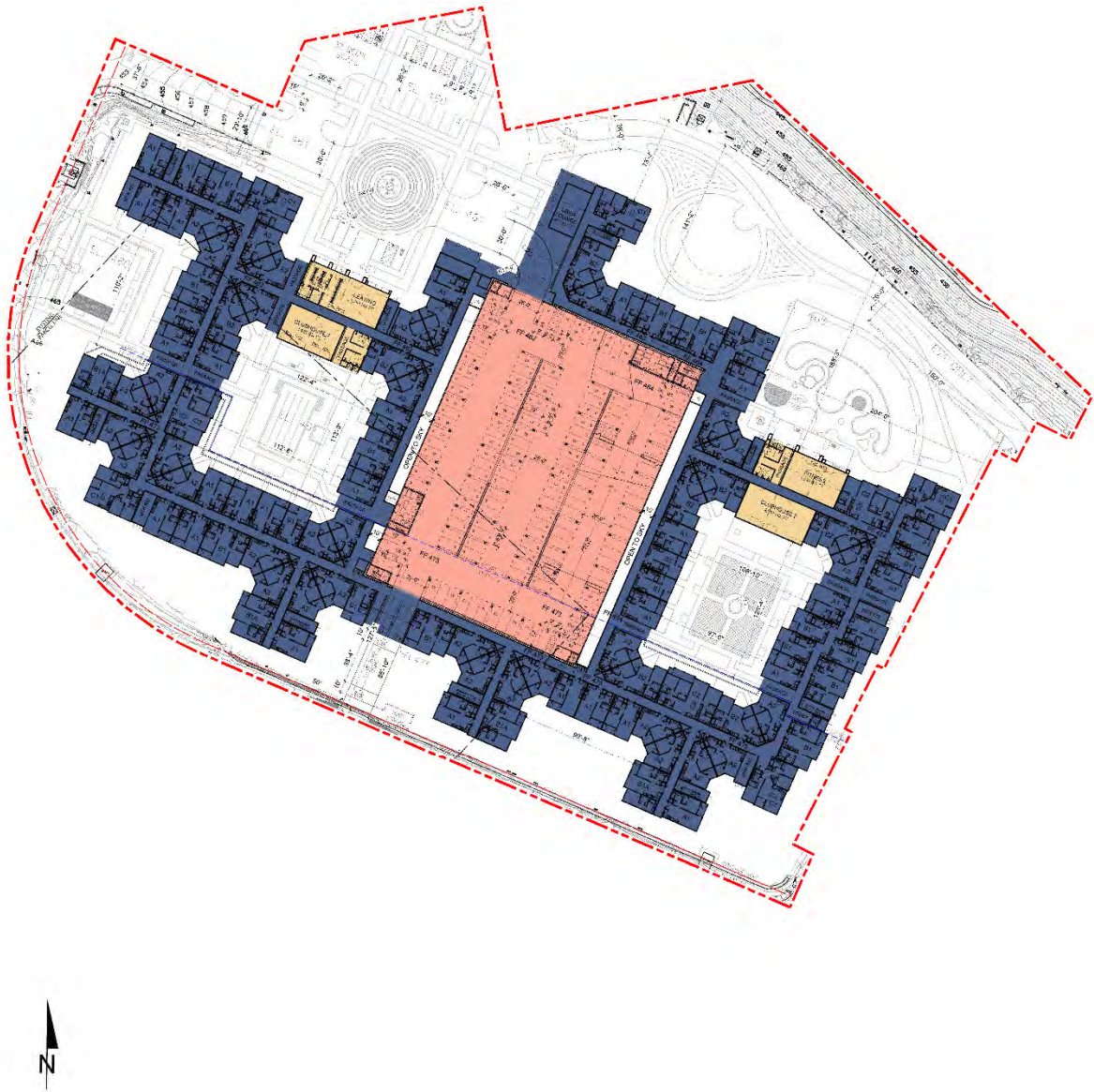


EXHIBIT 1-B: SITE PLAN



This page intentionally left blank

2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 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	SPEECH INTERFERENCE	
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	LOUD		SLEEP DISTURBANCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70			
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60	MODERATE		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50			
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40	FAINT	NO EFFECT	
QUIET SUBURBAN NIGHTTIME	LIBRARY	30			
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20	VERY FAINT		
	BROADCAST/RECORDING STUDIO	10			
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0			

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (4) 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 commonly used figure is the equivalent level (Leq). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the “average” noise levels within the environment.

To describe the time-varying character of environmental noise, the statistical or percentile noise descriptors L_{50} , L_{25} , L_8 and L_2 , are commonly used. The percentile noise descriptors are the noise levels equaled or exceeded during 50 percent, 25 percent, 8 percent, and 2 percent of a stated time. Sound levels associated with the L_2 and L_8 typically describe transient or short-term events, while levels associated with the L_{50} describe the steady state (or median) noise conditions. While the L_{50} describes the median noise levels occurring 50 percent of the time, the Leq accounts for the total energy (average) observed for the entire hour. Therefore, the Leq noise descriptor is generally 1-2 dBA higher than the L_{50} noise level.

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 Leq sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA Leq sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Anaheim 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. (3)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor 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 receptor, 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 receptor 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. (5)

2.3.3 ATMOSPHERIC EFFECTS

Receptors 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. (3)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. 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 resident. 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 FHWA does not consider the planting of vegetation to be a noise abatement measure. (5)

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to 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 receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (5)

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. (6)

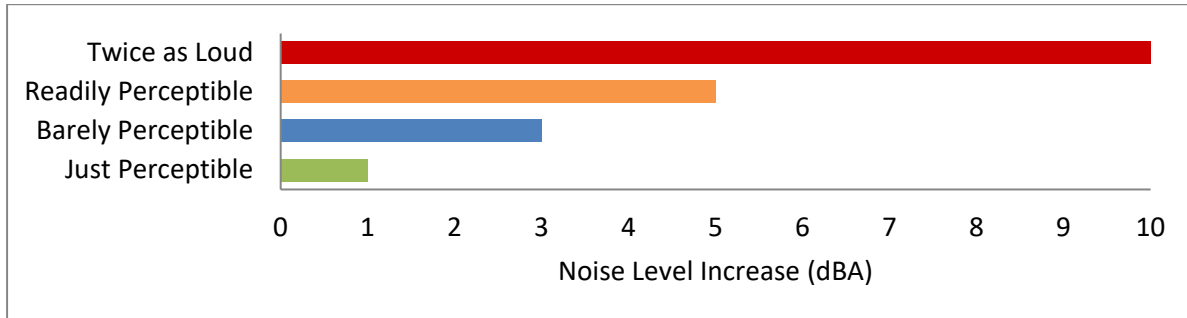
2.7 COMMUNITY RESPONSE TO NOISE

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

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (7) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (7)

Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION

2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual*, 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.

Additionally, in contrast to airborne noise, ground-borne vibration outdoors is not a common environmental problem and annoyance from ground-borne vibration is almost exclusively an indoor phenomenon (2). Therefore, the effects of vibrations should only be evaluated at a structure and the effects of the building structure on the vibration should be considered. Wood-frame buildings, such as typical residential structures, are more easily excited by ground vibration than heavier buildings. In contrast, large masonry buildings with spread footings have a low response to ground vibration (2). In general, the heavier a building is, the lower the response will be to the incident vibration energy. However, all structures reduce vibration levels due to the coupling of the building to the soil.

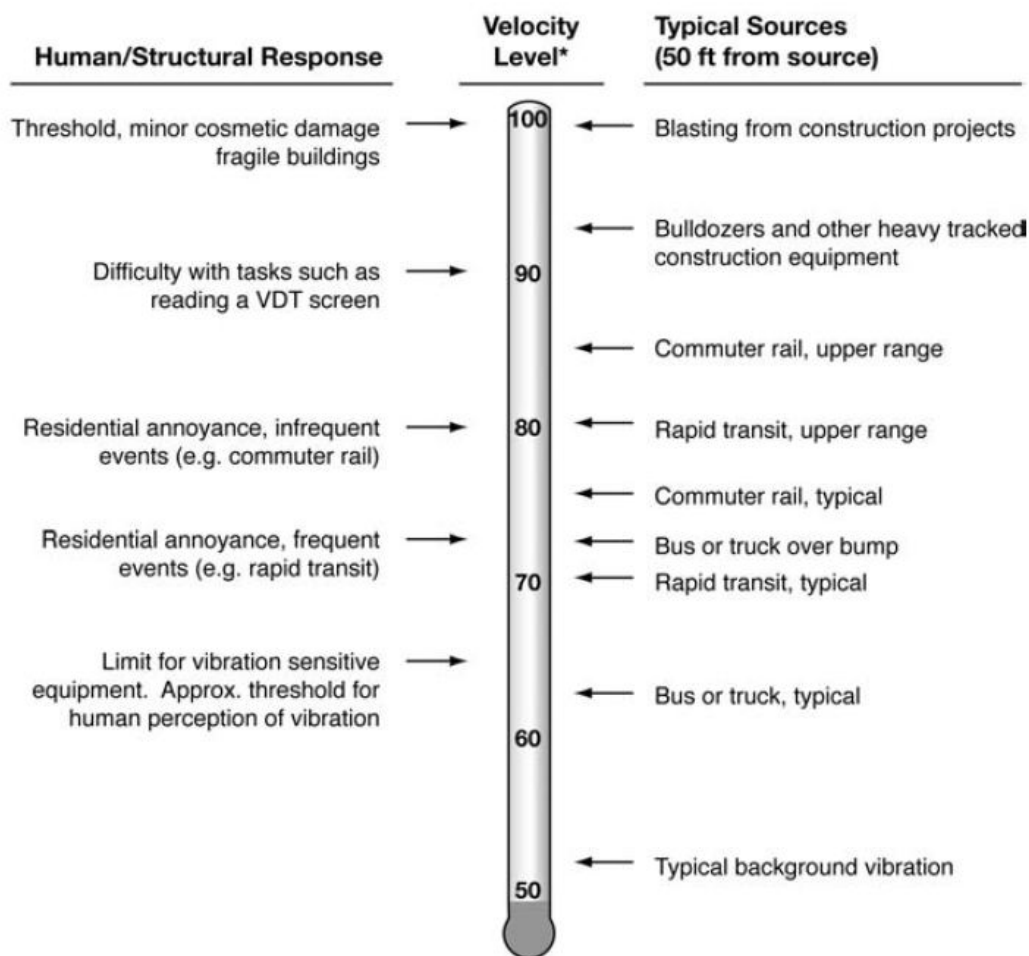
There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal (8). The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human 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 (8). However, the RMS amplitude and PPV are related mathematically, and the RMS amplitude of equipment is typically calculated from the PPV reference level. The RMS amplitude is approximately 70% of the PPV (in/sec) (8). Thus, either can be used on the description of vibration impacts.

While not universally accepted, vibration decibel notation (VdB) is another vibration notation developed and used by the FTA in their guidance manual to describe vibration levels and provide

a background of common vibration levels and set vibration limits (9). Decibel notation (VdB) serves to reduce the range of numbers used to describe vibration levels and is used in this report to describe vibration levels.

As stated in the FTA guidance manual, 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 Impact and Vibration Assessment.

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. (10) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA BUILDING STANDARDS

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 for controlling interior noise levels resulting from exterior noise sources. For new buildings, the acceptable interior noise limit is 45 dBA CNEL in habitable rooms (11).

3.3 CITY OF ANAHEIM NOISE ELEMENT

The City of Anaheim has identified two separate types of noise sources: (1) transportation, and (2) stationary. To control transportation related noise sources such as arterial roads, freeways, airports, and railroads, the City of Anaheim has established guidelines for acceptable community noise levels in the Noise Element of the General Plan. To control stationary source, non-transportation-related noise impacts, the City of Anaheim Noise Ordinance has identified the worst-case noise levels for daytime and nighttime activities in residential areas of the City. (12)

3.3.1 LAND USE COMPATIBILITY

The noise criteria identified in the City of Anaheim Noise Element (Figure N-2) are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria,

shown on Exhibit 3-A, provides the County with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

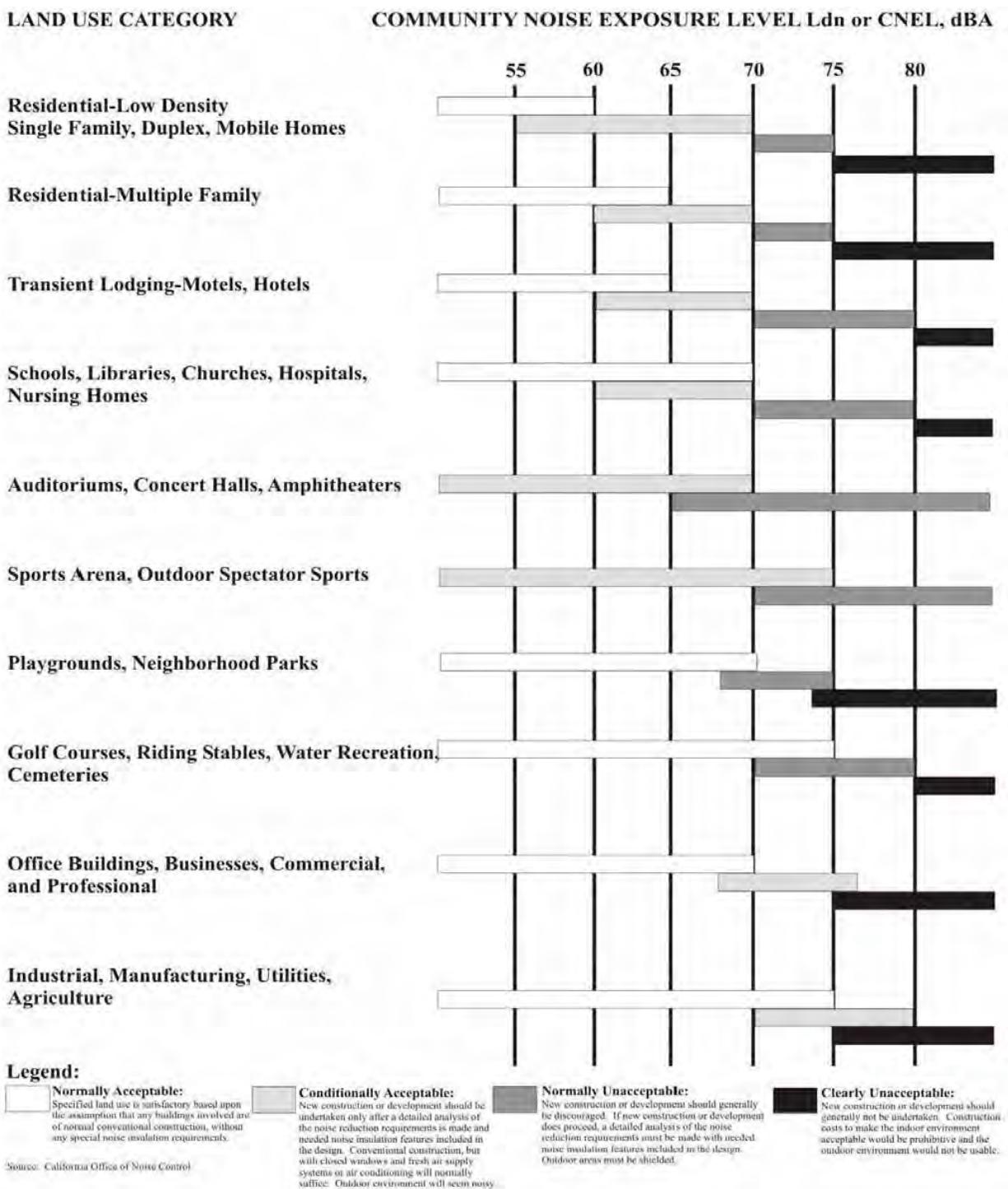
The *Land Use Compatibility for Community Noise Exposure* matrix describes categories of compatibility and not specific noise standards. The multi-family residential land uses of the Project are considered *normally acceptable* with unmitigated exterior noise levels of less than 65 dBA CNEL. For *conditionally acceptable* exterior noise levels, approaching 70 dBA CNEL, *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.*

3.3.2 NOISE STANDARDS

To control transportation-related noise sources such as arterial roads, freeways, airports, and railroads, the City of Anaheim has established the standards provided in Table N-3 of *General Plan Noise Element* for acceptable community noise levels. For noise-sensitive residential uses, the Noise Element requires an exterior noise level not to exceed 65 dBA CNEL in “habitable” exterior areas. Table N-3 limits exterior areas to the outdoor living areas (backyards) of single-family homes and multi-family private balconies (patios) that are accessed from within the building with a depth exceeding six feet. (12) Although the Project site includes balconies that exceed six feet in depth, the City of Anaheim *General Plan Noise Element* contains special considerations creating an exception for infill projects from the requirements of the Table N-3 exterior noise level standards. .

The City of Anaheim *General Plan Noise Element*, Page N-8, indicates that *special consideration should be given in the case of infill residential development located along the City’s arterial corridors or railroad lines in order to achieve an appropriate balance between providing a quality living environment and attractive project design.* (12) As such, the Project represents infill development in the City of Anaheim, and is consistent with other recently approved infill residential developments located west of the Metrolink railroad lines. Therefore, to allow for what the City identifies as *special consideration* regarding exterior noise levels for infill projects, this noise study limits exterior noise analysis for “habitable” areas of frequent human use to outdoor living areas (backyards) of single-family residential homes; and does not consider balconies for multi-family buildings as “habitable” areas of frequent human use.

Additional exterior noise level standards are identified in the City of Anaheim Municipal Code, Section 6.70.010 *Established*, which limits extended periods of sound pressure levels above 60 dBA to be produced at any point on the property and Section 18.40.090 *Sound Attenuation for Residential Developments*, which indicates that *exterior noise within common recreation areas of any single family attached or multiple family dwelling project shall be attenuated to a maximum of sixty-five (65) dB CNEL.* (13) As such, this noise study identifies outdoor common recreation areas (fire pits, sitting areas) for transportation noise analysis.

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

Source: City of Anaheim General Plan Noise Element, Figure N-2.

3.4 OUTDOOR LIVING AREAS FOR EXTERIOR NOISE ANALYSIS

As previously discussed, the Project includes balconies which exceed six feet in depth that are indicated on Table N-3 of the City of Anaheim *General Plan Noise Element* as required to satisfy the 65 dBA CNEL exterior noise level standard. However, since Page N-8 of the *Noise Element* indicates that *special consideration* should be given to *infill residential development* despite the identification of an exterior noise level limit of 65 dBA CNEL, this noise study limits exterior noise analysis for “habitable” areas of frequent human use to outdoor living areas (backyards) of single-family residential homes; and relies on the City’s special consideration to eliminate balconies for multi-family buildings as exterior “habitable” areas of frequent human use. This approach is consistent with guidance found in the County of Orange *General Plan Noise Element* and provided by the U.S. Department of Transportation Federal Highway Administration (FHWA) for exterior noise analysis. (14; 5) In addition, outdoor common recreation areas (fire pits, sitting areas) are included in the analysis based on City of Anaheim Municipal Code, Section 18.40.090 standards for residential use.

3.4.2 COUNTY OF ORANGE GENERAL PLAN NOISE ELEMENT GUIDANCE

The approach used in this noise study is consistent with the County of Orange *General Plan Noise Element* definition of an *outdoor living area*: (14)

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

As indicated by the County of Orange, no specific requirements are identified for multi-family private balconies, and they are not defined as “outdoor living areas.” In addition, local fire department regulations may prohibit the use of balcony or deck enclosures due to concerns with ventilation and emergency egress; even if the enclosure does not extend to the full height of the deck ceiling.

3.4.2 FEDERAL HIGHWAY ADMINISTRATION GUIDANCE

The FHWA *Highway Traffic Noise Analysis and Abatement Policy Guidance*, identifies *exterior areas of frequent human use* as the following:

"Exterior areas of frequent human use" are normally located on the ground level, but may include balconies of multi-story residences. When analyzing areas with multi-family dwelling units (e.g., apartments, condominiums, etc.), the analyst should choose an exterior area, such as a patio, playground, or picnic area between the highway and the actual building, if one exists. If there are no ground level exterior areas, the analyst may choose a balcony/deck location for analysis.

As indicated by the FHWA for traffic noise analysis, the exterior noise levels at ground-level areas of frequent human use (patios, backyards) should be analyzed first, and second-floor decks (balconies) are only considered if there are no first-floor areas that meet the exterior noise analysis criteria. Therefore, based on the definitions of the County of Orange *General Plan Noise Element*, City of Anaheim special considerations for infill projects, and FHWA guidance, this noise study does not consider balconies as outdoor "habitable" areas of frequent human use requiring exterior noise reduction. Further, this noise study does not include an analysis of barriers or enclosures for balconies to satisfy the 65 dBA CNEL exterior noise level standard. An analysis is provided which shows that the 45 dBA CNEL interior noise level standard for residential units will be satisfied with the Project Design Features identified in this report (Section 8).

3.5 OPERATIONAL NOISE STANDARD

To analyze noise impacts originating from a designated fixed location or private property such as the Project, stationary-source (operational) noise such as the expected trash enclosure activity, roof-top air conditioning units, parking lot vehicle movements, and parking garage activities are typically evaluated against standards established under a City's Municipal Code. The City of Anaheim Municipal Code, Section 6.70.010 establishes 60 dBA L_{eq} as the permissible noise level that may be received at nearby land use uses. The City of Anaheim noise ordinance is included in Appendix 3.1.

3.6 CONSTRUCTION NOISE STANDARDS

To control noise impacts associated with the construction of the Project, noise from construction activities are typically limited to the hours of operation established under a City's Municipal Code. The City of Anaheim Municipal Code, Section 6.70.010, states that construction activities are permitted between the hours of 7:00 a.m. to 7:00 p.m. on any day. (15) Neither the City's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise

environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (2)

3.7 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. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity.

To analyze vibration impacts originating from the operation and construction of The Anaheim Festival SPA, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the City of Anaheim does not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (8 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations.

The construction vibration damage potential criteria include consideration of the building conditions. (4 p. 182) Table 3-2 describes the maximum acceptable transient and continuous vibration building damage potential levels by structure type and condition. The existing buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

3.8 AIRPORT LAND USE COMPATIBILITY PLAN

Fullerton Municipal Airport is located approximately 13 miles northwest of the Project and the Corona Municipal Airport is located approximately 8 miles east of the Project site.

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. (16) 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 described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach *recognizes that there is no single noise increase that renders the noise impact significant*. (17) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (18) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

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 (19 p. 9) and Caltrans (20 p. 2_48).

4.2 VIBRATION (THRESHOLD B)

As described in Section 3.6 the vibration impacts originating from the construction of The Anaheim Festival SPA, vibration-generating activities are appropriately evaluated the thresholds of significance outlined in the Caltrans *Transportation and Construction Vibration Guidance Manual*, (8 p. 38). These guidelines identify the maximum acceptable continuous vibration building damage threshold of 0.3 PPV (in/sec) for “older residential structures” which is used in this noise study to assess potential impacts due to Project construction vibration levels.

4.3 CEQA GUIDELINES NOT FURTHER ANALYZED (THRESHOLD C)

CEQA Noise Threshold C applies when there are nearby public and private airports and/or air strips 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 Fullerton Municipal Airport located roughly 12 miles northwest of the Project site and the nearest small airport is the Corona Municipal Airport approximately 8 miles east 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 proposed 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	Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive ¹	if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase	
		if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL Project increase	
On-Site Transportation	Residential ²	Exterior Noise Level Criteria	65 dBA CNEL	
		Interior Noise Level Standard	45 dBA CNEL	
Operation	All	Anytime	60 dBA L _{eq} ³	
Construction	Noise-Sensitive	Permitted hours between 7:00 a.m. to 7:00 p.m. on any day. ³		
		Noise Level Threshold ⁴	80 dBA L _{eq}	n/a
		Vibration Level Threshold ⁶	0.30 in/sec PPV	n/a

¹ FICON, 1992.² City of Anaheim General Plan Noise Element, Table N-3.³ City of Anaheim Municipal Code, Section 6.70.010 (Appendix 3.1).⁴ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018.⁵ California Department of Transportation. Transportation and Construction Vibration Guidance Manual. April 2020.

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

This page intentionally left blank

5 EXISTING NOISE LEVEL MEASUREMENTS

To characterize the existing noise level environment, four 24-hour noise level measurements were taken at sensitive receiver 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 January 11, 2024, 12:00 p.m. through January 12, 2024, 12:00 p.m. 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 makes it possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (21)

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 any 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.* (3) Further, FTA guidance states, *that 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.* (2)

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) L_{eq} at each noise level measurement location for the identified time period. Appendix 5.2 provides a summary of worksheets of the noise levels for each of the daytime and nighttime hours.

Table 5-1 provides the energy average 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 hour as well as the minimum, maximum, L_1 , L_2 , L_5 , L_8 , L_{25} , L_{50} , L_{90} , L_{95} , and L_{99} percentile noise levels observed during the daytime and nighttime periods.

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

Location ¹	Description	Energy Average Noise Level (dBA L _{eq}) ²		CNEL
		Daytime	Nighttime	
L1	Located east of the site near The Rock Community Church at 101 S Chaparral Ct	52.9	47.1	55.2
L2	Located southeast of the site near the residence at 8035 E Kendra Ct	53.2	51.5	44.7
L3	Located south of the site near the Overlook at Anaheim Hill Apartments at 235 S Festival Dr	45.0	41.9	49.2
L4	Located west of the site near the Residence Inn by Marriott at 125 S Festival Dr	58.5	57.6	64.5

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.

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 City of Anaheim General Plan Policies for multi-family residential land use, all transportation related noise levels are presented in terms of the 24-hour CNEL.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (22) 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. (23) 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.

6.1.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the average daily traffic (ADT) volumes used for this study are presented on Table 6-1. Based the City of Anaheim General Plan Circulation Element and *The Anaheim Festival SPA No 6 Traffic Analysis*, State Route 91 (SR-91) is classified as freeway, and Festival Drive is classified as Hillside Secondary Arterial. (1) (24) To predict the future on-site noise environment at the Project site, the maximum two-way traffic volumes at a design capacity Level of Service C, shown on Table 4-1, reflect future long-range traffic conditions needed to assess the future on-site traffic noise environment and to identify the appropriate noise abatement measures that address the worst-case future noise conditions. The vehicle speed is based on the posted speed limit for each roadway. The traffic volumes shown on Table 6-1 reflect future long-range traffic conditions needed to assess the future on-site traffic noise environment and to identify the appropriate noise mitigation measures, if any, that address the worst-case future conditions. Soft site conditions were used to analyze the traffic noise impacts within the Project study area which account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. 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 noise study. (25)

TABLE 6-1: ON SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification ¹	Design Capacity (ADT) ²	Speeds (MPH)	Site Conditions
SR-91	8	Freeway	184,460	65	Soft
Festival Drive	2	Hillside Secondary Arterial	3,000	35	Soft

¹ City of Anaheim General Plan Circulation Element.² Future ADT volumes calculated assuming LOS C design capacity.

Table 6-2 presents the time-of-day vehicle splits by vehicle type, and Table 6-3 presents the total traffic flow distributions (vehicle mixes) used for this analysis. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA Model based on roadway types. To predict the future noise environment at the Proposed building, coordinate information was collected to identify the noise transmission path between the noise source and receiver. The coordinate information is based on the Project site plan showing the plotting of the Project buildings in relationship to SR-91 and Festival Drive as shown in Appendix 6.1.

TABLE 6-2: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

Typical California Vehicle Mix.

"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 6-3: DISTRIBUTION OF FLOW BY VEHICLE TYPE (VEHICLE MIX)

Roadway Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
SR-91	92.85%	2.14%	5.01%	100.00%
All Other Roadways	97.42%	1.84%	0.74%	100.00%

Typical California Vehicle Mix.

6.1.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-4 presents the roadway parameters used to assess the Project's off-site transportation noise impacts for Existing (2024), Existing Plus Approved Plus Ambient Growth Conditions (EAA), Existing Plus Approved Plus Ambient Growth Plus Project Conditions (EAAP) and General Plan Buildout No Project (GPBO NP) and GPBO With Project (GPBO WP) Conditions. Table 6-4 identifies the six study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Anaheim General Plan Circulation Element, and the posted vehicle speeds. For this analysis, soft site conditions are used to analyze the traffic noise impacts within the Project study area. Soft site conditions

account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. 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. (25)

TABLE 6-4: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification ²	Centerline Distance to Receiving Land Use ²	Vehicle Speed (mph)
1	Imperial Highway	n/o SR-91 WB Ramps	Primary Arterial	74'	45
2	Imperial Highway	s/o SR-91 WB Ramps	Major Arterial	74'	45
3	Imperial Highway	s/o SR-91 EB Ramps	Major Arterial	74'	45
4	Imperial Highway	s/o Santa Ana Canyon Rd	Major Arterial	65'	45
5	Santa Ana Canyon Rd	w/o Imperial Highway	Primary Arterial	65'	45
6	Santa Ana Canyon Rd	e/o Imperial Highway	Primary Arterial	65'	45
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Primary Arterial	40'	45
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Primary Arterial	40'	45
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Primary Arterial	40'	45
10	Santa Ana Canyon Rd	e/o Festival Dr	Primary Arterial	65'	45
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Primary Arterial	65'	45
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Scenic Expressway	70'	45
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Scenic Expressway	70'	50
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Scenic Expressway	70'	40
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Scenic Expressway	70'	40
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Scenic Expressway	70'	40
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Scenic Expressway	70'	40
18	Weir Canyon Dr	s/o Monte Vista Rd	Scenic Expressway	70'	40
19	Festival Dr	s/o Santa Ana Canyon Rd	Hillside Secondary Arterial	33'	35
20	Festival Dr	s/o Dwy 1	Hillside Secondary Arterial	33'	35
21	Festival Dr	e/o Dwy 2	Hillside Secondary Arterial	33'	35
22	Festival Dr	w/o Roosevelt Rd	Hillside Secondary Arterial	33'	35
23	Monte Vista Rd	e/o Festival Dr	Hillside Secondary Arterial	40'	35
24	Roosevelt Rd	n/o Festival Dr	Hillside Secondary Arterial	40'	35

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

² City of Anaheim General Plan, Circulation Element.

The Existing average daily traffic volumes used for this study are presented on Table 6-5 and are based on *The Anaheim Festival SPA No. 6 Traffic Analysis* prepared by Urban Crossroads, Inc. (1) Table 6-3 presents the time of day 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 6-5: OFF-SITE AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Existing	EAA	EAAP	GPBO NP	GPBO WP
1	Imperial Highway	n/o SR-91 WB Ramps	48,831	51,456	51,618	54,029	54,191
2	Imperial Highway	s/o SR-91 WB Ramps	41,497	43,773	44,097	45,962	46,286
3	Imperial Highway	s/o SR-91 EB Ramps	37,250	39,333	39,820	41,299	41,786
4	Imperial Highway	s/o Santa Ana Canyon Rd	22,480	23,697	23,697	24,882	24,882
5	Santa Ana Canyon Rd	w/o Imperial Highway	27,145	28,550	28,632	29,978	30,060
6	Santa Ana Canyon Rd	e/o Imperial Highway	34,691	36,715	37,285	38,550	39,120
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	25,057	26,599	27,167	27,929	28,497
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	21,044	22,359	22,927	24,900	25,468
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	23,417	24,724	25,292	28,000	28,568
10	Santa Ana Canyon Rd	e/o Festival Dr	19,180	20,288	20,370	22,600	22,682
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	19,414	20,535	20,617	21,561	21,643
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	22,124	23,592	24,162	25,100	25,670
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	17,927	19,228	19,390	20,189	20,351
14	Weir Canyon Dr	n/o SR-91 WB Ramps	40,010	42,293	42,537	44,408	44,652
15	Weir Canyon Dr	s/o SR-91 WB Ramps	35,997	38,308	38,796	40,223	40,711
16	Weir Canyon Dr	s/o SR-91 EB Ramps	38,443	41,112	41,844	43,168	43,900
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	24,365	25,895	26,219	27,190	27,514
18	Weir Canyon Dr	s/o Monte Vista Rd	28,867	30,465	30,547	31,989	32,071
19	Festival Dr	s/o Santa Ana Canyon Rd	7,273	7,646	8,296	8,500	9,150
20	Festival Dr	s/o Dwy 1	1,869	1,964	2,370	2,063	2,469
21	Festival Dr	e/o Dwy 2	1,869	1,964	2,938	2,063	3,037
22	Festival Dr	w/o Roosevelt Rd	4,380	4,603	5,577	8,500	9,474
23	Monte Vista Rd	e/o Festival Dr	9,157	9,624	10,030	10,105	10,511
24	Roosevelt Rd	n/o Festival Dr	6,570	6,905	7,473	7,250	7,818

Source: Anaheim Festival SPA No. 6 Traffic Analysis, Urban Crossroads, Inc.

7 ON-SITE TRANSPORTATION NOISE IMPACTS

An on-site exterior noise impact analysis has been completed to determine the noise exposure levels that would result from adjacent transportation noise sources in the Project study area, and to identify potential noise abatement measures for the proposed The Anaheim Festival SPA Project that would achieve acceptable Project exterior and interior noise levels. The primary source of transportation noise affecting the Project site is from State Route 91 (SR-91), and Festival Drive.

7.1 ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA and FTA noise prediction methodologies and the parameters outlined in Tables 7-3 thru 7-6, the expected future exterior noise levels at the Project buildings facing SR-91 and Festival Drive were calculated. Table 8-1 presents a summary of future exterior noise levels at the building façade of each floor. The on-site traffic noise level impacts indicate that noise levels at the Project buildings facing SR-91 and Festival Drive will experience unmitigated exterior noise levels ranging from 55.6 to 63.2 dBA CNEL. The on-site transportation noise analysis calculations are provided in Appendix 7.1.

According to the *Land Use Compatibility for Community Noise Exposure* level shown on Exhibit 3-A, this noise analysis shows that the unmitigated exterior noise levels for the Project's multi-family residential land uses are considered *conditionally acceptable* with exterior noise levels ranging from 60 to 70 dBA CNEL. For *conditionally acceptable* noise levels, *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 of air condition will normally suffice.*

7.2 ON-SITE INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the City of Anaheim interior noise level standards, future noise levels were calculated at the first through third-floor building facades.

7.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building facade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." 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 cut outs or openings.

TABLE 7-1: EXTERIOR NOISE LEVELS (DBA CNEL)

Parcel	Source	24-Hr Exterior Noise Levels (dBA CNEL) ²					Land Use Compatibility ⁴
		1st Floor	2nd Floor	3rd Floor	4th Floor	5th Floor	
Northern Façade	SR-91	63.2	63.2	63.2	63.2	63.2	Normally Acceptable
Southern Façade	Festival Drive	58.7	58.4	57.9	56.7	56.7	Normally Acceptable
Western Façade	Festival Drive	55.6	55.5	55.3	54.7	54.7	Normally Acceptable

¹ See Exhibit 7-A for the analysis locations.² Exterior noise calculations are included in Appendix 7.1.⁴ City of Anaheim General Plan Noise Element, Figure N-2 (Exhibit 3-A).

7.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Tables 7-2 to 7-6 show that all the residential units will require a windows-closed condition and a means of mechanical ventilation (e.g., air conditioning). Table 7-2 shows that the future noise levels at the first-floor building façade are estimated to range from 55.7 to 63.2 dBA CNEL with interior noise levels ranging from 30.7 to 38.2 dBA CNEL. The first-floor interior noise level analysis shows that the City of Anaheim 45 dBA CNEL interior noise standards can be satisfied using standard construction for all first-floor units. The on-site transportation interior noise analysis calculations are provided in Appendix 7.1.

TABLE 7-2: FIRST FLOOR INTERIOR TRAFFIC NOISE LEVELS

Receiver Location	Source	Noise Level at Façade ¹	Required Interior Noise Reduction ²	Estimated Interior Noise Reduction ³	Interior Noise Level ⁴	Are Upgraded Windows Required? ⁵
Northern Façade	SR-91	63.2	18.2	25.0	38.2	No
Southern Façade	Festival Drive	58.9	13.9	25.0	33.9	No
Western Façade	Festival Drive	55.7	10.7	25.0	30.7	No

¹ Exterior noise level at the facade.² Noise reduction required to satisfy the 45 dBA CNEL interior noise limits.³ A minimum of 25 dBA noise reduction is assumed with standard building construction.⁴ Estimated interior noise level with minimum STC rating for all windows.⁵ Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?

Table 7-3 shows the future noise levels at the second-floor building façade are estimated to range from 55.6 to 63.2 dBA CNEL with interior noise levels ranging from 30.6 to 38.2 dBA CNEL. The second-floor interior noise level analysis shows that the City of Anaheim 45 dBA CNEL interior noise standards can be satisfied using standard windows for all second-floor units, based on the minimum 25 dBA interior noise reduction for typical construction.

TABLE 7-3: SECOND FLOOR INTERIOR TRAFFIC NOISE LEVELS

Receiver Location	Source	Noise Level at Façade ¹	Required Interior Noise Reduction ²	Estimated Interior Noise Reduction ³	Interior Noise Level ⁴	Are Upgraded Windows Required? ⁵
Northern Façade	SR-91	63.2	18.2	25.0	38.2	No
Southern Façade	Festival Drive	58.7	13.7	25.0	33.7	No
Western Façade	Festival Drive	55.6	10.6	25.0	30.6	No

¹ Exterior noise level at the facade.² Noise reduction required to satisfy the 45 dBA CNEL interior noise limits.³ A minimum of 25 dBA noise reduction is assumed with standard building construction.⁴ Estimated interior noise level with minimum STC rating for all windows.⁵ Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?

Table 7-4 shows the future noise levels at the third-floor building façade are estimated to range from 55.5 to 63.2 dBA CNEL with interior noise levels ranging from 30.5 to 38.2 dBA CNEL. The third-floor interior noise level analysis shows that the City of Anaheim 45 dBA CNEL interior noise standards can be satisfied using standard windows for all third-floor units, based on the minimum 25 dBA interior noise reduction for typical construction.

TABLE 7-4: THIRD FLOOR INTERIOR TRAFFIC NOISE LEVELS

Receiver Location	Source	Noise Level at Façade ¹	Required Interior Noise Reduction ²	Estimated Interior Noise Reduction ³	Interior Noise Level ⁴	Are Upgraded Windows Required? ⁵
Northern Façade	SR-91	63.2	18.2	25.0	38.2	No
Southern Façade	Festival Drive	58.4	13.4	25.0	33.4	No
Western Façade	Festival Drive	55.5	10.5	25.0	30.5	No

¹ Exterior noise level at the facade.² Noise reduction required to satisfy the 45 dBA CNEL interior noise limits.³ A minimum of 25 dBA noise reduction is assumed with standard building construction.⁴ Estimated interior noise level with minimum STC rating for all windows.⁵ Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?

Table 7-5 shows the future noise levels at the fourth-floor building façade are estimated to range from 55.3 to 63.2 dBA CNEL with interior noise levels ranging from 30.3 to 38.2 dBA CNEL. The fourth-floor interior noise level analysis shows that the City of Anaheim 45 dBA CNEL interior noise standards can be satisfied using standard windows for all fourth-floor units, based on the minimum 25 dBA interior noise reduction for typical construction.

TABLE 7-5: FOURTH FLOOR INTERIOR TRAFFIC NOISE LEVELS

Receiver Location	Source	Noise Level at Façade ¹	Required Interior Noise Reduction ²	Estimated Interior Noise Reduction ³	Interior Noise Level ⁴	Are Upgraded Windows Required? ⁵
Northern Façade	SR-91	63.2	18.2	25.0	38.2	No
Southern Façade	Festival Drive	57.9	12.9	25.0	32.9	No
Western Façade	Festival Drive	55.3	10.3	25.0	30.3	No

¹ Exterior noise level at the facade.² Noise reduction required to satisfy the 45 dBA CNEL interior noise limits.³ A minimum of 25 dBA noise reduction is assumed with standard building construction.⁴ Estimated interior noise level with minimum STC rating for all windows.⁵ Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?

Table 7-6 shows the future noise levels at the fifth-floor building façade are estimated to range from 54.7 to 63.2 dBA CNEL with interior noise levels ranging from 29.7 to 38.2 dBA CNEL. The fifth-floor interior noise level analysis shows that the City of Anaheim 45 dBA CNEL interior noise standards can be satisfied using standard windows for all fifth-floor units, based on the minimum 25 dBA interior noise reduction for typical construction.

TABLE 7-6: FIFTH FLOOR INTERIOR TRAFFIC NOISE LEVELS

Receiver Location	Source	Noise Level at Façade ¹	Required Interior Noise Reduction ²	Estimated Interior Noise Reduction ³	Interior Noise Level ⁴	Are Upgraded Windows Required? ⁵
Northern Façade	SR-91	63.2	18.2	25.0	38.2	No
Southern Façade	Festival Drive	56.7	11.7	25.0	31.7	No
Western Façade	Festival Drive	54.7	9.7	25.0	29.7	No

¹ Exterior noise level at the facade.² Noise reduction required to satisfy the 45 dBA CNEL interior noise limits.³ A minimum of 25 dBA noise reduction is assumed with standard building construction.⁴ Estimated interior noise level with minimum STC rating for all windows.⁵ Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?

8 OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site traffic CNEL noise level impacts associated with development of the proposed Project, noise level contours were developed based on *The Anaheim Festival SPA No 6 Traffic Impact Analysis*. (1) Noise level contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise level contours were developed for the following traffic scenarios:

- Existing: This scenario refers to existing traffic conditions within the study area.
- Existing Plus Approved Plus Ambient Growth Conditions (EAA): This scenario refers to cumulative existing traffic conditions plus all developments within the study area which have not yet been constructed but has been approved through a discretionary action or building permit issuance.
- Existing Plus Approved Plus Ambient Growth Plus Project Conditions (EAAP): This scenario refers to cumulative existing traffic conditions plus all developments within the study area which have not yet been constructed but has been approved through a discretionary action or building permit issuance plus project traffic increases.
- General Plan Buildout No Project Conditions (GBPO NP): Buildout of all developments anticipated in the City's General Plan or implied by the City's Zoning Ordinance.
- General Plan Buildout With Project Conditions (GBPO WP): Buildout of all developments anticipated in the City's General Plan or implied by the City's Zoning Ordinance plus project traffic increases.

8.1 TRAFFIC NOISE LEVEL CONTOURS

To quantify the Project's traffic noise impacts on the surrounding areas, the changes in traffic noise levels on roadway segments surrounding the Project were calculated based on the changes in the average daily traffic volumes. Based on the noise impact significance criteria described in Section 4 and shown on Table 4-1, a significant off-site traffic noise level impact occurs when the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):

1. are less than 60 dBA and the Project creates a *readily perceptible* 5 dBA or greater Project-related noise level increase; or
2. range from 60 to 65 dBA and the Project creates a *barely perceptible* 3 dBA or greater Project-related noise level increase; or
3. already exceed 65 dBA, and the Project creates a community noise level impact of greater than 1.5 dBA (FICON, 1992).

The noise-sensitive significance criteria are applied to the Project-related off-site traffic noise level increases based on the land uses adjacent to the study area roadway segments. Noise level contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise level contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 65, 60, and 55 dBA noise levels. The noise level contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise level contours reflect modeling of vehicular noise on area roadways, they appropriately do

not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 8-1 through 8-6 present a summary of the exterior traffic noise levels, without barrier attenuation, for the sixteen study area roadway segments analyzed from the without Project to the with Project under EAAP, OY 2026, and GPBO conditions. Appendix 8.1 includes a summary of the traffic noise level contours for each of the four traffic scenarios.

8.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVELS

Table 8-1 presents the Existing without Project conditions CNEL noise levels. From this we can see that the exterior noise levels are expected to range from 59.3 to 72.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-3 shows the EAAP with Project conditions will range from 60.3 to 73.0 dBA CNEL. As shown on Table 8-6 shows that the EAAP with Project will generate a noise level increase of up to 1.9 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under EAAP conditions at the land uses adjacent to roadways conveying Project traffic.

8.3 EAA CONDITION PROJECT TRAFFIC NOISE LEVELS

Table 8-2 presents the EAA without Project conditions CNEL noise levels. From this we can see that the exterior noise levels are expected to range from 59.5 to 72.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-3 shows the EAAP conditions will range from 60.3 to 73.0 dBA CNEL. As shown on Table 8-7 shows that the EAAP will generate a noise level increase of up to 1.7 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under EAAP conditions at the land uses adjacent to roadways conveying Project traffic.

8.4 GPBO TRAFFIC NOISE LEVEL INCREASES

Table 8-4 presents the GPBO NP conditions CNEL noise levels. The GPBO without Project exterior noise levels are expected to range from 59.7 to 73.1 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 8-5 shows the GPBO WP conditions will range from 60.5 to 73.2 dBA CNEL. Table 8-8 shows that the GPBO Project off-site traffic noise level increases of up to 1.7 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 4.2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level increases due to unmitigated GPBO Project-related traffic noise levels.

TABLE 8-1: EXISTING CONDITIONS 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	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.1	101	218	471
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.3	91	196	422
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	70.9	85	182	393
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.2	RW	124	267
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.0	65	140	302
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.0	76	164	354
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	72.6	60	128	277
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	71.8	53	114	246
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	72.3	57	123	265
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	68.5	RW	111	240
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	68.6	RW	112	242
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	68.6	RW	121	262
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	68.9	RW	128	276
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	69.9	RW	148	319
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	69.4	RW	138	298
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	69.7	RW	144	311
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	67.7	RW	107	229
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.5	RW	119	257
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	65.2	RW	34	73
20	Festival Dr	s/o Dwy 1	Residential	59.3	RW	RW	RW
21	Festival Dr	e/o Dwy 2	Residential	59.3	RW	RW	RW
22	Festival Dr	w/o Roosevelt Rd	Residential	63.0	RW	RW	52
23	Monte Vista Rd	e/o Festival Dr	Residential	65.5	RW	43	94
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.1	RW	RW	75

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 8-2: EAA CONDITIONS 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	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.3	105	226	487
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.6	94	203	438
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	71.1	88	189	407
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.4	RW	128	276
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.2	67	145	313
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.3	79	171	368
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	72.9	62	134	288
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	72.1	55	119	257
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	72.5	59	127	274
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	68.8	RW	116	249
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	68.8	RW	117	251
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	68.9	RW	127	273
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	69.3	RW	134	290
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	70.1	71	154	331
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	69.7	RW	144	310
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	70.0	70	151	325
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	68.0	RW	111	239
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.7	RW	124	266
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	65.4	RW	35	75
20	Festival Dr	s/o Dwy 1	Residential	59.5	RW	RW	RW
21	Festival Dr	e/o Dwy 2	Residential	59.5	RW	RW	RW
22	Festival Dr	w/o Roosevelt Rd	Residential	63.2	RW	RW	54
23	Monte Vista Rd	e/o Festival Dr	Residential	65.8	RW	45	97
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.3	RW	RW	78

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 8-3: EAAP CONDITIONS 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	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.3	105	227	488
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.6	95	204	440
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	71.2	89	191	411
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.4	RW	128	276
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.2	68	145	313
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.4	80	173	372
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	73.0	63	136	292
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	72.2	56	121	261
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	72.6	60	129	278
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	68.8	RW	116	250
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	68.8	RW	117	252
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	69.0	RW	129	277
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	69.3	RW	135	291
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	70.2	72	154	333
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	69.8	RW	145	313
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	70.1	71	153	329
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	68.1	RW	112	241
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.7	RW	124	267
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	65.7	RW	37	79
20	Festival Dr	s/o Dwy 1	Residential	60.3	RW	RW	34
21	Festival Dr	e/o Dwy 2	Residential	61.2	RW	RW	40
22	Festival Dr	w/o Roosevelt Rd	Residential	64.0	RW	RW	61
23	Monte Vista Rd	e/o Festival Dr	Residential	65.9	RW	46	99
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.7	RW	RW	82

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 8-4: GPBO NO PROJECT CONDITIONS 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	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.5	108	234	503
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.8	97	210	452
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	71.3	91	195	421
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.6	RW	132	285
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.4	70	150	323
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.5	82	176	380
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	73.1	64	138	298
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	72.6	59	128	276
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	73.1	64	138	298
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	69.2	RW	124	268
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	69.0	RW	120	259
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	69.1	RW	132	284
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	69.5	RW	139	299
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	70.3	74	159	342
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	69.9	RW	149	321
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	70.2	72	156	336
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	68.2	RW	115	247
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.9	RW	128	275
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	65.8	RW	37	81
20	Festival Dr	s/o Dwy 1	Residential	59.7	RW	RW	RW
21	Festival Dr	e/o Dwy 2	Residential	59.7	RW	RW	RW
22	Festival Dr	w/o Roosevelt Rd	Residential	65.8	RW	37	81
23	Monte Vista Rd	e/o Festival Dr	Residential	66.0	RW	46	100
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.5	RW	RW	80

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 8-5: GPBO WITH PROJECT CONDITIONS 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	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.5	109	234	504
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.8	98	211	454
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	71.4	91	197	424
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.6	RW	132	285
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.5	70	150	324
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.6	83	178	384
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	73.2	65	140	302
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	72.7	60	130	280
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	73.2	65	140	302
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	69.2	RW	125	268
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	69.0	RW	121	260
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	69.2	RW	134	289
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	69.5	RW	140	301
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	70.4	74	160	344
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	70.0	70	150	323
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	70.3	73	158	340
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	68.3	RW	115	249
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.9	RW	128	276
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	66.2	RW	39	85
20	Festival Dr	s/o Dwy 1	Residential	60.5	RW	RW	35
21	Festival Dr	e/o Dwy 2	Residential	61.4	RW	RW	41
22	Festival Dr	w/o Roosevelt Rd	Residential	66.3	RW	40	87
23	Monte Vista Rd	e/o Festival Dr	Residential	66.1	RW	48	103
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.9	RW	RW	84

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.

8.5 CUMULATIVE TRAFFIC NOISE LEVEL INCREASES

Table 8-9 shows that the Project off-site contribution to cumulative traffic noise level increases range from less than 0.1 to 1.7 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Section 4.2, land uses adjacent to the study area roadway segments would not experience substantial noise level increases due to Project-related traffic noise level increases and would be considered a *less than significant impact*.

TABLE 8-6: EXISTING OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

ID	Road	Segment	Receiving Land Use ¹	CNEL at Receiving Land Use (dBA) ²			Noise-Sensitive Land Use?	Incremental Noise Level Increase Threshold ³	
				Existing	EAAP	Project Addition		Limit	Exceeded?
1	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.1	72.3	0.2	Yes	1.5	No
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.3	71.6	0.3	Yes	1.5	No
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	70.9	71.2	0.3	Yes	1.5	No
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.2	69.4	0.2	Yes	1.5	No
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.0	70.2	0.2	Yes	1.5	No
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.0	71.4	0.4	Yes	1.5	No
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	72.6	73.0	0.4	Yes	1.5	No
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	71.8	72.2	0.4	Yes	1.5	No
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	72.3	72.6	0.3	Yes	1.5	No
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	68.5	68.8	0.3	Yes	1.5	No
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	68.6	68.8	0.2	Yes	1.5	No
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	68.6	69.0	0.4	Yes	1.5	No
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	68.9	69.3	0.4	Yes	1.5	No
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	69.9	70.2	0.3	Yes	1.5	No
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	69.4	69.8	0.4	Yes	1.5	No
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	69.7	70.1	0.4	Yes	1.5	No
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	67.7	68.1	0.4	Yes	1.5	No
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.5	68.7	0.2	Yes	1.5	No
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	65.2	65.7	0.5	Yes	1.5	No
20	Festival Dr	s/o Dwy 1	Residential	59.3	60.3	1.0	Yes	5.0	No
21	Festival Dr	e/o Dwy 2	Residential	59.3	61.2	1.9	Yes	5.0	No
22	Festival Dr	w/o Roosevelt Rd	Residential	63.0	64.0	1.0	Yes	3.0	No
23	Monte Vista Rd	e/o Festival Dr	Residential	65.5	65.9	0.4	Yes	1.5	No
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.1	64.7	0.6	Yes	3.0	No

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

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

³ Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 8-7: EAA OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

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	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.3	72.3	0.0	Yes	1.5	No
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.6	71.6	0.0	Yes	1.5	No
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	71.1	71.2	0.1	Yes	1.5	No
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.4	69.4	0.0	Yes	1.5	No
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.2	70.2	0.0	Yes	1.5	No
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.3	71.4	0.1	Yes	1.5	No
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	72.9	73.0	0.1	Yes	1.5	No
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	72.1	72.2	0.1	Yes	1.5	No
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	72.5	72.6	0.1	Yes	1.5	No
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	68.8	68.8	0.0	Yes	1.5	No
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	68.8	68.8	0.0	Yes	1.5	No
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	68.9	69.0	0.1	Yes	1.5	No
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	69.3	69.3	0.0	Yes	1.5	No
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	70.1	70.2	0.1	Yes	1.5	No
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	69.7	69.8	0.1	Yes	1.5	No
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	70.0	70.1	0.1	Yes	1.5	No
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	68.0	68.1	0.1	Yes	1.5	No
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.7	68.7	0.0	Yes	1.5	No
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	65.4	65.7	0.3	Yes	1.5	No
20	Festival Dr	s/o Dwy 1	Residential	59.5	60.3	0.8	Yes	5.0	No
21	Festival Dr	e/o Dwy 2	Residential	59.5	61.2	1.7	Yes	5.0	No
22	Festival Dr	w/o Roosevelt Rd	Residential	63.2	64.0	0.8	Yes	3.0	No
23	Monte Vista Rd	e/o Festival Dr	Residential	65.8	65.9	0.1	Yes	1.5	No
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.3	64.7	0.4	Yes	3.0	No

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

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

³ Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 8-8: GPBO OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

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	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.5	72.5	0.0	Yes	1.5	No
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.8	71.8	0.0	Yes	1.5	No
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	71.3	71.4	0.1	Yes	1.5	No
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.6	69.6	0.0	Yes	1.5	No
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.4	70.5	0.1	Yes	1.5	No
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.5	71.6	0.1	Yes	1.5	No
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	73.1	73.2	0.1	Yes	1.5	No
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	72.6	72.7	0.1	Yes	1.5	No
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	73.1	73.2	0.1	Yes	1.5	No
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	69.2	69.2	0.0	Yes	1.5	No
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	69.0	69.0	0.0	Yes	1.5	No
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	69.1	69.2	0.1	Yes	1.5	No
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	69.5	69.5	0.0	Yes	1.5	No
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	70.3	70.4	0.1	Yes	1.5	No
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	69.9	70.0	0.1	Yes	1.5	No
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	70.2	70.3	0.1	Yes	1.5	No
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	68.2	68.3	0.1	Yes	1.5	No
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.9	68.9	0.0	Yes	1.5	No
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	65.8	66.2	0.4	Yes	1.5	No
20	Festival Dr	s/o Dwy 1	Residential	59.7	60.5	0.8	Yes	5.0	No
21	Festival Dr	e/o Dwy 2	Residential	59.7	61.4	1.7	Yes	5.0	No
22	Festival Dr	w/o Roosevelt Rd	Residential	65.8	66.3	0.5	Yes	1.5	No
23	Monte Vista Rd	e/o Festival Dr	Residential	66.0	66.1	0.1	Yes	1.5	No
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.5	64.9	0.4	Yes	3.0	No

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

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

³ Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 8-9: CUMULATIVE PROJECT TRAFFIC NOISE 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	
				Existing	GPBO No Project	GPBO with Project	Cumulative Increase	Project Contribution		Limit	Exceeded?
1	Imperial Highway	n/o SR-91 WB Ramps	Commercial	72.1	72.5	72.5	0.4	0.0	No	3.0	No
2	Imperial Highway	s/o SR-91 WB Ramps	Roadway	71.3	71.8	71.8	0.5	0.0	No	3.0	No
3	Imperial Highway	s/o SR-91 EB Ramps	Roadway	70.9	71.3	71.4	0.5	0.1	No	3.0	No
4	Imperial Highway	s/o Santa Ana Canyon Rd	Residential	69.2	69.6	69.6	0.4	0.0	Yes	1.5	No
5	Santa Ana Canyon Rd	w/o Imperial Highway	Residential	70.0	70.4	70.5	0.5	0.1	Yes	1.5	No
6	Santa Ana Canyon Rd	e/o Imperial Highway	Residential	71.0	71.5	71.6	0.6	0.1	Yes	1.5	No
7	Santa Ana Canyon Rd	e/o Anaheim Hills Rd	Residential	72.6	73.1	73.2	0.6	0.1	Yes	1.5	No
8	Santa Ana Canyon Rd	e/o Fairmont Blvd	Residential	71.8	72.6	72.7	0.9	0.1	Yes	1.5	No
9	Santa Ana Canyon Rd	e/o Deer Canyon Rd	Residential	72.3	73.1	73.2	0.9	0.1	Yes	1.5	No
10	Santa Ana Canyon Rd	e/o Festival Dr	Open Space	68.5	69.2	69.2	0.7	0.0	No	n/a	No
11	Santa Ana Canyon Rd	e/o Festival Center Dwy	Commercial	68.6	69.0	69.0	0.4	0.0	No	n/a	No
12	Santa Ana Canyon Rd	e/o Roosevelt Rd	Commercial	68.6	69.1	69.2	0.6	0.1	No	n/a	No
13	Santa Ana Canyon Rd	e/o Weir Canyon Rd	Commercial	68.9	69.5	69.5	0.6	0.0	No	n/a	No
14	Weir Canyon Dr	n/o SR-91 WB Ramps	Commercial	69.9	70.3	70.4	0.5	0.1	No	n/a	No
15	Weir Canyon Dr	s/o SR-91 WB Ramps	Roadway	69.4	69.9	70.0	0.6	0.1	No	n/a	No
16	Weir Canyon Dr	s/o SR-91 EB Ramps	Roadway	69.7	70.2	70.3	0.6	0.1	No	n/a	No
17	Weir Canyon Dr	s/o Santa Ana Canyon Rd	Commercial	67.7	68.2	68.3	0.6	0.1	No	n/a	No
18	Weir Canyon Dr	s/o Monte Vista Rd	Residential	68.5	68.9	68.9	0.4	0.0	Yes	1.5	No
19	Festival Dr	s/o Santa Ana Canyon Rd	Residential	65.2	65.8	66.2	1.0	0.4	Yes	1.5	No
20	Festival Dr	s/o Dwy 1	Residential	59.3	59.7	60.5	1.2	0.8	Yes	5.0	No
21	Festival Dr	e/o Dwy 2	Residential	59.3	59.7	61.4	2.1	1.7	Yes	5.0	No
22	Festival Dr	w/o Roosevelt Rd	Residential	63.0	65.8	66.3	3.3	0.5	Yes	3.0	No
23	Monte Vista Rd	e/o Festival Dr	Residential	65.5	66.0	66.1	0.6	0.1	Yes	1.5	No
24	Roosevelt Rd	n/o Festival Dr	Commercial	64.1	64.5	64.9	0.8	0.4	No	n/a	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 4-1)?

This page intentionally left blank

9 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 9-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, outpatient 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, five 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 Rock Community Church at 101 S Chaparral Court, approximately 1,147 feet east of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the 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 residence at 8035 E Kendra Court, approximately 447 feet southeast of the Project site. Receiver R2 is placed at the private outdoor living areas (backyards) facing the Project site. 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 receiver at the Overlook at Anaheim Hill Apartments at 235 S Festival Drive, Unit 111, approximately 120 feet south of the Project site. Since the private outdoor living areas (patios) facing the Project site are recessed within the buildings, receiver R3 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.
- R4: Location R4 represents the existing noise sensitive residence located at 145 Festival Drive, approximately 99 feet west of the Project site. Since the private outdoor living areas (patios) facing the Project site are recessed within the buildings, receiver R4 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

R5: Location R5 represents the existing Residence Inn by Marriott at 125 S Festival Dr, approximately 114 feet west of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R5 is placed at the building façade. A 24-hour noise measurement was taken near this location, L4, to describe the existing ambient noise environment.

EXHIBIT 9-A: RECEIVER LOCATIONS



10 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source (i.e., on-site) operational noise impacts at the nearest receiver locations, identified in Section 9, resulting from the operation of the proposed The Anaheim Festival SPA Project.

10.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. The proposed residential development is not expected to include any specific type of operational noise levels beyond the typical noise sources associated with residential land uses in the Project study area. However, to present a conservative approach, on-site Project-only operational noise sources are analyzed in this noise study and are expected to include: trash enclosure activity, roof-top air conditioners, and parking lot activity.

TRASH ENCLOSURE ACTIVITIES

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins, at the at the Old Town West Parking structure in the City of Orange. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 72.7 dBA L_{max} and 57.4 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for each of the Project buildings. Typical trash enclosure activities are estimated to occur for 10 minutes per hour.

ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise levels were taken from equipment specifications for a 2- to 5-ton residential packaged air conditioning unit (Lennox 16ACX). Manufacturers' specifications are included in appendix 10.1. The roof-top air conditioning units were modeled as 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. For this noise analysis, the air conditioning units are expected to be located on the roof of the proposed buildings. The roof-top air conditioning units are anticipated to be located 3 feet above the roof, approximately 47 feet above ground elevation. At a uniform reference distance of 50 feet, the units would generate a reference noise level of 46.4 dBA L_{eq} .

PARKING LOT ACTIVITIES

Parking activities are based on the area of the parking spaces. The Project includes approximately 45 new surface spaces, which are assumed to have up to 4 movements per hour for a total of 180

events in an hour. The parking structure would also have approximately 76 roof tops surface parking spaces, which are assumed to have up to 4 movements per hour for a total of 304 events in an hour. Based on parking lot noise 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 L_w /square meter per event (26) (27). At a uniform reference distance of 50 feet, each parking event would generate a reference noise level of 31.4 dBA L_{eq} .

To describe the noise levels associated with the parking garage activities, Urban Crossroads collected a reference noise level measurement at the Old Town West Parking structure in the City of Orange. At a uniform 50-foot reference distance, the reference noise level measured 59.7 dBA L_{eq} . The parking garage activities describe vehicles navigating the parking garage, vehicles parking with drivers and passengers entering and exiting the vehicle. The parking garage activities are expected to occur 24 hours per day.

10.2 REFERENCE NOISE LEVELS

To estimate the operational noise impacts, reference noise level measurements were collected from similar equipment or types of activities to represent the noise levels expected with the development of the proposed Project. 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 reference project operational noise levels are based on the Project related noise sources shown in Exhibit 10-A. The reference Project operational sound power levels are summarized in Table 10-1.

TABLE 10-1: REFERENCE NOISE LEVELS

Noise Source	Noise Source Height (Feet)	Source Type	Min./Hour ⁴		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA) ⁵
			Day	Night		
Trash Enclosure Activity ¹	8'	Point	10	10	57.3	88.9
Roof-top Air Conditioner ²	47'	Point	45	30	46.4	78.0
Parking Lot Activities ³	0'	Area	60	60	31.4	63.0
Parking Garage Activities ¹	0'	Area	60	60	59.7	91.3

¹ As measured by Urban Crossroads, Inc.

² Lennox 16ACX, see Appendix 10.1.

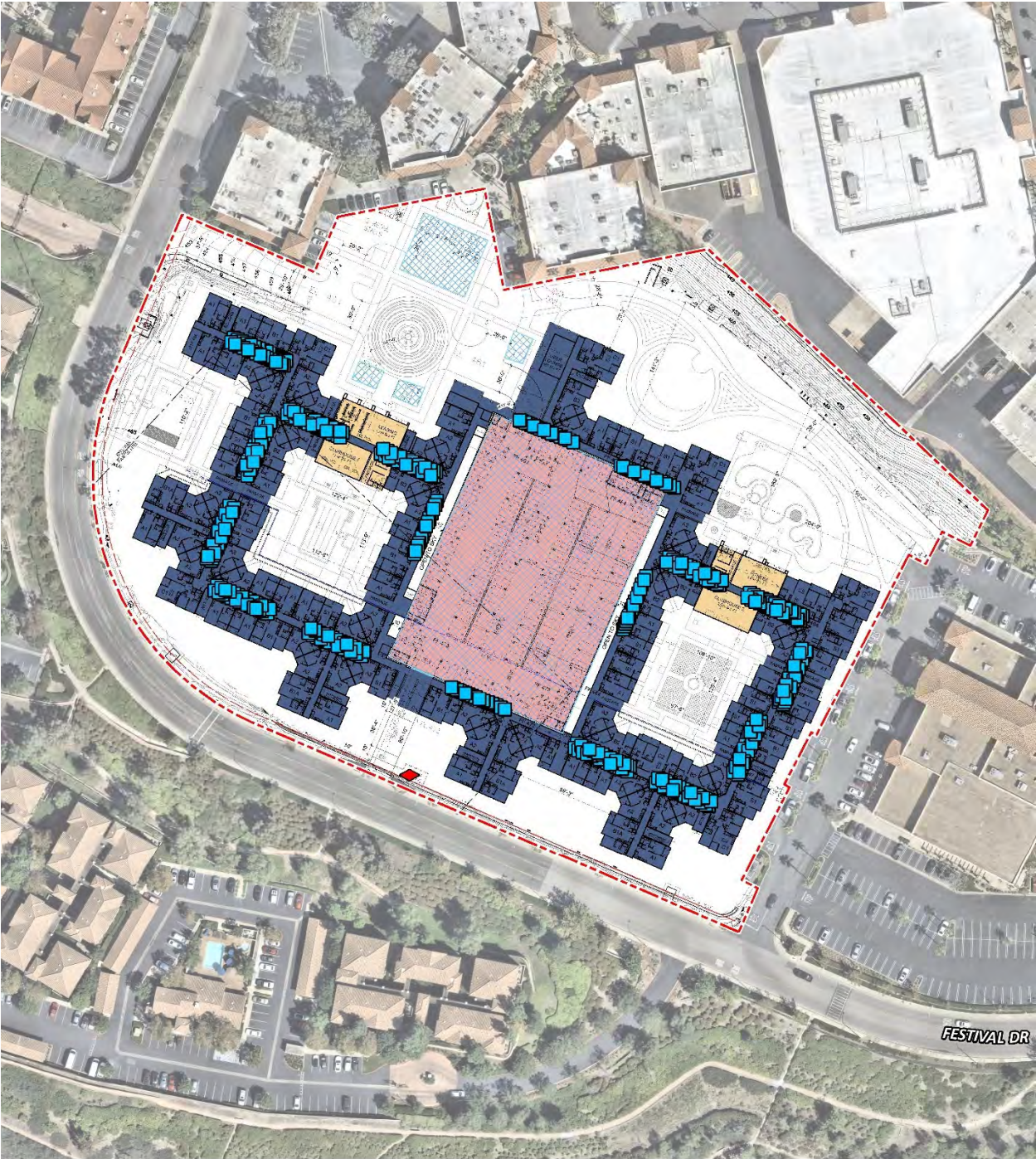
³ Parking lot movements based on movements per space.

⁴ Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site.

"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.

⁵ Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

EXHIBIT 10-A: OPERATIONAL NOISE SOURCE LOCATIONS



LEGEND:

Site Boundary

Roof-Top Air Conditioning Unit

Parking Lot Vehicle Movements

Trash Enclosure Activity

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 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (L_w) to describe individual noise sources. While sound pressure levels (e.g., L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (L_w) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish 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. Appendix 10.2 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

10.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include trash enclosure activity, air conditioning, a loading dock, and parking lot activity, Urban Crossroads, Inc. calculated the unmitigated operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Table 10-2 shows the Project operational daytime noise levels. The hourly noise levels at the off-site receiver locations are expected to range from 33.9 to 43.5 dBA L_{eq} . Appendix 10.2 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

TABLE 10-2: PROJECT DAYTIME OPERATIONAL NOISE LEVELS

Noise Source ¹	Operational Noise Levels by Receiver Location (dBA L _{eq})				
	R1	R2	R3	R4	R5
Trash Enclosure Activity	0.0	22.2	33.5	3.6	1.4
Roof-top Air Conditioner	33.6	39.7	43.0	43.0	41.7
Parking Lot Activities	9.2	12.9	14.8	17.6	22.6
Parking Garage Activities	21.4	24.3	23.6	22.7	21.4
Total (All Noise Sources)	33.9	39.9	43.5	43.1	41.8

Table 10-3 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 31.4 to 41.1 dBA L_{eq}. The differences between the daytime and nighttime noise levels is largely related to the duration of noise activity (Table 10-1). Appendix 10.1 includes the detailed noise model inputs including the existing perimeter walls used to estimate the Project operational noise levels presented in this section.

TABLE 10-3: PROJECT NIGHTTIME OPERATIONAL NOISE LEVELS

Noise Source ¹	Operational Noise Levels by Receiver Location (dBA L _{eq})				
	R1	R2	R3	R4	R5
Trash Enclosure Activity	0.0	21.3	32.5	2.7	0.4
Roof-top Air Conditioner	30.9	37.0	40.3	40.2	39.0
Parking Lot Activities	9.2	12.9	14.8	17.6	22.6
Parking Garage Activities	21.4	24.3	23.6	22.7	21.4
Total (All Noise Sources)	31.4	37.4	41.1	40.3	39.2

¹ See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 10.2.

10.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the typical Project-only operational noise levels are evaluated against the exterior noise level thresholds. Table 10-4 shows the operational noise levels associated with The Anaheim Festival SPA Project will not exceed the daytime and nighttime exterior noise level standards. Therefore, the typical operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 10-4: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location ¹	Project Operational Noise Levels (dBA Leq) ²		Noise Level Standards (dBA Leq) ³		Noise Level Standards Exceeded? ⁴	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	34	31	60	60	No	No
R2	40	37	60	60	No	No
R3	44	41	60	60	No	No
R4	43	40	60	60	No	No
R5	42	39	60	60	No	No

¹ See Exhibit 9-A for the receiver locations.

² Proposed Project operational noise levels as shown in Tables 10-2 and 10-3.

³ City of Anaheim Municipal Code, Section 6.70.010 (Appendix 3.1)

⁴ Do the estimated Project operational noise source activities exceed the noise level standards?

"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

10.6 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. (3) Instead, they must be logarithmically added using the following base equation:

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

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 on Tables 10-2 and 10-3, respectively.

As indicated on Tables 10-5 and 10-6, the Project will generate an unmitigated daytime and nighttime operational noise level increases ranging from 0.1 to 2.6 dBA Leq at the nearest receiver locations. In effect, the amount to which a given noise level increase is considered acceptable is reduced based on existing ambient noise conditions. Based on the significance criteria presented in Section 4.2, 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 10-5: 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	Increase Criteria Exceeded?
R1	33.9	L1	52.9	53.0	0.1	5.0	No
R2	39.9	L2	51.5	51.8	0.3	5.0	No
R3	43.5	L3	45.0	47.3	2.3	5.0	No
R4	43.1	L4	58.5	58.6	0.1	5.0	No
R5	41.8	L4	58.5	58.6	0.1	5.0	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 proposed Project activities.

TABLE 10-6: 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	Increase Criteria Exceeded?
R1	31.4	L1	47.1	47.2	0.1	5.0	No
R2	37.4	L2	44.7	45.4	0.7	5.0	No
R3	41.1	L3	41.9	44.5	2.6	5.0	No
R4	40.3	L4	57.6	57.7	0.1	5.0	No
R5	39.2	L4	57.6	57.7	0.1	5.0	No

¹ See Exhibit 9-A for the receiver locations.

² Total Project nighttime operational noise levels as shown in Table 10-3.

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 proposed Project activities.

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

11.1 CONSTRUCTION NOISE LEVELS

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

- Demolition
- 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. (28) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

EXHIBIT 11-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS



TABLE 11-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Equipment ¹	Reference Noise Level @ 50 Feet (dBA L _{eq})	Combined Reference Noise Level (dBA L _{eq})
Demolition	Concrete Saw	83.0	87.5
	Jack Hammer	82.0	
	Impact Hammer (hoe ram)	83.0	
Site Preparation	Dozer	78.0	80.8
	Backhoe	74.0	
	Front End Loader	75.0	
Grading	Scraper	80.0	84.2
	Grader	81.0	
	Compactor (ground)	76.0	
Building Construction	Gradall	79.0	82.1
	Generator	78.0	
	Crane	73.0	
Paving	Paver	74.0	77.8
	Dump Truck	72.0	
	Roller	73.0	
Architectural Coating	Man Lift	68.0	76.4
	Compressor (air)	74.0	
	Pickup Truck	71.0	

¹ FHWA Road Construction Noise Model.

11.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess a reasonable worst-case construction scenario and account for the dynamic nature of construction activities, the Project construction noise analysis models the equipment combination with the highest reference level as a moving point within the construction area (Project site boundary). Construction impacts are based on the highest noise level calculated at each receiver location. As shown on Table 11-2, the highest construction noise levels are expected to range from 53.1 to 65.8 dBA L_{eq} at the nearest receiver locations. Appendix 11.1 includes the detailed CadnaA construction noise model inputs.

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

TABLE 11-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location ¹	Construction Noise Levels (dBA L _{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels ²
R1	53.1	46.4	49.9	47.7	43.5	42.1	53.1
R2	58.6	51.9	55.4	53.2	49.0	47.6	58.6
R3	65.8	59.1	62.6	60.4	56.2	54.8	65.8
R4	65.8	59.1	62.6	60.4	56.2	54.8	65.8
R5	64.0	57.3	60.8	58.6	54.4	53.0	64.0

¹ Noise receiver locations are shown on 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 nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 11-3. Therefore, the noise impacts due to 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	53.1	80	No
R2	58.6	80	No
R3	65.8	80	No
R4	65.8	80	No
R5	64.0	80	No

¹ Noise receiver locations are shown on Exhibit 9-A.

² Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Exhibit 11-A.

³ Construction noise level thresholds as shown on Table 4-1.

⁴ Do the estimated Project construction noise levels exceed the construction noise level threshold?

11.5 OFF-SITE CONSTRUCTION TRAFFIC NOISE

Construction truck trips would occur throughout the construction period and would be associated with hauling soil from the Project site, and delivering building materials, supplies, and concrete to the Project Site. Based on the Project air quality analysis, construction traffic is estimated to generate a maximum of approximately 18 worker vehicle trips, 2 vendor trips, and approximately 156 haul truck trips per day during the grading phase. (29) While building

construction would have a greater number of total trips, there would be no haul trucks associated with building construction. Trucks generate substantially greater noise levels than passenger cars; thus, grading is considered the worst-case from a noise assessment perspective.

It is anticipated all haul truck traffic will access the site via Wier Canyon Road, E. Santa Ana Canyon Road, and S Festival Way, which has existing ADT volumes of 25,273, 18,764, and 1,869. (30) Accounting for the increase in construction traffic, including haul vehicles, the Project is anticipated to result in a short-term construction traffic noise level increase of 0.5 CNEL along Festival Way, increase along other segments would be less. These increases are considered “barely perceptible” and therefore, the noise impacts due to Project off-site construction traffic noise are considered *less than significant*.

11.6 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA) and summarized on Table 11-4. (2)

Based on the representative vibration levels presented in Table 11-4, it is possible to estimate the potential Project construction vibration levels at various distances using the following the following equation: $PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^{1.5}$

TABLE 11-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

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

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided on Table 11-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 11-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 99 to 1,147 feet from the Project construction activities, construction vibration velocity levels are estimated to range from less than 0.01 to 0.01 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.30 PPV (in/sec), the typical Project construction vibration levels will satisfy the building damage thresholds at all receiver locations. Therefore, the Project-related vibration impacts are considered less than significant during the construction activities at the Project site.

In addition, the typical construction vibration levels at the nearest sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site boundaries.

TABLE 11-5: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver Location ¹	Distance to Const. Activity (Feet) ²	Typical Construction Vibration Levels PPV (in/sec) ³					Thresholds PPV (in/sec) ⁴	Thresholds Exceeded? ⁵
		Small bulldozer	Jack- hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Level		
R1	1,147'	0.00	0.00	0.00	0.00	0.00	0.30	No
R2	447'	0.00	0.00	0.00	0.00	0.00	0.30	No
R3	120'	0.00	0.00	0.01	0.01	0.01	0.30	No
R4	99'	0.00	0.00	0.01	0.01	0.01	0.30	No
R5	114'	0.00	0.00	0.01	0.01	0.01	0.30	No

¹ Receiver locations are shown on Exhibit 11-A.

² Distance from receiver location to Project construction boundary.

³ Based on the Vibration Source Levels of Construction Equipment (Table 11-4).

⁴ Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Tables 19, p. 38.

⁵ Does the peak vibration exceed the acceptable vibration thresholds?

"PPV" = Peak Particle Velocity

12 REFERENCES

1. **Urban Crossroads, Inc.** *Anaheim Hills Festival SPA No. 6.* 2024.
2. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual, FTA Report No. 0123.* September 2018.
3. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
4. **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.
5. **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.* June, 1995.
6. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
7. **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.
8. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
9. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual, FTA-VA-90-1003-06.* May 2006.
10. **Office of Planning and Research.** *State of California General Plan Guidelines 2003.* October 2003.
11. **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>.
12. **City of Anaheim.** *General Plan Noise Element.* May 2004.
13. —. *Municipal Code, Section 18.040.090.*
14. **County of Orange.** *General Plan Noise Element.* 2005.
15. **City of Anaheim.** *Municipal Code, Section 6.50.010.*
16. **State of California.** *California Environmental Quality Act, Appendix G & Amendments and Additions to the State CEQA Guidelines.* 2019.
17. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
18. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
19. **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.
20. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.

21. **Acoustical Society of America.** *ANSI S1.4-2014/IEC 61672-1:2013.* s.l. : American National Standards Institute, 2014.
22. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
23. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calven REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
24. **City of Anaheim.** *General Plan Circulation Element.* May 2004.
25. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
26. **Bayerisches Landesamt für Umwelt.** *Parking Area Noise, 6. Revised Edition.* 2007. ISBN 3-936385-26-2, ISSN 0723-0028.
27. *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.
28. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.
29. **Urban Crossroads, Inc.** *Anaheim Hills Festival Specific Plan Amendment Air Quality Analysis.* 2024.
30. —. *Anaheim Hills Festival Specific Plan Traffic Analysis.* 2024.
31. —. *The Lumberyard (DEV2020-00262).* 2022.
32. **Monrovia, City of.** City of Monrovia. *Title 10, Chapter 10.24 Truck Routes.* [Online] American Legal Publishing. [Cited: March 28, 2024.] https://codelibrary.amlegal.com/codes/monrovia/latest/monrovia_ca/0-0-0-66097.

13 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed The Anaheim Festival SPA 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

ASA – Acoustical Society of America
APA – American Planning Association
AWMA – Air and Waste Management Association
Institute of Noise Control Engineers - INCE

PROFESSIONAL CERTIFICATIONS

Approved Acoustical Consultant • County of San Diego
FHWA Traffic Noise Model of Training • November 2004
CadnaA Basic and Advanced Training Certificate • October 2008.

This page intentionally left blank

APPENDIX 3.1:
CITY OF ANAHEIM MUNICIPAL CODE

This page intentionally left blank

Chapter 6.70 SOUND PRESSURE LEVELS

Sections:

- 6.70.010 Established.
- 6.70.020 Violations and penalties.
- 6.70.030 Enforcement.

6.70.010 ESTABLISHED.

Sound produced in excess of the sound pressure levels permitted herein are hereby determined to be objectionable and constitute an infringement upon the right and quiet enjoyment of property in this City.

No person shall within the City create any sound radiated for extended periods from any premises which produces a sound pressure level at any point on the property line in excess of sixty decibels (Re 0.0002 Microbar) read on the A-scale of a sound level meter. Readings shall be taken in accordance with the instrument manufacturer's instructions, using the slowest meter response.

The sound level measuring microphone shall be placed at any point on the property line, but not closer than three (3) feet from any wall and not less than three (3) feet above the ground, where the above listed maximum sound pressure level shall apply. At any point the measured level shall be the average of not less than three (3) readings taken at two (2) minute intervals. To have valid readings, the levels must be five (5) decibels or more above the levels prevailing at the same point when the source's of the alleged objectionable sound are not operating.

Sound pressure levels shall be measured with a sound level meter manufactured according to American Standard S1.4-1961 published by the American Standards Association, Inc., New York City, New York.

Traffic sounds sound created by emergency activities and sound created by governmental units or their contractors shall be exempt from the applications of this chapter. Sound created by construction or building repair of any premises within the City shall be exempt from the applications of this chapter during the hours of 7:00 a.m. to 7:00 p.m. Additional work hours may be permitted if deemed necessary by the Director of Public Works or Building Official. (Ord. 2526 § 1 (part); June 18, 1968; Ord. 3400 § 1; February 11, 1975: Ord. 6020 § 1; April 25, 2006.)

6.70.020 VIOLATIONS AND PENALTIES.

The first violation of this chapter by any person shall be punishable as an infraction in accordance with applicable provisions of the California Penal Code and the California Government Code. The second and all subsequent violations of said chapter committed by such person shall be punishable as a misdemeanor. (Ord. 5929 § 9; July 27, 2004.)

6.70.030 ENFORCEMENT.

The Code Enforcement Manager of the City of Anaheim shall enforce the provisions of this chapter. (Ord. 5812 § 25; June 11, 2002.)

Chapter 6.72 AMPLIFIED SOUND

Sections:

- 6.72.010 Purpose.
- 6.72.020 Regulation of amplified sound.

6.72.030 Definitions.

6.72.040 Exemptions from chapter.

6.72.050 Penalty for violations.

6.72.010 PURPOSE.

This City Council enacts this legislation for the sole purpose of securing and promoting the public health, comfort, safety, and welfare of its citizenry. While recognizing that certain uses of sound-amplifying equipment are protected by the constitutional rights of freedom of speech and assembly, the City Council, nevertheless, feels obligated to reasonably regulate the use of sound-amplifying equipment in order to protect the correlative constitutional rights of the citizens of this community to privacy and freedom from public nuisance of loud and raucous noise. (Ord. 4059 § 1 (part); October 9, 1979; Ord. 5941 § 1 (part); September 14, 2004.)

6.72.020 REGULATION OF AMPLIFIED SOUND.

Notwithstanding the provisions of Chapter 6.70 of this code, it shall be unlawful for any person to use or operate, or cause to be used or operated, within the City of Anaheim any sound-amplifying equipment in a fixed or movable position, or mounted upon any vehicle, except when used or operated in compliance with the following provisions:

.010 In all residential zones and within two hundred feet of any boundary thereof, no sound-amplifying equipment shall be operated or used for commercial purposes, except sound-amplifying equipment may be used for commercial purposes upon a moving vehicle between the hours of 8:00 a.m. and 8:00 p.m. to announce the presence of such vehicle in an area or location for commercial purposes; provided that such sound-amplifying equipment shall not be used during periods that the vehicle is stopped, parked or otherwise in a stationary position..

.020 In all residential zones and within two hundred feet of any boundary thereof, no sound-amplifying equipment shall be operated or used for noncommercial purposes between the hours of 8:00 p.m. and 8:00 a.m. of the following day.

.030 In all non-residential zones, except such portions thereof as may be included within two hundred feet of the boundary of any residential zone, the operation or use of sound-amplifying equipment for commercial purposes is prohibited between the hours of 9:00 p.m. and 8:00 a.m. of the following day.

.040 In all non-residential zones, except such portions thereof as may be included within two hundred feet of the boundary of any residential zone, the operation or use of sound-amplifying equipment for noncommercial purposes is prohibited between the hours of 10:00 p.m. and 7:00 a.m. of the following day.

.050 Sound emanating from sound-amplifying equipment shall not be audible to a person of normal hearing acuity within an enclosed building (other than a building within which the sound emanate) at a distance in excess of two hundred feet from the sound-amplifying equipment.

.060 In no event shall the sound-amplifying equipment be unreasonably loud, raucous, jarring or disturbing to a person of normal sensitiveness within the area of audibility, or disturb the peace or quiet of any neighborhood.

.070 It shall be unlawful for any person to operate or use any sound-amplifying equipment within, upon or adjacent to the premises of any hospital, school, or publicly owned or operated arena, stadium, convention center or auditorium, while in use, in a manner which disturbs, disrupts or interferes with the conduct of any event, business or activity of any nature then occurring within such building or premises. Nothing contained in this subsection shall be deemed to prohibit any conduct which is otherwise prohibited by California Penal Code Sections 302 or 403, or any other provision of State law. (Ord. 4059 § 1 (part); October 9, 1979; Ord. 5781 § 1; September 25, 2001; Ord. 5941 § 1 (part); September 14, 2004.)

6.72.030 DEFINITIONS.

.010 The word "person," as used herein, shall include the singular and the plural, and shall also mean and include any person, firm, corporation, association, club, partnership, society or any other form of association or organization.

.020 The words "sound-amplifying equipment," as used herein, shall mean any device for the amplification of the human voice, music or any other sound.

.030 The word "zone," as used herein, shall mean the zoning designation given to any public or private property pursuant to the provisions of Title 18 of this Code. Any public or private street, alley or other right-of-way shall be deemed to have the same zoning designation as the public or private property immediately contiguous to such street, alley or right-of-way. Where the property on each side of a street, alley or right-of-way bears a different zoning designation, each such zoning designation shall be deemed to extend to the centerline of such street, alley or right-of-way.

.040 Nothing contained in this section shall be deemed to permit or authorize any activity or sound level which is otherwise prohibited by any provision of State law.(Ord. 4059 § 1 (part); October 9, 1979; Ord. 5941 § 1 (part); September 14, 2004.)

6.72.040 EXEMPTIONS FROM CHAPTER.

The following uses of sound-amplifying equipment and activities shall be exempt from the provisions of this chapter:

.010 Vehicle sound systems, radios and similar devices located within or upon any vehicle, to the extent the sound from such devices is regulated by provisions of the Vehicle Code of the State of California.

.020 Sound-amplifying equipment when used and heard only by occupants of the premises in which the devices are located.

.030 Warning devices on authorized emergency vehicles, or horns or other warning devices on other vehicles when used for traffic safety purposes, or any other device when used by a public safety officer for official purposes.

.040 Equipment used by any duly authorized facility operator, tenant or lessee as an integral part of any event at Anaheim Stadium, Arrowhead Pond, Anaheim Convention Center, or as an integral part of any event or program at any other publicly owned or operated facility.

.050 Equipment and devices used as an integral part of any public or private institutional use lawfully permitted pursuant to Title 18 of this Code, including but not limited to, public and private educational institutions, and places of religious worship. (Ord. 5941 § 1 (part); September 14, 2004.)

6.72.050 PENALTY FOR VIOLATIONS.

The first violation of this chapter by any person occurring within any twelve-month period shall be punishable as an infraction in accordance with applicable provisions of the California Penal Code and the California Government Code. The second and all subsequent violations of this chapter by such person occurring within any twelve-month period shall be punishable as a misdemeanor. (Ord. 5941 § 1 (part); September 14, 2004.)

This page intentionally left blank

APPENDIX 5.1:

STUDY AREA PHOTOS

This page intentionally left blank

15993 - 18860 Van Buren Blvd

15699_L1_A_E



15699_L1_A_N



15699_L1_A_S



15699_L1_A_W



15993 - 18860 Van Buren Blvd

15699_L2_U_E



15699_L2_U_N



15699_L2_U_S



15699_L2_U_W



15993 - 18860 Van Buren Blvd

15699_L3_G_E



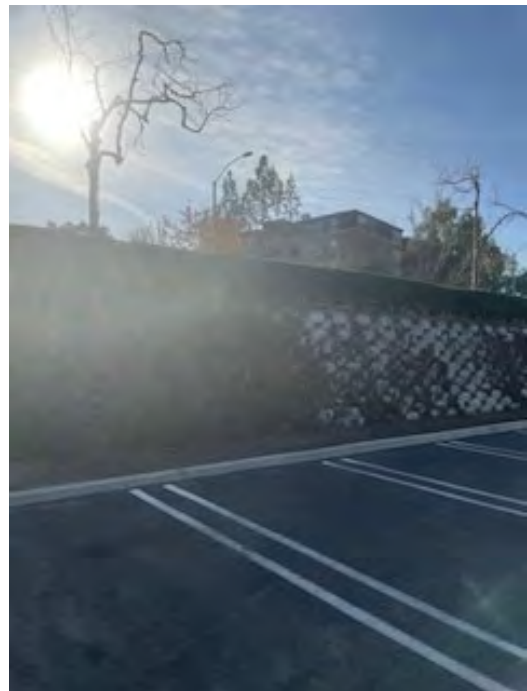
15699_L3_G_N



15699_L3_G_S



15699_L3_G_W



15993 - 18860 Van Buren Blvd

15699_L4_P_E



15699_L4_P_N



15699_L4_P_S



15699_L4_P_W



APPENDIX 5.2:

NOISE LEVEL MEASUREMENTS

This page intentionally left blank

24-Hour Noise Level Measurement Summary

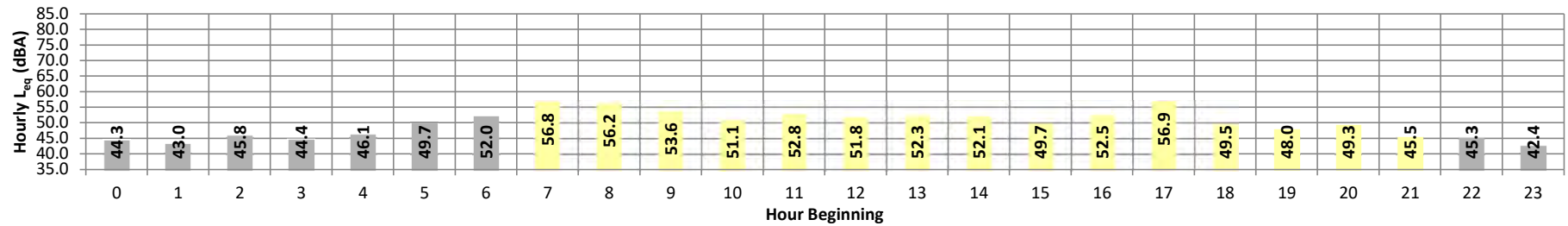
Date: Thursday, January 11, 2024
Project: Anaheim Festival SPA

Location: L1 - Located east of the site near the The Rock Community
Source: Church at 101 S Chaparral Ct

Meter: Piccolo II

JN: 15699
Analyst: B. Maddux

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	44.3	54.8	42.0	49.6	48.3	46.1	45.2	44.4	43.8	43.0	42.8	42.5	44.3	10.0	54.3
	1	43.0	49.6	40.8	46.6	45.8	44.9	44.5	43.4	42.6	41.7	41.5	41.2	43.0	10.0	53.0
	2	45.8	55.1	42.4	53.0	51.5	49.5	48.5	46.1	44.3	43.3	43.1	42.8	45.8	10.0	55.8
	3	44.4	50.6	42.3	49.2	47.8	46.1	45.4	44.5	44.0	43.2	43.1	42.8	44.4	10.0	54.4
	4	46.1	59.2	42.9	53.1	51.7	49.4	48.0	45.7	44.9	43.9	43.7	43.4	46.1	10.0	56.1
	5	49.7	62.8	44.3	61.3	59.5	54.6	51.8	47.9	46.6	45.5	45.2	44.8	49.7	10.0	59.7
	6	52.0	64.9	45.8	63.2	61.9	57.7	54.6	49.9	48.4	47.1	46.8	46.4	52.0	10.0	62.0
Day	7	56.8	68.2	47.6	66.4	65.0	62.3	61.1	57.1	53.1	49.1	48.7	48.1	56.8	0.0	56.8
	8	56.2	69.5	45.9	67.9	66.2	63.7	62.0	52.5	48.9	47.2	46.9	46.5	56.2	0.0	56.2
	9	53.6	66.4	43.6	64.8	63.3	60.4	58.7	51.6	48.1	45.1	44.7	44.2	53.6	0.0	53.6
	10	51.1	62.0	43.3	60.3	58.9	56.6	54.8	51.0	48.1	45.3	44.9	44.0	51.1	0.0	51.1
	11	52.8	64.4	41.2	63.0	61.7	59.3	57.0	52.2	48.7	43.7	42.7	41.9	52.8	0.0	52.8
	12	51.8	63.3	39.8	61.8	60.5	57.9	56.2	52.4	47.5	41.5	41.0	40.4	51.8	0.0	51.8
	13	52.3	65.7	40.1	64.1	62.2	58.8	56.8	50.9	46.2	42.1	41.5	40.8	52.3	0.0	52.3
	14	52.1	63.7	40.6	62.4	61.2	58.6	56.8	51.5	47.1	42.4	41.9	41.2	52.1	0.0	52.1
	15	49.7	62.0	40.7	60.3	58.9	55.8	54.1	48.8	45.5	42.4	41.9	41.3	49.7	0.0	49.7
	16	52.5	64.3	44.0	62.9	61.2	58.3	56.2	52.2	48.7	45.8	45.4	44.7	52.5	0.0	52.5
	17	56.9	71.7	43.9	70.3	68.5	63.4	59.6	52.3	48.7	45.5	45.0	44.5	56.9	0.0	56.9
18	49.5	62.4	42.7	60.6	59.0	55.9	52.6	47.6	45.4	43.8	43.6	43.2	49.5	0.0	49.5	
	19	48.0	58.6	42.4	57.2	55.6	52.5	50.8	47.9	46.0	43.7	43.4	42.9	48.0	5.0	53.0
	20	49.3	62.2	41.3	58.9	57.2	54.8	53.4	49.1	46.1	42.9	42.5	41.9	49.3	5.0	54.3
	21	45.5	57.6	42.6	53.2	51.2	47.6	46.5	45.2	44.5	43.6	43.4	43.1	45.5	5.0	50.5
Night	22	45.3	53.9	43.2	50.3	48.7	46.6	46.1	45.4	44.9	44.1	43.9	43.6	45.3	10.0	55.3
	23	42.4	50.5	40.1	47.8	45.9	44.1	43.5	42.6	42.0	41.1	40.9	40.5	42.4	10.0	52.4
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	24-Hour CNEL	Leq (dBA)	
Day	Min	45.5	57.6	39.8	53.2	51.2	47.6	46.5	45.2	44.5	41.5	41.0	40.4		Daytime (7am-10pm)	Nighttime (10pm-7am)
	Max	56.9	71.7	47.6	70.3	68.5	63.7	62.0	57.1	53.1	49.1	48.7	48.1			
Energy Average		52.9	Average:		62.3	60.7	57.7	55.8	50.8	47.5	44.3	43.8	43.2		55.2 52.9 47.1	
Night	Min	42.4	49.6	40.1	46.6	45.8	44.1	43.5	42.6	42.0	41.1	40.9	40.5			
	Max	52.0	64.9	45.8	63.2	61.9	57.7	54.6	49.9	48.4	47.1	46.8	46.4			
Energy Average		47.1	Average:		52.7	51.2	48.8	47.5	45.5	44.6	43.7	43.5	43.1			

24-Hour Noise Level Measurement Summary

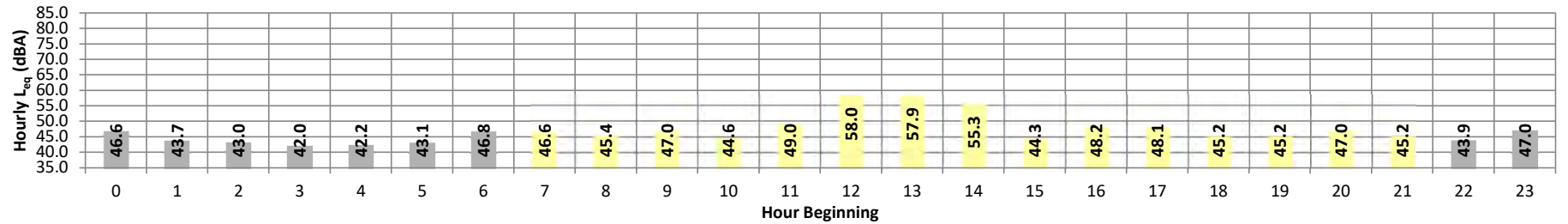
Date: Thursday, January 11, 2024
Project: Anaheim Festival SPA

Location: L2 - Located southeast of the site near the residence at 8035 E
Source: Kendra Ct

Meter: Piccolo II

JN: 15699
Analyst: B. Maddux

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	46.6	54.7	41.6	51.9	51.0	49.8	49.1	47.4	45.8	43.3	42.9	42.2	46.6	10.0	56.6		
	1	43.7	48.3	41.6	46.2	45.7	45.1	44.8	44.1	43.5	42.7	42.5	42.1	43.7	10.0	53.7		
	2	43.0	45.9	41.2	44.7	44.4	43.9	43.8	43.3	42.9	42.3	42.1	41.8	43.0	10.0	53.0		
	3	42.0	44.2	40.2	43.4	43.2	42.8	42.7	42.3	41.9	41.2	41.0	40.7	42.0	10.0	52.0		
	4	42.2	45.4	40.2	44.1	43.8	43.2	43.0	42.6	42.2	41.4	41.2	40.9	42.2	10.0	52.2		
	5	43.1	53.9	40.2	52.5	50.1	45.2	43.5	42.5	42.0	41.3	41.1	40.7	43.1	10.0	53.1		
	6	46.8	59.4	43.0	54.9	52.7	49.8	48.4	46.6	45.6	44.4	44.1	43.6	46.8	10.0	56.8		
Day	7	46.6	58.5	41.9	55.0	53.3	50.2	49.0	46.6	45.1	43.4	43.1	42.6	46.6	0.0	46.6		
	8	45.4	56.1	41.0	54.3	52.8	50.1	48.4	44.7	43.6	42.4	42.2	41.7	45.4	0.0	45.4		
	9	47.0	58.4	41.2	56.3	54.4	52.0	51.0	46.4	44.3	42.6	42.3	41.8	47.0	0.0	47.0		
	10	44.6	53.8	41.7	50.2	49.5	47.3	46.1	44.6	43.9	42.9	42.6	42.3	44.6	0.0	44.6		
	11	49.0	57.9	45.5	55.9	54.8	52.6	51.3	48.8	47.9	46.8	46.5	46.1	49.0	0.0	49.0		
	12	58.0	60.0	56.3	59.3	59.1	58.8	58.7	58.4	58.1	56.9	56.7	56.5	58.0	0.0	58.0		
	13	57.9	60.4	56.2	59.5	59.2	58.7	58.6	58.3	58.0	56.9	56.7	56.5	57.9	0.0	57.9		
	14	55.3	64.4	53.3	58.5	57.4	56.4	56.1	55.6	55.3	54.0	53.8	53.6	55.3	0.0	55.3		
	15	44.3	53.7	40.9	50.2	49.1	47.1	46.3	44.5	43.5	42.3	42.0	41.6	44.3	0.0	44.3		
	16	48.2	56.9	42.9	54.7	53.3	51.7	50.8	48.8	47.2	44.8	44.3	43.6	48.2	0.0	48.2		
	17	48.1	61.2	43.2	58.1	56.3	51.1	49.7	47.2	46.0	44.5	44.2	43.8	48.1	0.0	48.1		
18	45.2	52.5	43.0	49.3	48.4	47.1	46.6	45.3	44.7	44.0	43.8	43.5	45.2	0.0	45.2			
	19	45.2	51.4	41.7	49.3	48.6	47.6	47.0	45.8	44.7	43.1	42.8	42.3	45.2	5.0	50.2		
	20	47.0	55.8	42.9	53.2	52.4	51.4	50.4	47.2	45.6	44.1	43.8	43.4	47.0	5.0	52.0		
	21	45.2	52.2	41.9	49.2	48.5	47.4	46.9	45.7	44.8	43.3	43.0	42.5	45.2	5.0	50.2		
Night	22	43.9	51.6	40.3	48.1	47.3	46.3	45.8	44.5	43.4	41.8	41.5	40.9	43.9	10.0	53.9		
	23	47.0	54.7	42.1	52.1	51.3	50.2	49.6	47.9	46.3	43.7	43.3	42.7	47.0	10.0	57.0		
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	24-Hour CNEL	Leq (dBA)			
Day	Min	44.3	51.4	40.9	49.2	48.4	47.1	46.1	44.5	43.5	42.3	42.0	41.6		Daytime (7am-10pm)	53.2	51.5	
	Max	58.0	64.4	56.3	59.5	59.2	58.8	58.7	58.4	58.1	56.9	56.7	56.5 <th rowspan="2">Nighttime (10pm-7am)</th>					Nighttime (10pm-7am)
Energy Average		51.5	Average:		54.2	53.1	51.3	50.5	48.5	47.5	46.1	45.9	45.4		53.2			
Night	Min	42.0	44.2	40.2	43.4	43.2	42.8	42.7	42.3	41.9	41.2	41.0	40.7	53.2				51.5
	Max	47.0	59.4	43.0	54.9	52.7	50.2	49.6	47.9	46.3	44.4	44.1	43.6		53.2	51.5	44.7	
Energy Average		44.7	Average:		48.7	47.7	46.3	45.6	44.6	43.7	42.4	42.2	41.7	53.2				51.5

24-Hour Noise Level Measurement Summary

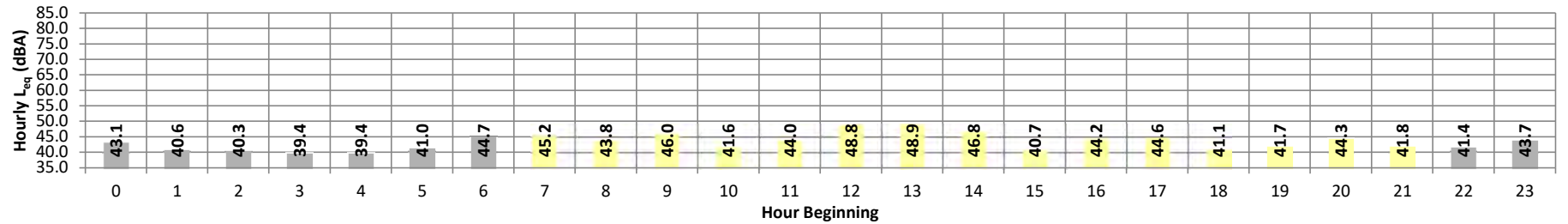
Date: Thursday, January 11, 2024
Project: Anaheim Festival SPA

Location: L3 - Located south of the site near the Overlook at Anaheim Hill
Source: Apartments at 235 S Festival Dr

Meter: Piccolo II

JN: 15699
Analyst: B. Maddux

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	43.1	49.4	39.5	47.2	46.5	45.7	45.3	43.9	42.6	40.6	40.3	39.9	43.1	10.0	53.1	
	1	40.6	44.0	39.0	42.4	42.1	41.7	41.5	40.9	40.5	39.8	39.7	39.4	40.6	10.0	50.6	
	2	40.3	44.5	38.7	43.1	42.5	41.7	41.4	40.5	40.0	39.4	39.3	39.0	40.3	10.0	50.3	
	3	39.4	41.5	38.1	40.8	40.5	40.0	39.9	39.6	39.3	38.8	38.7	38.5	39.4	10.0	49.4	
	4	39.4	44.0	38.1	41.7	41.2	40.4	40.1	39.6	39.3	38.8	38.7	38.4	39.4	10.0	49.4	
	5	41.0	51.1	38.2	49.9	48.8	44.0	41.9	40.3	39.7	39.0	38.9	38.6	41.0	10.0	51.0	
	6	44.7	57.2	40.8	52.8	51.0	48.3	46.9	44.3	43.2	42.0	41.7	41.3	44.7	10.0	54.7	
Day	7	45.2	57.0	40.3	52.8	51.8	49.4	48.2	45.4	43.5	41.5	41.2	40.8	45.2	0.0	45.2	
	8	43.8	56.9	39.2	54.6	51.7	48.6	46.9	42.4	41.1	40.2	40.0	39.7	43.8	0.0	43.8	
	9	46.0	56.9	37.7	55.5	54.3	52.5	51.5	45.2	41.5	38.8	38.6	38.2	46.0	0.0	46.0	
	10	41.6	50.6	37.6	48.9	48.5	46.9	44.9	41.0	39.9	38.7	38.4	38.1	41.6	0.0	41.6	
	11	44.0	53.1	39.8	51.5	50.1	48.1	46.6	44.0	42.7	41.1	40.8	40.3	44.0	0.0	44.0	
	12	48.8	53.3	46.9	52.1	51.5	50.5	50.0	49.3	48.6	47.5	47.3	47.1	48.8	0.0	48.8	
	13	48.9	54.3	47.0	53.0	52.3	50.6	49.9	49.0	48.6	47.7	47.5	47.3	48.9	0.0	48.9	
	14	46.8	60.5	44.4	52.2	50.7	49.0	48.2	46.6	46.0	45.1	44.9	44.7	46.8	0.0	46.8	
	15	40.7	49.9	36.8	47.7	46.9	44.6	43.5	40.9	39.4	37.9	37.6	37.2	40.7	0.0	40.7	
	16	44.2	53.5	38.2	51.2	49.9	48.0	47.0	44.7	42.9	40.2	39.6	38.9	44.2	0.0	44.2	
	17	44.6	57.3	39.2	54.4	52.3	48.9	47.5	44.1	42.2	40.3	40.0	39.6	44.6	0.0	44.6	
18	41.1	49.3	38.8	46.5	45.3	43.8	42.9	41.1	40.4	39.6	39.4	39.2	41.1	0.0	41.1		
19	41.7	48.2	38.3	46.5	45.8	44.5	43.8	42.3	41.1	39.5	39.2	38.8	41.7	5.0	46.7		
20	44.3	53.5	39.3	51.0	50.2	49.0	48.3	44.6	42.6	40.3	40.1	39.7	44.3	5.0	49.3		
21	41.8	48.0	39.3	45.4	44.7	43.8	43.3	42.3	41.4	40.3	40.1	39.7	41.8	5.0	46.8		
Night	22	41.4	47.8	39.2	44.6	43.7	42.9	42.6	41.8	41.1	40.1	39.9	39.6	41.4	10.0	51.4	
	23	43.7	50.1	39.9	48.1	47.5	46.5	46.1	44.5	43.1	41.0	40.7	40.3	43.7	10.0	53.7	
Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	24-Hour CNEL	Leq (dBA)		
Day	Min	40.7	48.0	36.8	45.4	44.7	43.8	42.9	40.9	39.4	37.9	37.6	37.2		Daytime (7am-10pm)	Nighttime (10pm-7am)	
	Max	48.9	60.5	47.0	55.5	54.3	52.5	51.5	49.3	48.6	47.7	47.5	47.3				
Energy Average		45.0	Average:		50.9	49.7	47.9	46.8	44.2	42.8	41.2	41.0	40.6		49.2	45.0	41.9
Night	Min	39.4	41.5	38.1	40.8	40.5	40.0	39.9	39.6	39.3	38.8	38.7	38.4				
	Max	44.7	57.2	40.8	52.8	51.0	48.3	46.9	44.5	43.2	42.0	41.7	41.3				
Energy Average		41.9	Average:		45.6	44.9	43.5	42.8	41.7	41.0	40.0	39.8	39.5				

24-Hour Noise Level Measurement Summary

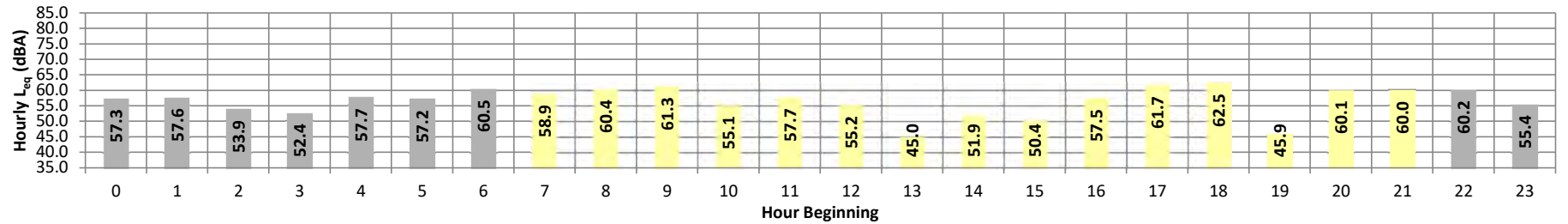
Date: Thursday, January 11, 2024
Project: Anaheim Festival SPA

Location: L4 - Located west of the site near the Residence Inn by Marriott
Source: at 125 S Festival Dr

Meter: Piccolo II

JN: 15699
Analyst: B. Maddux

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	57.3	62.7	54.6	60.0	59.4	58.8	58.6	57.8	57.2	56.0	55.6	55.1	57.3	10.0	67.3	
	1	57.6	66.3	53.8	61.6	60.5	59.5	59.1	58.1	57.3	55.7	55.3	54.6	57.6	10.0	67.6	
	2	53.9	61.3	49.8	57.2	56.2	55.4	55.1	54.3	53.7	52.5	51.9	50.7	53.9	10.0	63.9	
	3	52.4	55.3	49.7	54.2	54.0	53.6	53.4	52.8	52.3	51.3	51.0	50.4	52.4	10.0	62.4	
	4	57.7	59.6	54.2	59.3	59.1	58.9	58.8	58.3	57.8	56.3	55.7	54.8	57.7	10.0	67.7	
	5	57.2	62.4	54.9	59.6	58.9	58.5	58.2	57.6	57.1	56.1	55.9	55.4	57.2	10.0	67.2	
Day	6	60.5	63.3	57.9	62.4	62.2	61.9	61.7	61.1	60.4	59.3	59.0	58.5	60.5	10.0	70.5	
	7	58.9	62.7	55.9	61.2	60.9	60.4	60.2	59.4	58.7	57.5	57.1	56.6	58.9	0.0	58.9	
	8	60.4	65.7	57.8	62.6	62.2	61.7	61.5	60.8	60.3	59.2	59.0	58.4	60.4	0.0	60.4	
	9	61.3	69.1	58.0	64.6	63.6	62.8	62.5	61.8	61.1	59.7	59.3	58.7	61.3	0.0	61.3	
	10	55.1	65.3	49.4	61.2	59.6	57.9	57.3	55.7	54.4	52.3	51.6	50.4	55.1	0.0	55.1	
	11	57.7	65.9	54.2	61.7	60.6	59.5	59.1	58.0	57.3	56.1	55.7	54.9	57.7	0.0	57.7	
	12	55.2	57.4	52.8	57.0	56.8	56.5	56.3	55.7	55.1	54.2	53.9	53.4	55.2	0.0	55.2	
	13	45.0	53.5	42.6	50.3	48.8	47.1	46.3	45.1	44.5	43.7	43.5	43.1	45.0	0.0	45.0	
	14	51.9	69.3	46.7	60.8	57.0	53.1	52.2	51.1	50.4	48.9	48.4	47.6	51.9	0.0	51.9	
	15	50.4	65.1	44.5	58.2	55.4	53.1	52.4	50.6	49.0	46.7	46.3	45.5	50.4	0.0	50.4	
	16	57.5	67.4	54.1	62.7	60.7	59.5	59.0	57.8	57.0	55.5	55.2	54.7	57.5	0.0	57.5	
17	61.7	71.0	59.0	65.0	63.8	63.0	62.7	62.1	61.5	60.4	60.1	59.6	61.7	0.0	61.7		
Night	18	62.5	73.5	59.6	66.1	64.5	63.8	63.6	62.8	62.1	61.0	60.7	60.2	62.5	0.0	62.5	
	19	45.9	67.3	32.9	58.3	54.9	49.8	46.6	39.6	35.7	33.9	33.6	33.3	45.9	5.0	50.9	
	20	60.1	64.7	57.8	62.3	61.9	61.4	61.2	60.5	60.0	59.0	58.8	58.4	60.1	5.0	65.1	
	21	60.0	70.2	56.7	63.6	62.3	61.5	61.2	60.4	59.7	58.3	57.9	57.4	60.0	5.0	65.0	
	22	60.2	69.7	57.1	64.2	62.8	61.6	61.3	60.6	59.9	58.7	58.4	57.8	60.2	10.0	70.2	
	23	55.4	61.8	52.4	58.9	58.0	57.2	56.9	56.0	55.2	53.8	53.5	53.1	55.4	10.0	65.4	
	Timeframe	Hour	L _{eq}	L _{max}	L _{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	Leq (dBA)		
	Day	Min	45.0	53.5	32.9	50.3	48.8	47.1	46.3	39.6	35.7	33.9	33.6	33.3	24-Hour CNEL	Daytime (7am-10pm)	Nighttime (10pm-7am)
		Max	62.5	73.5	59.6	66.1	64.5	63.8	63.6	62.8	62.1	61.0	60.7	60.2			
	Energy Average		58.5	Average:		61.0	59.5	58.1	57.5	56.1	55.1	53.8	53.4	52.8	64.5 58.5 57.6		
	Night	Min	52.4	55.3	49.7	54.2	54.0	53.6	53.4	52.8	52.3	51.3	51.0	50.4			
Max		60.5	69.7	57.9	64.2	62.8	61.9	61.7	61.1	60.4	59.3	59.0	58.5				
Energy Average		57.6	Average:		59.7	59.0	58.4	58.1	57.4	56.8	55.5	55.1	54.5				

APPENDIX 6.1:

ON-SITE LOCATIONS

This page intentionally left blank



LEGEND:

 Site Boundary  Distance To Noise Source

This page intentionally left blank

APPENDIX 7.1:

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: SR-91
Lot No: Northern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 184,460 vehicles		Autos: 15				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 18,446 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 65 mph		Vehicle Mix				
Near/Far Lane Distance: 187 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 92.85%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 2.14%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 5.01%				
Centerline Dist. to Barrier: 140.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 1,330.0 feet		Autos: 460.000				
Barrier Distance to Observer: 1,190.0 feet		Medium Trucks: 462.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 468.006 Grade Adjustment: 0.0				
Pad Elevation: 460.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 460.0 feet		Autos: 1,326.719				
Barrier Elevation: 0.0 feet		Medium Trucks: 1,326.712				
Road Grade: 1.0%		Heavy Trucks: 1,326.713				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	75.54	8.90	-21.46	-1.20	-419.20	0.000	0.000
Medium Trucks:	81.71	-7.47	-21.46	-1.20	-421.35	0.000	0.000
Heavy Trucks:	85.21	-3.78	-21.46	-1.20	-426.70	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	471	1,014	2,185	4,707

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Festival Drive
Lot No: Southern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet			Autos:	462.000			
Barrier Distance to Observer:	20.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	5.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	48.374			
Barrier Elevation:	0.0 feet			Medium Trucks:	48.291			
Road Grade:	1.0%			Heavy Trucks:	48.374			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	0.11	-1.20	-859.35	0.000	0.000
Medium Trucks:	74.83	-23.33	0.12	-1.20	-861.38	0.000	0.000
Heavy Trucks:	80.05	-27.28	0.11	-1.20	-865.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.9	56.0	54.3	48.2	56.8	57.4
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.7	50.3	41.2	42.5	50.8	50.9
Vehicle Noise:	59.4	57.7	54.7	49.8	58.4	58.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.9	56.0	54.3	48.2	56.8	57.4
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.7	50.3	41.2	42.5	50.8	50.9
Vehicle Noise:	59.4	57.7	54.7	49.8	58.4	58.9

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	9	20	42	91

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard No Wall
Road Name: Festival Drive
Lot No: Western Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	80.0 feet			Autos:	462.000			
Barrier Distance to Observer:	50.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	5.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	78.994			
Barrier Elevation:	0.0 feet			Medium Trucks:	78.943			
Road Grade:	1.0%			Heavy Trucks:	78.994			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-3.08	-1.20	-832.23	0.000	0.000
Medium Trucks:	74.83	-23.33	-3.08	-1.20	-834.23	0.000	0.000
Heavy Trucks:	80.05	-27.28	-3.08	-1.20	-838.10	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.1	45.0	53.6	54.2
Medium Trucks:	47.2	45.7	39.4	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.0	39.3	47.6	47.8
Vehicle Noise:	56.2	54.5	51.6	46.7	55.2	55.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.1	45.0	53.6	54.2
Medium Trucks:	47.2	45.7	39.4	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.0	39.3	47.6	47.8
Vehicle Noise:	56.2	54.5	51.6	46.7	55.2	55.7

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	9	19	41	89

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
Road Name: SR-91
Lot No: Northern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 184,460 vehicles		Autos: 15				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 18,446 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 65 mph		Vehicle Mix				
Near/Far Lane Distance: 187 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 92.85%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 2.14%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 5.01%				
Centerline Dist. to Barrier: 140.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 1,330.0 feet		Autos: 460.000				
Barrier Distance to Observer: 1,190.0 feet		Medium Trucks: 462.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 468.006 Grade Adjustment: 0.0				
Pad Elevation: 460.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 460.0 feet		Autos: 1,326.719				
Barrier Elevation: 0.0 feet		Medium Trucks: 1,326.712				
Road Grade: 1.0%		Heavy Trucks: 1,326.713				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	75.54	8.90	-21.46	-1.20	-419.20	0.000	0.000
Medium Trucks:	81.71	-7.47	-21.46	-1.20	-421.35	0.000	0.000
Heavy Trucks:	85.21	-3.78	-21.46	-1.20	-426.70	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	471	1,014	2,185	4,707

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
 Road Name: Festival Drive
 Lot No: Southern Façade

Project Name: Anaheim Festival SPA
 Job Number: 15699
 Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet			Autos:	462.000			
Barrier Distance to Observer:	20.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	5.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	48.374			
Barrier Elevation:	0.0 feet			Medium Trucks:	48.291			
Road Grade:	1.0%			Heavy Trucks:	48.374			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	0.11	-1.20	-859.35	0.000	0.000
Medium Trucks:	74.83	-23.33	0.12	-1.20	-861.38	0.000	0.000
Heavy Trucks:	80.05	-27.28	0.11	-1.20	-865.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.9	56.0	54.3	48.2	56.8	57.4
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.7	50.3	41.2	42.5	50.8	50.9
Vehicle Noise:	59.4	57.7	54.7	49.8	58.4	58.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.9	56.0	54.3	48.2	56.8	57.4
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.7	50.3	41.2	42.5	50.8	50.9
Vehicle Noise:	59.4	57.7	54.7	49.8	58.4	58.9

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	9	20	42	91

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Backyard With Wall
 Road Name: Festival Drive
 Lot No: Western Façade

Project Name: Anaheim Festival SPA
 Job Number: 15699
 Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	80.0 feet			Autos:	462.000			
Barrier Distance to Observer:	50.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	5.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	78.994			
Barrier Elevation:	0.0 feet			Medium Trucks:	78.943			
Road Grade:	1.0%			Heavy Trucks:	78.994			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-3.08	-1.20	-832.23	0.000	0.000
Medium Trucks:	74.83	-23.33	-3.08	-1.20	-834.23	0.000	0.000
Heavy Trucks:	80.05	-27.28	-3.08	-1.20	-838.10	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.1	45.0	53.6	54.2
Medium Trucks:	47.2	45.7	39.4	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.0	39.3	47.6	47.8
Vehicle Noise:	56.2	54.5	51.6	46.7	55.2	55.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.1	45.0	53.6	54.2
Medium Trucks:	47.2	45.7	39.4	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.0	39.3	47.6	47.8
Vehicle Noise:	56.2	54.5	51.6	46.7	55.2	55.7

Centerline Distance to Noise Contour (in feet)	70 dBA	65 dBA	60 dBA	55 dBA
CNEL:	9	19	41	89

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
 Road Name: SR-91
 Lot No: Northern Façade

Project Name: Anaheim Festival SPA
 Job Number: 15699
 Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 184,460 vehicles		Autos: 15				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 18,446 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 65 mph		Vehicle Mix				
Near/Far Lane Distance: 187 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 92.85%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 2.14%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 5.01%				
Centerline Dist. to Barrier: 140.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 1,330.0 feet		Autos: 460.000				
Barrier Distance to Observer: 1,190.0 feet		Medium Trucks: 462.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 468.006 Grade Adjustment: 0.0				
Pad Elevation: 460.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 460.0 feet		Autos: 1,326.719				
Barrier Elevation: 0.0 feet		Medium Trucks: 1,326.712				
Road Grade: 1.0%		Heavy Trucks: 1,326.713				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	75.54	8.90	-21.46	-1.20	-419.20	0.000	0.000
Medium Trucks:	81.71	-7.47	-21.46	-1.20	-421.35	0.000	0.000
Heavy Trucks:	85.21	-3.78	-21.46	-1.20	-426.70	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Festival Drive
Lot No: Southern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos: 15				
Peak Hour Percentage:	10%			Medium Trucks (2 Axles): 15				
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet			Autos:	462.000			
Barrier Distance to Observer:	20.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	5.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	48.374			
Barrier Elevation:	0.0 feet			Medium Trucks:	48.291			
Road Grade:	1.0%			Heavy Trucks:	48.374			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	0.11	-1.20	-859.35	0.000	0.000
Medium Trucks:	74.83	-23.33	0.12	-1.20	-861.38	0.000	0.000
Heavy Trucks:	80.05	-27.28	0.11	-1.20	-865.21	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.9	56.0	54.3	48.2	56.8	57.4
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.7	50.3	41.2	42.5	50.8	50.9
Vehicle Noise:	59.4	57.7	54.7	49.8	58.4	58.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.9	56.0	54.3	48.2	56.8	57.4
Medium Trucks:	50.4	48.9	42.6	41.0	49.5	49.7
Heavy Trucks:	51.7	50.3	41.2	42.5	50.8	50.9
Vehicle Noise:	59.4	57.7	54.7	49.8	58.4	58.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Festival Drive
Lot No: Western Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	80.0 feet			Autos:	462.000			
Barrier Distance to Observer:	50.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	5.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	78.994			
Barrier Elevation:	0.0 feet			Medium Trucks:	78.943			
Road Grade:	1.0%			Heavy Trucks:	78.994			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-3.08	-1.20	-832.23	0.000	0.000
Medium Trucks:	74.83	-23.33	-3.08	-1.20	-834.23	0.000	0.000
Heavy Trucks:	80.05	-27.28	-3.08	-1.20	-838.10	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.1	45.0	53.6	54.2
Medium Trucks:	47.2	45.7	39.4	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.0	39.3	47.6	47.8
Vehicle Noise:	56.2	54.5	51.6	46.7	55.2	55.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.1	45.0	53.6	54.2
Medium Trucks:	47.2	45.7	39.4	37.8	46.3	46.5
Heavy Trucks:	48.5	47.1	38.0	39.3	47.6	47.8
Vehicle Noise:	56.2	54.5	51.6	46.7	55.2	55.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
Road Name: SR-91
Lot No: Northern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 184,460 vehicles		Autos: 15				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 18,446 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 65 mph		Vehicle Mix				
Near/Far Lane Distance: 187 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 92.85%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 2.14%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 5.01%				
Centerline Dist. to Barrier: 140.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 1,330.0 feet		Autos: 460.000				
Barrier Distance to Observer: 1,190.0 feet		Medium Trucks: 462.297				
Observer Height (Above Pad): 14.0 feet		Heavy Trucks: 468.006 Grade Adjustment: 0.0				
Pad Elevation: 460.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 460.0 feet		Autos: 1,326.783				
Barrier Elevation: 0.0 feet		Medium Trucks: 1,326.761				
Road Grade: 1.0%		Heavy Trucks: 1,326.723				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	75.54	8.90	-21.46	-1.20	-422.37	0.000	0.000
Medium Trucks:	81.71	-7.47	-21.46	-1.20	-424.54	0.000	0.000
Heavy Trucks:	85.21	-3.78	-21.46	-1.20	-429.92	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
 Road Name: Festival Drive
 Lot No: Southern Façade

Project Name: Anaheim Festival SPA
 Job Number: 15699
 Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet			Autos:	462.000			
Barrier Distance to Observer:	20.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	14.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	49.749			
Barrier Elevation:	0.0 feet			Medium Trucks:	49.305			
Road Grade:	1.0%			Heavy Trucks:	48.651			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-0.07	-1.20	-866.84	0.000	0.000
Medium Trucks:	74.83	-23.33	-0.01	-1.20	-869.22	0.000	0.000
Heavy Trucks:	80.05	-27.28	0.07	-1.20	-873.75	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.8	55.9	54.1	48.0	56.7	57.3
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.6
Heavy Trucks:	51.6	50.2	41.2	42.4	50.8	50.9
Vehicle Noise:	59.3	57.5	54.6	49.7	58.3	58.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.8	55.9	54.1	48.0	56.7	57.3
Medium Trucks:	50.3	48.8	42.4	40.9	49.3	49.6
Heavy Trucks:	51.6	50.2	41.2	42.4	50.8	50.9
Vehicle Noise:	59.3	57.5	54.6	49.7	58.3	58.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Second Floor With Wall
 Road Name: Festival Drive
 Lot No: Western Façade

Project Name: Anaheim Festival SPA
 Job Number: 15699
 Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	80.0 feet			Autos:	462.000			
Barrier Distance to Observer:	50.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	14.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	79.844			
Barrier Elevation:	0.0 feet			Medium Trucks:	79.568			
Road Grade:	1.0%			Heavy Trucks:	79.164			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-3.15	-1.20	-840.17	0.000	0.000
Medium Trucks:	74.83	-23.33	-3.13	-1.20	-842.39	0.000	0.000
Heavy Trucks:	80.05	-27.28	-3.10	-1.20	-846.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.0	44.9	53.6	54.2
Medium Trucks:	47.2	45.7	39.3	37.8	46.2	46.5
Heavy Trucks:	48.5	47.0	38.0	39.3	47.6	47.7
Vehicle Noise:	56.2	54.4	51.5	46.6	55.1	55.6

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	52.8	51.0	44.9	53.6	54.2
Medium Trucks:	47.2	45.7	39.3	37.8	46.2	46.5
Heavy Trucks:	48.5	47.0	38.0	39.3	47.6	47.7
Vehicle Noise:	56.2	54.4	51.5	46.6	55.1	55.6

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
 Road Name: SR-91
 Lot No: Northern Façade

Project Name: Anaheim Festival SPA
 Job Number: 15699
 Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 184,460 vehicles		Autos: 15				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 18,446 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 65 mph		Vehicle Mix				
Near/Far Lane Distance: 187 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 92.85%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 2.14%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 5.01%				
Centerline Dist. to Barrier: 140.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 1,330.0 feet		Autos: 460.000				
Barrier Distance to Observer: 1,190.0 feet		Medium Trucks: 462.297				
Observer Height (Above Pad): 23.0 feet		Heavy Trucks: 468.006 Grade Adjustment: 0.0				
Pad Elevation: 460.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 460.0 feet		Autos: 1,326.909				
Barrier Elevation: 0.0 feet		Medium Trucks: 1,326.871				
Road Grade: 1.0%		Heavy Trucks: 1,326.794				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	75.54	8.90	-21.46	-1.20	-425.53	0.000	0.000
Medium Trucks:	81.71	-7.47	-21.46	-1.20	-427.72	0.000	0.000
Heavy Trucks:	85.21	-3.78	-21.46	-1.20	-433.14	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:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
Road Name: Festival Drive
Lot No: Southern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet			Autos:	462.000			
Barrier Distance to Observer:	20.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	23.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	52.650			
Barrier Elevation:	0.0 feet			Medium Trucks:	51.884			
Road Grade:	1.0%			Heavy Trucks:	50.555			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-0.44	-1.20	-872.89	0.000	0.000
Medium Trucks:	74.83	-23.33	-0.34	-1.20	-875.57	0.000	0.000
Heavy Trucks:	80.05	-27.28	-0.18	-1.20	-880.74	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.4	55.5	53.7	47.7	56.3	56.9
Medium Trucks:	50.0	48.4	42.1	40.5	49.0	49.2
Heavy Trucks:	51.4	50.0	40.9	42.2	50.5	50.7
Vehicle Noise:	58.9	57.2	54.2	49.4	57.9	58.4

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.4	55.5	53.7	47.7	56.3	56.9
Medium Trucks:	50.0	48.4	42.1	40.5	49.0	49.2
Heavy Trucks:	51.4	50.0	40.9	42.2	50.5	50.7
Vehicle Noise:	58.9	57.2	54.2	49.4	57.9	58.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Third Floor With Wall
Road Name: Festival Drive
Lot No: Western Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	80.0 feet			Autos:	462.000			
Barrier Distance to Observer:	50.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	23.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	81.682			
Barrier Elevation:	0.0 feet			Medium Trucks:	81.191			
Road Grade:	1.0%			Heavy Trucks:	80.348			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-3.30	-1.20	-847.15	0.000	0.000
Medium Trucks:	74.83	-23.33	-3.26	-1.20	-849.58	0.000	0.000
Heavy Trucks:	80.05	-27.28	-3.19	-1.20	-854.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.5	52.6	50.9	44.8	53.4	54.0
Medium Trucks:	47.0	45.5	39.2	37.6	46.1	46.3
Heavy Trucks:	48.4	46.9	37.9	39.2	47.5	47.6
Vehicle Noise:	56.0	54.3	51.3	46.5	55.0	55.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.5	52.6	50.9	44.8	53.4	54.0
Medium Trucks:	47.0	45.5	39.2	37.6	46.1	46.3
Heavy Trucks:	48.4	46.9	37.9	39.2	47.5	47.6
Vehicle Noise:	56.0	54.3	51.3	46.5	55.0	55.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: SR-91
Lot No: Northern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 184,460 vehicles		Autos: 15				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 18,446 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 65 mph		Vehicle Mix				
Near/Far Lane Distance: 187 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 92.85%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 2.14%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 5.01%				
Centerline Dist. to Barrier: 140.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 1,330.0 feet		Autos: 460.000				
Barrier Distance to Observer: 1,190.0 feet		Medium Trucks: 462.297				
Observer Height (Above Pad): 32.0 feet		Heavy Trucks: 468.006 Grade Adjustment: 0.0				
Pad Elevation: 460.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 460.0 feet		Autos: 1,327.095				
Barrier Elevation: 0.0 feet		Medium Trucks: 1,327.042				
Road Grade: 1.0%		Heavy Trucks: 1,326.926				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	75.54	8.90	-21.46	-1.20	-428.68	0.000	0.000
Medium Trucks:	81.71	-7.47	-21.46	-1.20	-430.89	0.000	0.000
Heavy Trucks:	85.21	-3.78	-21.46	-1.20	-436.35	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: Festival Drive
Lot No: Southern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet			Autos:	462.000			
Barrier Distance to Observer:	20.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	32.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	56.842			
Barrier Elevation:	0.0 feet			Medium Trucks:	55.812			
Road Grade:	1.0%			Heavy Trucks:	53.914			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-0.94	-1.20	-877.70	0.000	0.000
Medium Trucks:	74.83	-23.33	-0.82	-1.20	-880.63	0.000	0.000
Heavy Trucks:	80.05	-27.28	-0.59	-1.20	-886.35	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:	56.9	55.0	53.2	47.2	55.8	56.4
Medium Trucks:	49.5	48.0	41.6	40.1	48.5	48.8
Heavy Trucks:	51.0	49.5	40.5	41.8	50.1	50.2
Vehicle Noise:	58.5	56.7	53.7	48.9	57.4	57.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.9	55.0	53.2	47.2	55.8	56.4
Medium Trucks:	49.5	48.0	41.6	40.1	48.5	48.8
Heavy Trucks:	51.0	49.5	40.5	41.8	50.1	50.2
Vehicle Noise:	58.5	56.7	53.7	48.9	57.4	57.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fourth Floor With Wall
Road Name: Festival Drive
Lot No: Western Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	80.0 feet			Autos:	462.000			
Barrier Distance to Observer:	50.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	32.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	84.445			
Barrier Elevation:	0.0 feet			Medium Trucks:	83.756			
Road Grade:	1.0%			Heavy Trucks:	82.503			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-3.52	-1.20	-853.24	0.000	0.000
Medium Trucks:	74.83	-23.33	-3.46	-1.20	-855.86	0.000	0.000
Heavy Trucks:	80.05	-27.28	-3.37	-1.20	-860.98	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.3	52.4	50.6	44.6	53.2	53.8
Medium Trucks:	46.8	45.3	39.0	37.4	45.9	46.1
Heavy Trucks:	48.2	46.8	37.7	39.0	47.3	47.5
Vehicle Noise:	55.8	54.1	51.1	46.3	54.8	55.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.3	52.4	50.6	44.6	53.2	53.8
Medium Trucks:	46.8	45.3	39.0	37.4	45.9	46.1
Heavy Trucks:	48.2	46.8	37.7	39.0	47.3	47.5
Vehicle Noise:	55.8	54.1	51.1	46.3	54.8	55.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fifth Floor With Wall
Road Name: SR-91
Lot No: Northern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 184,460 vehicles		Autos: 15				
Peak Hour Percentage: 10%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 18,446 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 65 mph		Vehicle Mix				
Near/Far Lane Distance: 187 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 92.85%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 2.14%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 5.01%				
Centerline Dist. to Barrier: 140.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 1,330.0 feet		Autos: 460.000				
Barrier Distance to Observer: 1,190.0 feet		Medium Trucks: 462.297				
Observer Height (Above Pad): 41.0 feet		Heavy Trucks: 468.006 Grade Adjustment: 0.0				
Pad Elevation: 460.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 460.0 feet		Autos: 1,327.343				
Barrier Elevation: 0.0 feet		Medium Trucks: 1,327.274				
Road Grade: 1.0%		Heavy Trucks: 1,327.120				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	75.54	8.90	-21.46	-1.20	-431.83	0.000	0.000
Medium Trucks:	81.71	-7.47	-21.46	-1.20	-434.05	0.000	0.000
Heavy Trucks:	85.21	-3.78	-21.46	-1.20	-439.55	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.9	58.1	52.1	60.7	61.3
Medium Trucks:	51.6	50.1	43.7	42.2	50.6	50.9
Heavy Trucks:	58.8	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	63.8	62.1	58.7	54.3	62.8	63.2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fifth Floor With Wall
Road Name: Festival Drive
Lot No: Southern Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	50.0 feet			Autos:	462.000			
Barrier Distance to Observer:	20.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	41.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	62.064			
Barrier Elevation:	0.0 feet			Medium Trucks:	60.828			
Road Grade:	1.0%			Heavy Trucks:	58.477			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-1.51	-1.20	-881.51	0.000	0.000
Medium Trucks:	74.83	-23.33	-1.38	-1.20	-884.64	0.000	0.000
Heavy Trucks:	80.05	-27.28	-1.12	-1.20	-890.80	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:	56.3	54.4	52.6	46.6	55.2	55.8
Medium Trucks:	48.9	47.4	41.1	39.5	48.0	48.2
Heavy Trucks:	50.4	49.0	40.0	41.2	49.6	49.7
Vehicle Noise:	57.9	56.1	53.2	48.3	56.9	57.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.3	54.4	52.6	46.6	55.2	55.8
Medium Trucks:	48.9	47.4	41.1	39.5	48.0	48.2
Heavy Trucks:	50.4	49.0	40.0	41.2	49.6	49.7
Vehicle Noise:	57.9	56.1	53.2	48.3	56.9	57.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: Fifth Floor With Wall
Road Name: Festival Drive
Lot No: Western Façade

Project Name: Anaheim Festival SPA
Job Number: 15699
Analyst: B. Maddux

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	3,000 vehicles			Autos:	15			
Peak Hour Percentage:	10%			Medium Trucks (2 Axles):	15			
Peak Hour Volume:	300 vehicles			Heavy Trucks (3+ Axles):	15			
Vehicle Speed:	35 mph			Vehicle Mix				
Near/Far Lane Distance:	26 feet			VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height:	0.0 feet			Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier:	30.0 feet			Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	80.0 feet			Autos:	462.000			
Barrier Distance to Observer:	50.0 feet			Medium Trucks:	464.000			
Observer Height (Above Pad):	41.0 feet			Heavy Trucks:	468.006	Grade Adjustment:	0.0	
Pad Elevation:	460.0 feet			Lane Equivalent Distance (in feet)				
Road Elevation:	460.0 feet			Autos:	88.045			
Barrier Elevation:	0.0 feet			Medium Trucks:	87.178			
Road Grade:	1.0%			Heavy Trucks:	85.555			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	-6.09	-3.79	-1.20	-858.52	0.000	0.000
Medium Trucks:	74.83	-23.33	-3.72	-1.20	-861.31	0.000	0.000
Heavy Trucks:	80.05	-27.28	-3.60	-1.20	-866.79	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.0	52.1	50.4	44.3	52.9	53.5
Medium Trucks:	46.6	45.1	38.7	37.2	45.6	45.9
Heavy Trucks:	48.0	46.5	37.5	38.8	47.1	47.2
Vehicle Noise:	55.6	53.8	50.9	46.0	54.5	55.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.0	52.1	50.4	44.3	52.9	53.5
Medium Trucks:	46.6	45.1	38.7	37.2	45.6	45.9
Heavy Trucks:	48.0	46.5	37.5	38.8	47.1	47.2
Vehicle Noise:	55.6	53.8	50.9	46.0	54.5	55.0

This page intentionally left blank

APPENDIX 8.1:

OFF-SITE TRANSPORTATION NOISE LEVEL CONTOURS

This page intentionally left blank

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Imperial Highway
Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 48,831 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,029 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:	77.5%	12.9%	9.6%	97.42%
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	61.131			
		Medium Trucks:	60.986			
		Heavy Trucks:	61.000			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.10	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.14	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.09	-1.40	-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:	69.9	68.9	67.1	61.1	69.7	70.3
Medium Trucks:	63.7	63.0	56.7	55.1	63.6	63.8
Heavy Trucks:	64.6	64.0	54.9	56.2	64.5	64.7
Vehicle Noise:	71.8	70.9	67.7	63.1	71.6	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	204	439	945
CNEL:	101	218	471	1,014

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Imperial Highway
Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 41,497 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,424 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000		Grade Adjustment: 0.0		
Medium Trucks: 2.297						
Heavy Trucks: 8.006						
Lane Equivalent Distance (in feet)		Autos: 61.131				
		Medium Trucks: 60.986				
		Heavy Trucks: 61.000				
Barrier Height: 0.0 feet						
Barrier Type (0-Wall, 1-Berm): 0.0						
Centerline Dist. to Barrier: 74.0 feet						
Centerline Dist. to Observer: 74.0 feet						
Barrier Distance to Observer: 0.0 feet						
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet						
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.39	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.84	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.80	-1.40	-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	68.2	66.4	60.4	69.0	69.6
Medium Trucks:	63.0	62.3	56.0	54.4	62.9	63.1
Heavy Trucks:	63.9	63.3	54.2	55.5	63.8	64.0
Vehicle Noise:	71.1	70.2	67.0	62.3	70.9	71.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	183	394	848
CNEL:	91	196	422	910

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Imperial Highway
Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS						
Highway Data		Site Conditions (Hard = 10, Soft = 15)						
Average Daily Traffic (Adt): 37,250 vehicles		Autos: 15						
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15						
Peak Hour Volume: 3,073 vehicles		Heavy Trucks (3+ Axles): 15						
Vehicle Speed: 45 mph		Vehicle Mix						
Near/Far Lane Distance: 84 feet								
Site Data		VehicleType	Day	Evening	Night	Daily		
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:		77.5%	12.9%	9.6%	97.42%	
		Medium Trucks:		84.8%	4.9%	10.3%	1.84%	
		Heavy Trucks:		86.5%	2.7%	10.8%	0.74%	
		Noise Source Elevations (in feet)						
		Autos:		0.000				
		Medium Trucks:		2.297				
		Heavy Trucks:		8.006	Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)						
		Autos:		61.131				
Medium Trucks:		60.986						
Heavy Trucks:		61.000						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.92	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-14.31	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.27	-1.40	-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:	68.8	67.7	65.9	59.9	68.5	69.1
Medium Trucks:	62.5	61.9	55.5	54.0	62.4	62.7
Heavy Trucks:	63.4	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	70.6	69.7	66.6	61.9	70.4	70.9

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	79	170	366	789
CNEL:	85	182	393	847

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Imperial Highway
 Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,480 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,855 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 56.513				
Road Grade: 0.0%		Medium Trucks: 56.357				
Left View: -90.0 degrees		Heavy Trucks: 56.372				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.73	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.51	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.46	-0.88	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	66.0	64.3	58.2	66.8	67.4
Medium Trucks:	60.9	60.2	53.8	52.3	60.7	61.0
Heavy Trucks:	61.7	61.1	52.1	53.3	61.7	61.8
Vehicle Noise:	68.9	68.0	64.9	60.2	68.7	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	115	249	536
CNEL:	57	124	267	575

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Santa Ana Canyon Rd
Road Segment: w/o Imperial Highway

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,145 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,239 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.55	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.69	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.64	-0.88	-1.20	-5.30	0.000	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	65.1	59.0	67.6	68.3
Medium Trucks:	61.7	61.0	54.6	53.1	61.6	61.8
Heavy Trucks:	62.5	61.9	52.9	54.2	62.5	62.6
Vehicle Noise:	69.7	68.8	65.7	61.0	69.6	70.0

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	131	282	607
CNEL:	65	140	302	651

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Imperial Highway

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 34,691 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,862 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 64 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 65.0 feet Centerline Dist. to Observer: 65.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 56.798				
		Medium Trucks: 56.642				
Heavy Trucks: 56.657						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.62	-0.93	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-14.62	-0.92	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.58	-0.92	-1.20	-5.30	0.000	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	66.1	60.1	68.7	69.3
Medium Trucks:	62.7	62.0	55.7	54.1	62.6	62.8
Heavy Trucks:	63.6	63.0	53.9	55.2	63.5	63.7
Vehicle Noise:	70.8	69.9	66.7	62.0	70.6	71.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	153	330	712
CNEL:	76	164	354	763

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Anaheim Hills Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,057 vehicles				Autos: 15				
Peak Hour Percentage: 8.25%				Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,067 vehicles				Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph				Vehicle Mix				
Near/Far Lane Distance: 36 feet				VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
				Medium Trucks:	84.8%	4.9%	10.3%	1.84%
				Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Noise Source Elevations (in feet)				
				Autos:	0.000			
				Medium Trucks:	2.297			
				Heavy Trucks:	8.006	Grade Adjustment:	0.0	
				Lane Equivalent Distance (in feet)				
				Autos:	36.069			
				Medium Trucks:	35.823			
				Heavy Trucks:	35.847			

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.20	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-16.04	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.99	2.06	-1.20	-5.56	0.000	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	67.7	61.6	70.2	70.8
Medium Trucks:	64.3	63.6	57.2	55.7	64.2	64.4
Heavy Trucks:	65.1	64.5	55.5	56.8	65.1	65.2
Vehicle Noise:	72.3	71.4	68.3	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	258	556
CNEL:	60	128	277	596

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Fairmont Blvd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,044 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,736 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
		Heavy Trucks: 35.847				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.44	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-16.79	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.75	2.06	-1.20	-5.56	0.000	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	66.9	60.8	69.5	70.1
Medium Trucks:	63.5	62.9	56.5	54.9	63.4	63.6
Heavy Trucks:	64.4	63.8	54.7	56.0	64.3	64.5
Vehicle Noise:	71.6	70.7	67.5	62.8	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	107	230	495
CNEL:	53	114	246	531

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Deer Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,417 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,932 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height: 0.0 feet		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier: 40.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos:	0.000			
Barrier Distance to Observer: 0.0 feet		Medium Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:	0.0	
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos:	36.069			
Road Grade: 0.0%		Medium Trucks:	35.823			
Left View: -90.0 degrees		Heavy Trucks:	35.847			
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.91	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-16.33	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.29	2.06	-1.20	-5.56	0.000	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	67.4	61.3	69.9	70.5
Medium Trucks:	64.0	63.3	57.0	55.4	63.9	64.1
Heavy Trucks:	64.8	64.2	55.2	56.5	64.8	64.9
Vehicle Noise:	72.0	71.1	68.0	63.3	71.9	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	114	247	531
CNEL:	57	123	265	570

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 19,180 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,582 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 56.513				
Road Grade: 0.0%		Medium Trucks: 56.357				
Left View: -90.0 degrees		Heavy Trucks: 56.372				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.04	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-17.20	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-21.15	-0.88	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.3	63.6	57.5	66.1	66.7
Medium Trucks:	60.2	59.5	53.1	51.6	60.1	60.3
Heavy Trucks:	61.0	60.4	51.4	52.6	61.0	61.1
Vehicle Noise:	68.2	67.3	64.2	59.5	68.0	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	224	482
CNEL:	52	111	240	517

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Festival Center Dwy

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 19,414 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,602 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 65 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%					
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 56.513					
		Medium Trucks: 56.357					
		Heavy Trucks: 56.372					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.09	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-17.14	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-21.10	-0.88	-1.20	-5.30	0.000	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	63.6	57.6	66.2	66.8
Medium Trucks:	60.2	59.6	53.2	51.6	60.1	60.3
Heavy Trucks:	61.1	60.5	51.4	52.7	61.1	61.2
Vehicle Noise:	68.3	67.4	64.2	59.6	68.1	68.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	105	225	486
CNEL:	52	112	242	521

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,124 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,825 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
Barrier Height: 0.0 feet		Medium Trucks: 2.297				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
Centerline Dist. to Barrier: 70.0 feet		Lane Equivalent Distance (in feet)				
Centerline Dist. to Observer: 70.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 61.392				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 61.248				
Pad Elevation: 0.0 feet		Heavy Trucks: 61.262				
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.66	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	79.45	-16.58	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.53	-1.43	-1.20	-5.28	0.000	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	63.7	57.6	66.2	66.8
Medium Trucks:	60.2	59.6	53.2	51.7	60.1	60.4
Heavy Trucks:	61.1	60.5	51.5	52.7	61.1	61.2
Vehicle Noise:	68.3	67.4	64.3	59.6	68.1	68.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	53	113	244	525
CNEL:	56	121	262	563

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Weir Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 17,927 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,479 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 72 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 60.241				
		Medium Trucks: 60.094				
		Heavy Trucks: 60.109				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.71	-1.32	-1.20	-4.72	0.000	0.000
Medium Trucks:	81.00	-17.95	-1.30	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-21.90	-1.30	-1.20	-5.28	0.000	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	65.9	64.1	58.1	66.7	67.3
Medium Trucks:	60.6	59.9	53.5	52.0	60.4	60.7
Heavy Trucks:	61.0	60.4	51.4	52.6	61.0	61.1
Vehicle Noise:	68.7	67.8	64.7	59.9	68.5	68.9

Centerline Distance to Noise Contour (in feet)

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

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Weir Canyon Dr
 Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,010 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,301 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000		Grade Adjustment: 0.0		
Medium Trucks: 2.297						
Heavy Trucks: 8.006						
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.75	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.49	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.45	-1.43	-1.20	-5.28	0.000	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	64.8	58.7	67.4	68.0
Medium Trucks:	61.6	60.9	54.6	53.0	61.5	61.7
Heavy Trucks:	62.9	62.3	53.3	54.5	62.9	63.0
Vehicle Noise:	69.6	68.7	65.5	60.9	69.4	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	138	298	643
CNEL:	69	148	319	688

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Weir Canyon Dr
Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 35,997 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,970 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.29	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.95	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.91	-1.43	-1.20	-5.28	0.000	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	64.3	58.3	66.9	67.5
Medium Trucks:	61.1	60.5	54.1	52.6	61.0	61.3
Heavy Trucks:	62.5	61.9	52.8	54.1	62.4	62.6
Vehicle Noise:	69.2	68.3	65.0	60.4	69.0	69.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	278	599
CNEL:	64	138	298	641

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Weir Canyon Dr
Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 38,443 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,172 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				
Barrier Height: 0.0 feet						
Barrier Type (0-Wall, 1-Berm): 0.0						
Centerline Dist. to Barrier: 70.0 feet						
Centerline Dist. to Observer: 70.0 feet						
Barrier Distance to Observer: 0.0 feet						
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet						
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.57	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.67	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.62	-1.43	-1.20	-5.28	0.000	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	66.4	64.6	58.6	67.2	67.8
Medium Trucks:	61.4	60.8	54.4	52.8	61.3	61.5
Heavy Trucks:	62.7	62.2	53.1	54.4	62.7	62.9
Vehicle Noise:	69.5	68.6	65.3	60.7	69.3	69.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	135	290	626
CNEL:	67	144	311	670

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Weir Canyon Dr
Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,365 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,010 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.59	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-15.65	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-19.60	-1.43	-1.20	-5.28	0.000	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	62.6	56.6	65.2	65.8
Medium Trucks:	59.4	58.8	52.4	50.9	59.3	59.6
Heavy Trucks:	60.8	60.2	51.1	52.4	60.7	60.9
Vehicle Noise:	67.5	66.6	63.3	58.8	67.3	67.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	99	214	462
CNEL:	49	107	229	494

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Weir Canyon Dr
Road Segment: s/o Monte Vista Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 28,867 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,382 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.33	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-14.91	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-18.87	-1.43	-1.20	-5.28	0.000	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	65.1	63.4	57.3	65.9	66.5
Medium Trucks:	60.2	59.5	53.1	51.6	60.1	60.3
Heavy Trucks:	61.5	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	68.2	67.3	64.0	59.5	68.0	68.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	111	240	517
CNEL:	55	119	257	554

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Festival Dr
Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	7,273 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	600 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 33.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 33.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 32.833				
Road Grade: 0.0%		Medium Trucks: 32.562				
Left View: -90.0 degrees		Heavy Trucks: 32.589				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.08	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-20.32	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-24.27	2.69	-1.20	-5.69	0.000	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	61.6	59.8	53.8	62.4	63.0
Medium Trucks:	56.9	56.3	49.9	48.3	56.8	57.0
Heavy Trucks:	58.8	58.2	49.2	50.4	58.8	58.9
Vehicle Noise:	64.9	64.0	60.6	56.2	64.7	65.2

Centerline Distance to Noise Contour (in feet)

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

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Festival Dr
Road Segment: s/o Dwy 1

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	1,869 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	154 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-8.98	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-26.22	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-30.17	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	55.7	53.9	47.9	56.5	57.1
Medium Trucks:	51.0	50.4	44.0	42.4	50.9	51.1
Heavy Trucks:	52.9	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	59.0	58.1	54.7	50.3	58.8	59.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	28	59
CNEL:	6	14	29	63

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Festival Dr
Road Segment: e/o Dwy 2

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	1,869 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	154 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-8.98	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-26.22	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-30.17	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.8	55.7	53.9	47.9	56.5	57.1
Medium Trucks:	51.0	50.4	44.0	42.4	50.9	51.1
Heavy Trucks:	52.9	52.3	43.3	44.5	52.9	53.0
Vehicle Noise:	59.0	58.1	54.7	50.3	58.8	59.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	28	59
CNEL:	6	14	29	63

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
 Road Name: Festival Dr
 Road Segment: w/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	4,380 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	361 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-5.28	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-22.52	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-26.47	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.5	59.4	57.6	51.6	60.2	60.8
Medium Trucks:	54.7	54.0	47.7	46.1	54.6	54.8
Heavy Trucks:	56.6	56.0	47.0	48.2	56.6	56.7
Vehicle Noise:	62.7	61.8	58.4	54.0	62.5	63.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	10	23	49	105
CNEL:	11	24	52	112

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Monte Vista Rd
Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	9,157 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	755 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	40.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	40.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 36.069				
Road Grade:	0.0%	Medium Trucks: 35.823				
Left View:	-90.0 degrees	Heavy Trucks: 35.847				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.08	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-19.32	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-23.27	2.06	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.0	62.0	60.2	54.2	62.8	63.4
Medium Trucks:	57.3	56.6	50.3	48.7	57.2	57.4
Heavy Trucks:	59.2	58.6	49.5	50.8	59.1	59.3
Vehicle Noise:	65.3	64.4	61.0	56.6	65.1	65.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	19	41	88	189
CNEL:	20	43	94	202

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing
Road Name: Roosevelt Rd
Road Segment: n/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	6,570 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	542 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 40.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.069				
Road Grade: 0.0%		Medium Trucks: 35.823				
Left View: -90.0 degrees		Heavy Trucks: 35.847				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.52	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-20.76	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-24.71	2.06	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.6	60.5	58.8	52.7	61.3	62.0
Medium Trucks:	55.9	55.2	48.8	47.3	55.7	56.0
Heavy Trucks:	57.7	57.1	48.1	49.3	57.7	57.8
Vehicle Noise:	63.8	63.0	59.5	55.1	63.7	64.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	33	70	151
CNEL:	16	35	75	162

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Imperial Highway
Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 51,456 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 4,245 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 84 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:		77.5%	12.9%	9.6%	97.42%
		Medium Trucks:		84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)					
		Autos:		0.000			
		Medium Trucks:		2.297			
		Heavy Trucks:		8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)					
		Autos:		61.131			
		Medium Trucks:		60.986			
		Heavy Trucks:		61.000			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.33	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-12.91	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.87	-1.40	-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:	70.2	69.1	67.3	61.3	69.9	70.5
Medium Trucks:	63.9	63.3	56.9	55.4	63.8	64.1
Heavy Trucks:	64.8	64.2	55.2	56.4	64.8	64.9
Vehicle Noise:	72.0	71.1	68.0	63.3	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	98	211	454	979
CNEL:	105	226	487	1,050

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Imperial Highway
 Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 43,773 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,611 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 84 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
		Autos: 77.5%		12.9%	9.6%	97.42%	
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%	
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%	
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006		Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)					
		Autos: 61.131					
		Medium Trucks: 60.986					
		Heavy Trucks: 61.000					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.63	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.61	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.57	-1.40	-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	66.6	60.6	69.2	69.8
Medium Trucks:	63.2	62.6	56.2	54.7	63.1	63.4
Heavy Trucks:	64.1	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	71.3	70.4	67.3	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	189	408	879
CNEL:	94	203	438	943

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Imperial Highway
Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,333 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,245 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.131				
		Medium Trucks: 60.986				
		Heavy Trucks: 61.000				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.16	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-14.08	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.03	-1.40	-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:	69.0	67.9	66.2	60.1	68.7	69.4
Medium Trucks:	62.8	62.1	55.7	54.2	62.7	62.9
Heavy Trucks:	63.6	63.0	54.0	55.2	63.6	63.7
Vehicle Noise:	70.8	69.9	66.8	62.1	70.7	71.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	82	176	380	818
CNEL:	88	189	407	878

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Imperial Highway
 Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,697 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,955 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.96	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.28	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.23	-0.88	-1.20	-5.30	0.000	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	64.5	58.4	67.1	67.7
Medium Trucks:	61.1	60.4	54.1	52.5	61.0	61.2
Heavy Trucks:	61.9	61.3	52.3	53.6	61.9	62.0
Vehicle Noise:	69.2	68.3	65.1	60.4	69.0	69.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	120	257	555
CNEL:	60	128	276	595

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Santa Ana Canyon Rd
Road Segment: w/o Imperial Highway

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 28,550 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,355 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
Barrier Height: 0.0 feet		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				
Barrier Type (0-Wall, 1-Berm): 0.0						
Centerline Dist. to Barrier: 65.0 feet						
Centerline Dist. to Observer: 65.0 feet						
Barrier Distance to Observer: 0.0 feet						
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet						
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.77	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.47	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.42	-0.88	-1.20	-5.30	0.000	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	65.3	59.2	67.9	68.5
Medium Trucks:	61.9	61.2	54.9	53.3	61.8	62.0
Heavy Trucks:	62.7	62.2	53.1	54.4	62.7	62.9
Vehicle Noise:	70.0	69.1	65.9	61.2	69.8	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	135	292	628
CNEL:	67	145	313	674

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Imperial Highway

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 36,715 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,029 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 64 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 56.798				
Road Grade: 0.0%		Medium Trucks: 56.642				
Left View: -90.0 degrees		Heavy Trucks: 56.657				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.86	-0.93	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-14.38	-0.92	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.33	-0.92	-1.20	-5.30	0.000	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	66.4	60.3	68.9	69.5
Medium Trucks:	63.0	62.3	55.9	54.4	62.8	63.1
Heavy Trucks:	63.8	63.2	54.2	55.4	63.8	63.9
Vehicle Noise:	71.0	70.1	67.0	62.3	70.8	71.3

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	74	159	343	739
CNEL:	79	171	368	793

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Anaheim Hills Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 26,599 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,194 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 40.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.069				
Road Grade: 0.0%		Medium Trucks: 35.823				
Left View: -90.0 degrees		Heavy Trucks: 35.847				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.46	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-15.78	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.73	2.06	-1.20	-5.56	0.000	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	67.9	61.9	70.5	71.1
Medium Trucks:	64.5	63.9	57.5	56.0	64.4	64.7
Heavy Trucks:	65.4	64.8	55.8	57.0	65.4	65.5
Vehicle Noise:	72.6	71.7	68.5	63.9	72.4	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	578
CNEL:	62	134	288	620

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Fairmont Blvd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,359 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,845 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 40.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.069				
Road Grade: 0.0%		Medium Trucks: 35.823				
Left View: -90.0 degrees		Heavy Trucks: 35.847				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.71	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-16.53	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.49	2.06	-1.20	-5.56	0.000	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	67.2	61.1	69.7	70.3
Medium Trucks:	63.8	63.1	56.8	55.2	63.7	63.9
Heavy Trucks:	64.6	64.0	55.0	56.3	64.6	64.7
Vehicle Noise:	71.8	70.9	67.8	63.1	71.6	72.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	111	239	515
CNEL:	55	119	257	553

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Deer Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,724 vehicles				Autos: 15				
Peak Hour Percentage: 8.25%				Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,040 vehicles				Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph				Vehicle Mix				
Near/Far Lane Distance: 36 feet				VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
				Medium Trucks:	84.8%	4.9%	10.3%	1.84%
				Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Noise Source Elevations (in feet)				
				Autos:	0.000			
				Medium Trucks:	2.297			
				Heavy Trucks:	8.006	Grade Adjustment:	0.0	
				Lane Equivalent Distance (in feet)				
				Autos:	36.069			
				Medium Trucks:	35.823			
				Heavy Trucks:	35.847			

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.14	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-16.09	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.05	2.06	-1.20	-5.56	0.000	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	69.4	67.6	61.5	70.2	70.8
Medium Trucks:	64.2	63.6	57.2	55.6	64.1	64.3
Heavy Trucks:	65.1	64.5	55.4	56.7	65.0	65.2
Vehicle Noise:	72.3	71.4	68.2	63.5	72.1	72.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	256	551
CNEL:	59	127	274	591

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,288 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,674 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 56.513				
Road Grade: 0.0%		Medium Trucks: 56.357				
Left View: -90.0 degrees		Heavy Trucks: 56.372				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.29	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.95	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.91	-0.88	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	60.4	59.7	53.4	51.8	60.3	60.5
Heavy Trucks:	61.3	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	68.5	67.6	64.4	59.8	68.3	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	232	500
CNEL:	54	116	249	537

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Festival Center Dwy

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,535 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,694 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.34	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.90	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.86	-0.88	-1.20	-5.30	0.000	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	63.9	57.8	66.4	67.0
Medium Trucks:	60.5	59.8	53.4	51.9	60.3	60.6
Heavy Trucks:	61.3	60.7	51.7	52.9	61.3	61.4
Vehicle Noise:	68.5	67.6	64.5	59.8	68.3	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	109	234	504
CNEL:	54	117	251	541

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,592 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,946 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.94	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	79.45	-16.30	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.25	-1.43	-1.20	-5.28	0.000	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	65.7	63.9	57.9	66.5	67.1
Medium Trucks:	60.5	59.9	53.5	51.9	60.4	60.6
Heavy Trucks:	61.4	60.8	51.8	53.0	61.4	61.5
Vehicle Noise:	68.6	67.7	64.5	59.9	68.4	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	118	254	548
CNEL:	59	127	273	588

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Weir Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 19,228 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 1,586 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 50 mph		Vehicle Mix					
Near/Far Lane Distance: 72 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
		Autos: 77.5% 12.9% 9.6% 97.42%					
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Barrier Height: 0.0 feet		Lane Equivalent Distance (in feet)					
		Autos: 60.241					
		Medium Trucks: 60.094					
		Heavy Trucks: 60.109					
Barrier Type (0-Wall, 1-Berm): 0.0							
Centerline Dist. to Barrier: 70.0 feet							
Centerline Dist. to Observer: 70.0 feet							
Barrier Distance to Observer: 0.0 feet							
Observer Height (Above Pad): 5.0 feet							
Pad Elevation: 0.0 feet							
Road Elevation: 0.0 feet							
Road Grade: 0.0%							
Left View: -90.0 degrees							
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.40	-1.32	-1.20	-4.72	0.000	0.000
Medium Trucks:	81.00	-17.64	-1.30	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-21.60	-1.30	-1.20	-5.28	0.000	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	66.2	64.5	58.4	67.0	67.6
Medium Trucks:	60.9	60.2	53.8	52.3	60.7	61.0
Heavy Trucks:	61.3	60.7	51.7	52.9	61.3	61.4
Vehicle Noise:	69.0	68.1	65.0	60.2	68.8	69.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	270	581
CNEL:	62	134	290	624

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Weir Canyon Dr
Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 42,293 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,489 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.99	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.25	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.21	-1.43	-1.20	-5.28	0.000	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	65.0	59.0	67.6	68.2
Medium Trucks:	61.8	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	63.2	62.6	53.5	54.8	63.1	63.3
Vehicle Noise:	69.9	69.0	65.7	61.1	69.7	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	144	310	667
CNEL:	71	154	331	714

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Weir Canyon Dr
 Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 38,308 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,160 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 68 feet							
Site Data		VehicleType		Day	Evening	Night	Daily
		Autos:		77.5%	12.9%	9.6%	97.42%
		Medium Trucks:		84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:		86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)					
		Autos:		0.000			
		Medium Trucks:		2.297			
		Heavy Trucks:		8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)					
		Autos:		61.392			
		Medium Trucks:		61.248			
		Heavy Trucks:		61.262			

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.56	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.68	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.64	-1.43	-1.20	-5.28	0.000	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	66.4	64.6	58.5	67.2	67.8
Medium Trucks:	61.4	60.7	54.4	52.8	61.3	61.5
Heavy Trucks:	62.7	62.1	53.1	54.4	62.7	62.8
Vehicle Noise:	69.4	68.5	65.3	60.7	69.3	69.7

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	135	290	624
CNEL:	67	144	310	668

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Weir Canyon Dr
Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 41,112 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,392 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.86	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.37	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.33	-1.43	-1.20	-5.28	0.000	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	64.9	58.9	67.5	68.1
Medium Trucks:	61.7	61.0	54.7	53.1	61.6	61.8
Heavy Trucks:	63.0	62.5	53.4	54.7	63.0	63.1
Vehicle Noise:	69.7	68.9	65.6	61.0	69.6	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	141	304	654
CNEL:	70	151	325	701

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Weir Canyon Dr
 Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 25,895 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 2,136 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 68 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%					
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 61.392					
		Medium Trucks: 61.248					
		Heavy Trucks: 61.262					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.86	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-15.38	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-19.34	-1.43	-1.20	-5.28	0.000	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	62.9	56.8	65.5	66.1
Medium Trucks:	59.7	59.0	52.7	51.1	59.6	59.8
Heavy Trucks:	61.0	60.4	51.4	52.7	61.0	61.1
Vehicle Noise:	67.7	66.8	63.6	59.0	67.6	68.0

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	223	481
CNEL:	51	111	239	515

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
 Road Name: Weir Canyon Dr
 Road Segment: s/o Monte Vista Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 30,465 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,513 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
Barrier Height: 0.0 feet		Medium Trucks: 2.297				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
Centerline Dist. to Barrier: 70.0 feet		Lane Equivalent Distance (in feet)				
Centerline Dist. to Observer: 70.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 61.392				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 61.248				
Pad Elevation: 0.0 feet		Heavy Trucks: 61.262				
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.56	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-14.68	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-18.63	-1.43	-1.20	-5.28	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.4	63.6	57.6	66.2	66.8
Medium Trucks:	60.4	59.7	53.4	51.8	60.3	60.5
Heavy Trucks:	61.7	61.2	52.1	53.4	61.7	61.8
Vehicle Noise:	68.4	67.6	64.3	59.7	68.3	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	115	249	536
CNEL:	57	124	266	574

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Festival Dr
Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	7,646 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	631 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.86	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-20.10	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-24.06	2.69	-1.20	-5.69	0.000	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	61.8	60.0	54.0	62.6	63.2
Medium Trucks:	57.1	56.5	50.1	48.6	57.0	57.3
Heavy Trucks:	59.0	58.4	49.4	50.6	59.0	59.1
Vehicle Noise:	65.1	64.2	60.8	56.4	64.9	65.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	33	70	152
CNEL:	16	35	75	162

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Festival Dr
Road Segment: s/o Dwy 1

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	1,964 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	162 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-8.76	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-26.00	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.96	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.0	55.9	54.1	48.1	56.7	57.3
Medium Trucks:	51.2	50.6	44.2	42.7	51.1	51.4
Heavy Trucks:	53.1	52.5	43.5	44.7	53.1	53.2
Vehicle Noise:	59.2	58.3	54.9	50.5	59.0	59.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	28	61
CNEL:	7	14	30	66

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Festival Dr
Road Segment: e/o Dwy 2

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	1,964 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	162 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-8.76	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-26.00	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.96	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.0	55.9	54.1	48.1	56.7	57.3
Medium Trucks:	51.2	50.6	44.2	42.7	51.1	51.4
Heavy Trucks:	53.1	52.5	43.5	44.7	53.1	53.2
Vehicle Noise:	59.2	58.3	54.9	50.5	59.0	59.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	28	61
CNEL:	7	14	30	66

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Festival Dr
Road Segment: w/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	4,603 vehicles	Autos: 15					
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15					
Peak Hour Volume:	380 vehicles	Heavy Trucks (3+ Axles): 15					
Vehicle Speed:	35 mph	Vehicle Mix					
Near/Far Lane Distance:	12 feet						
Site Data		VehicleType	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 33.0 feet Centerline Dist. to Observer: 33.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%					
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 32.833					
		Medium Trucks: 32.562					
		Heavy Trucks: 32.589					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-5.06	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-22.30	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-26.26	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.7	59.6	57.8	51.8	60.4	61.0
Medium Trucks:	54.9	54.3	47.9	46.4	54.8	55.1
Heavy Trucks:	56.8	56.2	47.2	48.4	56.8	56.9
Vehicle Noise:	62.9	62.0	58.6	54.2	62.7	63.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	11	23	50	108
CNEL:	12	25	54	116

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Monte Vista Rd
Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	9,624 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	794 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 40.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.069				
Road Grade: 0.0%		Medium Trucks: 35.823				
Left View: -90.0 degrees		Heavy Trucks: 35.847				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.86	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-19.10	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-23.06	2.06	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.3	62.2	60.4	54.4	63.0	63.6
Medium Trucks:	57.5	56.8	50.5	48.9	57.4	57.6
Heavy Trucks:	59.4	58.8	49.8	51.0	59.4	59.5
Vehicle Noise:	65.5	64.6	61.2	56.8	65.3	65.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	20	42	91	195
CNEL:	21	45	97	209

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAA
Road Name: Roosevelt Rd
Road Segment: n/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	6,905 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	570 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	40.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	40.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 36.069				
Road Grade:	0.0%	Medium Trucks: 35.823				
Left View:	-90.0 degrees	Heavy Trucks: 35.847				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.30	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-20.54	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-24.50	2.06	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	60.8	59.0	52.9	61.6	62.2
Medium Trucks:	56.1	55.4	49.0	47.5	56.0	56.2
Heavy Trucks:	57.9	57.3	48.3	49.6	57.9	58.0
Vehicle Noise:	64.1	63.2	59.7	55.4	63.9	64.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	34	73	156
CNEL:	17	36	78	167

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Imperial Highway
Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 51,618 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,258 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 74.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 74.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.131				
Road Grade: 0.0%		Medium Trucks: 60.986				
Left View: -90.0 degrees		Heavy Trucks: 61.000				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.34	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-12.90	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.85	-1.40	-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:	70.2	69.1	67.4	61.3	69.9	70.5
Medium Trucks:	64.0	63.3	56.9	55.4	63.8	64.1
Heavy Trucks:	64.8	64.2	55.2	56.4	64.8	64.9
Vehicle Noise:	72.0	71.1	68.0	63.3	71.8	72.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	98	211	455	981
CNEL:	105	227	488	1,052

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Imperial Highway
 Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 44,097 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,638 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.131				
		Medium Trucks: 60.986				
Heavy Trucks: 61.000						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.66	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.58	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.54	-1.40	-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	66.7	60.6	69.2	69.8
Medium Trucks:	63.3	62.6	56.2	54.7	63.2	63.4
Heavy Trucks:	64.1	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	71.3	70.4	67.3	62.6	71.2	71.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	88	190	410	883
CNEL:	95	204	440	947

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Imperial Highway
Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,820 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,285 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.131				
		Medium Trucks: 60.986				
		Heavy Trucks: 61.000				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.21	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-14.02	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.98	-1.40	-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	66.2	60.2	68.8	69.4
Medium Trucks:	62.8	62.2	55.8	54.2	62.7	62.9
Heavy Trucks:	63.7	63.1	54.1	55.3	63.7	63.8
Vehicle Noise:	70.9	70.0	66.8	62.2	70.7	71.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	83	178	383	825
CNEL:	89	191	411	885

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Imperial Highway
 Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 23,697 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,955 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 65.0 feet Centerline Dist. to Observer: 65.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
Heavy Trucks: 56.372						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.96	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.28	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.23	-0.88	-1.20	-5.30	0.000	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	64.5	58.4	67.1	67.7
Medium Trucks:	61.1	60.4	54.1	52.5	61.0	61.2
Heavy Trucks:	61.9	61.3	52.3	53.6	61.9	62.0
Vehicle Noise:	69.2	68.3	65.1	60.4	69.0	69.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	120	257	555
CNEL:	60	128	276	595

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Santa Ana Canyon Rd
 Road Segment: w/o Imperial Highway

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 28,632 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,362 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height: 0.0 feet		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos:	0.000			
Barrier Distance to Observer: 0.0 feet		Medium Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:	0.0	
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos:	56.513			
Road Grade: 0.0%		Medium Trucks:	56.357			
Left View: -90.0 degrees		Heavy Trucks:	56.372			
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.78	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.46	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.41	-0.88	-1.20	-5.30	0.000	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	65.3	59.3	67.9	68.5
Medium Trucks:	61.9	61.2	54.9	53.3	61.8	62.0
Heavy Trucks:	62.8	62.2	53.1	54.4	62.7	62.9
Vehicle Noise:	70.0	69.1	65.9	61.2	69.8	70.2

Centerline Distance to Noise Contour (in feet)

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

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Imperial Highway

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 37,285 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,076 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 64 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
Barrier Height: 0.0 feet		Medium Trucks: 2.297				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
Centerline Dist. to Barrier: 65.0 feet		Lane Equivalent Distance (in feet)				
Centerline Dist. to Observer: 65.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 56.798				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 56.642				
Pad Elevation: 0.0 feet		Heavy Trucks: 56.657				
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.93	-0.93	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-14.31	-0.92	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.27	-0.92	-1.20	-5.30	0.000	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	66.4	60.4	69.0	69.6
Medium Trucks:	63.0	62.4	56.0	54.4	62.9	63.1
Heavy Trucks:	63.9	63.3	54.2	55.5	63.9	64.0
Vehicle Noise:	71.1	70.2	67.0	62.4	70.9	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	75	161	347	747
CNEL:	80	173	372	801

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Anaheim Hills Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,167 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,241 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
Barrier Height: 0.0 feet		Medium Trucks: 2.297				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
Centerline Dist. to Barrier: 40.0 feet		Lane Equivalent Distance (in feet)				
Centerline Dist. to Observer: 40.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 36.069				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 35.823				
Pad Elevation: 0.0 feet		Heavy Trucks: 35.847				
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.55	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-15.68	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.64	2.06	-1.20	-5.56	0.000	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	68.0	62.0	70.6	71.2
Medium Trucks:	64.6	64.0	57.6	56.1	64.5	64.7
Heavy Trucks:	65.5	64.9	55.9	57.1	65.5	65.6
Vehicle Noise:	72.7	71.8	68.6	64.0	72.5	73.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	59	126	272	587
CNEL:	63	136	292	629

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Fairmont Blvd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,927 vehicles				Autos: 15				
Peak Hour Percentage: 8.25%				Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,892 vehicles				Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph				Vehicle Mix				
Near/Far Lane Distance: 36 feet				VehicleType	Day	Evening	Night	Daily
Site Data Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees				Autos:	77.5%	12.9%	9.6%	97.42%
				Medium Trucks:	84.8%	4.9%	10.3%	1.84%
				Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
				Noise Source Elevations (in feet)				
				Autos:	0.000			
				Medium Trucks:	2.297			
				Heavy Trucks:	8.006	Grade Adjustment:	0.0	
				Lane Equivalent Distance (in feet)				
				Autos:	36.069			
				Medium Trucks:	35.823			
				Heavy Trucks:	35.847			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.82	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-16.42	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.38	2.06	-1.20	-5.56	0.000	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	67.3	61.2	69.8	70.4
Medium Trucks:	63.9	63.2	56.9	55.3	63.8	64.0
Heavy Trucks:	64.7	64.2	55.1	56.4	64.7	64.8
Vehicle Noise:	72.0	71.0	67.9	63.2	71.8	72.2

Centerline Distance to Noise Contour (in feet)

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

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Deer Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,292 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,087 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
		Heavy Trucks: 35.847				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.24	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-15.99	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.95	2.06	-1.20	-5.56	0.000	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	67.7	61.6	70.3	70.9
Medium Trucks:	64.3	63.7	57.3	55.7	64.2	64.4
Heavy Trucks:	65.2	64.6	55.5	56.8	65.1	65.3
Vehicle Noise:	72.4	71.5	68.3	63.6	72.2	72.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	121	260	559
CNEL:	60	129	278	600

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,370 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,681 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 56.513				
Road Grade: 0.0%		Medium Trucks: 56.357				
Left View: -90.0 degrees		Heavy Trucks: 56.372				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.30	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.93	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.89	-0.88	-1.20	-5.30	0.000	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	63.8	57.8	66.4	67.0
Medium Trucks:	60.4	59.8	53.4	51.9	60.3	60.5
Heavy Trucks:	61.3	60.7	51.7	52.9	61.3	61.4
Vehicle Noise:	68.5	67.6	64.4	59.8	68.3	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	233	502
CNEL:	54	116	250	538

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Festival Center Dwy

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,617 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,701 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 65.0 feet Centerline Dist. to Observer: 65.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
Heavy Trucks: 56.372						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.36	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.88	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.84	-0.88	-1.20	-5.30	0.000	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	65.7	63.9	57.8	66.5	67.1
Medium Trucks:	60.5	59.8	53.4	51.9	60.4	60.6
Heavy Trucks:	61.3	60.7	51.7	53.0	61.3	61.4
Vehicle Noise:	68.6	67.6	64.5	59.8	68.4	68.8

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	109	235	506
CNEL:	54	117	252	542

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,162 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,993 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.04	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	79.45	-16.19	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.15	-1.43	-1.20	-5.28	0.000	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	64.0	58.0	66.6	67.2
Medium Trucks:	60.6	60.0	53.6	52.1	60.5	60.7
Heavy Trucks:	61.5	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	68.7	67.8	64.6	60.0	68.5	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	120	259	557
CNEL:	60	129	277	598

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Weir Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 19,390 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,600 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 72 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 60.241				
		Medium Trucks: 60.094				
Heavy Trucks: 60.109						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.37	-1.32	-1.20	-4.72	0.000	0.000
Medium Trucks:	81.00	-17.61	-1.30	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-21.56	-1.30	-1.20	-5.28	0.000	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	64.5	58.4	67.1	67.7	
Medium Trucks:	60.9	60.2	53.9	52.3	60.8	61.0	
Heavy Trucks:	61.3	60.7	51.7	52.9	61.3	61.4	
Vehicle Noise:	69.0	68.1	65.1	60.3	68.8	69.3	

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	126	271	584
CNEL:	63	135	291	627

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Weir Canyon Dr
 Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 42,537 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,509 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				
Barrier Height: 0.0 feet						
Barrier Type (0-Wall, 1-Berm): 0.0						
Centerline Dist. to Barrier: 70.0 feet						
Centerline Dist. to Observer: 70.0 feet						
Barrier Distance to Observer: 0.0 feet						
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet						
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.01	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.23	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.18	-1.43	-1.20	-5.28	0.000	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	65.1	59.0	67.6	68.2
Medium Trucks:	61.9	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	63.2	62.6	53.6	54.8	63.2	63.3
Vehicle Noise:	69.9	69.0	65.7	61.2	69.7	70.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	67	144	311	669
CNEL:	72	154	333	717

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Weir Canyon Dr
 Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 38,796 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,201 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 40 mph		Vehicle Mix					
Near/Far Lane Distance: 68 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
		Autos: 77.5%		12.9%	9.6%	97.42%	
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%	
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%	
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006		Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)					
		Autos: 61.392					
		Medium Trucks: 61.248					
		Heavy Trucks: 61.262					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.61	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.63	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.58	-1.43	-1.20	-5.28	0.000	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	64.7	58.6	67.2	67.8
Medium Trucks:	61.5	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	62.8	62.2	53.2	54.4	62.8	62.9
Vehicle Noise:	69.5	68.6	65.3	60.8	69.3	69.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	136	292	630
CNEL:	67	145	313	674

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Weir Canyon Dr
 Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 41,844 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,452 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.94	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.30	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.25	-1.43	-1.20	-5.28	0.000	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	66.7	65.0	58.9	67.6	68.2
Medium Trucks:	61.8	61.1	54.8	53.2	61.7	61.9
Heavy Trucks:	63.1	62.5	53.5	54.7	63.1	63.2
Vehicle Noise:	69.8	68.9	65.6	61.1	69.6	70.1

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	66	143	307	662
CNEL:	71	153	329	709

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Weir Canyon Dr
Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 26,219 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,163 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	1.91	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-15.33	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-19.28	-1.43	-1.20	-5.28	0.000	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	64.7	63.0	56.9	65.5	66.1
Medium Trucks:	59.8	59.1	52.7	51.2	59.6	59.9
Heavy Trucks:	61.1	60.5	51.5	52.7	61.1	61.2
Vehicle Noise:	67.8	66.9	63.6	59.1	67.6	68.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	225	485
CNEL:	52	112	241	519

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Weir Canyon Dr
 Road Segment: s/o Monte Vista Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 30,547 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,520 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.57	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-14.66	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-18.62	-1.43	-1.20	-5.28	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.4	65.4	63.6	57.6	66.2	66.8
Medium Trucks:	60.4	59.8	53.4	51.8	60.3	60.5
Heavy Trucks:	61.7	61.2	52.1	53.4	61.7	61.9
Vehicle Noise:	68.5	67.6	64.3	59.7	68.3	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	249	537
CNEL:	57	124	267	575

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Festival Dr
Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,296 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	684 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 33.0 feet Centerline Dist. to Observer: 33.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 32.833				
		Medium Trucks: 32.562				
Heavy Trucks: 32.589						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.51	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.74	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.70	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.2	62.2	60.4	54.3	63.0	63.6
Medium Trucks:	57.5	56.8	50.5	48.9	57.4	57.6
Heavy Trucks:	59.4	58.8	49.7	51.0	59.3	59.5
Vehicle Noise:	65.5	64.6	61.1	56.8	65.3	65.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	74	160
CNEL:	17	37	79	171

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Festival Dr
Road Segment: s/o Dwy 1

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,370 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	196 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Centerline Dist. to Barrier: 33.0 feet		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Observer: 33.0 feet		Noise Source Elevations (in feet)				
Barrier Distance to Observer: 0.0 feet		Autos: 0.000				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 2.297				
Pad Elevation: 0.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Road Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Grade: 0.0%		Autos: 32.833				
Left View: -90.0 degrees		Medium Trucks: 32.562				
Right View: 90.0 degrees		Heavy Trucks: 32.589				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-7.95	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-25.19	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.14	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.8	56.7	55.0	48.9	57.5	58.1
Medium Trucks:	52.1	51.4	45.0	43.5	51.9	52.2
Heavy Trucks:	53.9	53.3	44.3	45.5	53.9	54.0
Vehicle Noise:	60.0	59.2	55.7	51.3	59.9	60.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	32	70
CNEL:	7	16	34	74

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Festival Dr
Road Segment: e/o Dwy 2

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,938 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	242 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-7.01	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-24.25	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-28.21	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.7	57.7	55.9	49.8	58.5	59.1
Medium Trucks:	53.0	52.3	46.0	44.4	52.9	53.1
Heavy Trucks:	54.8	54.3	45.2	46.5	54.8	55.0
Vehicle Noise:	61.0	60.1	56.6	52.3	60.8	61.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	17	37	80
CNEL:	9	18	40	86

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
 Road Name: Festival Dr
 Road Segment: w/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	5,577 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	460 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-4.23	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-21.47	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-25.42	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.5	60.4	58.7	52.6	61.2	61.9
Medium Trucks:	55.8	55.1	48.7	47.2	55.7	55.9
Heavy Trucks:	57.6	57.0	48.0	49.3	57.6	57.7
Vehicle Noise:	63.8	62.9	59.4	55.0	63.6	64.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	12	27	57	123
CNEL:	13	28	61	131

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Monte Vista Rd
Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,030 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 827 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 35 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
		Heavy Trucks: 35.847				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.68	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-18.92	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.88	2.06	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.4	62.4	60.6	54.6	63.2	63.8
Medium Trucks:	57.7	57.0	50.7	49.1	57.6	57.8
Heavy Trucks:	59.6	59.0	49.9	51.2	59.5	59.7
Vehicle Noise:	65.7	64.8	61.4	57.0	65.5	65.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	20	43	93	201
CNEL:	21	46	99	214

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: EAAP
Road Name: Roosevelt Rd
Road Segment: n/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	7,473 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	617 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 40.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.069				
Road Grade: 0.0%		Medium Trucks: 35.823				
Left View: -90.0 degrees		Heavy Trucks: 35.847				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.96	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-20.20	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-24.15	2.06	-1.20	-5.56	0.000	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	61.1	59.3	53.3	61.9	62.5
Medium Trucks:	56.4	55.7	49.4	47.8	56.3	56.5
Heavy Trucks:	58.3	57.7	48.7	49.9	58.3	58.4
Vehicle Noise:	64.4	63.5	60.1	55.7	64.2	64.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	36	77	165
CNEL:	18	38	82	176

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Imperial Highway
 Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 54,029 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 4,457 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 84 feet							
Site Data		VehicleType	Day	Evening	Night	Daily	
		Autos: 77.5% 12.9% 9.6% 97.42%					
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
Barrier Height: 0.0 feet		Lane Equivalent Distance (in feet)					
		Autos: 61.131					
		Medium Trucks: 60.986					
		Heavy Trucks: 61.000					
Barrier Type (0-Wall, 1-Berm): 0.0							
Centerline Dist. to Barrier: 74.0 feet							
Centerline Dist. to Observer: 74.0 feet							
Barrier Distance to Observer: 0.0 feet							
Observer Height (Above Pad): 5.0 feet							
Pad Elevation: 0.0 feet							
Road Elevation: 0.0 feet							
Road Grade: 0.0%							
Left View: -90.0 degrees							
Right View: 90.0 degrees							

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.54	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-12.70	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.65	-1.40	-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:	70.4	69.3	67.6	61.5	70.1	70.7
Medium Trucks:	64.2	63.5	57.1	55.6	64.0	64.3
Heavy Trucks:	65.0	64.4	55.4	56.6	65.0	65.1
Vehicle Noise:	72.2	71.3	68.2	63.5	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	101	218	469	1,011
CNEL:	108	234	503	1,085

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Imperial Highway
 Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 45,962 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,792 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.131				
		Medium Trucks: 60.986				
		Heavy Trucks: 61.000				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.84	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.40	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.36	-1.40	-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	66.9	60.8	69.4	70.0
Medium Trucks:	63.5	62.8	56.4	54.9	63.3	63.6
Heavy Trucks:	64.3	63.7	54.7	55.9	64.3	64.4
Vehicle Noise:	71.5	70.6	67.5	62.8	71.3	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	196	421	908
CNEL:	97	210	452	974

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Imperial Highway
Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 41,299 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,407 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.131				
		Medium Trucks: 60.986				
Heavy Trucks: 61.000						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.37	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.87	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.82	-1.40	-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	68.2	66.4	60.3	69.0	69.6
Medium Trucks:	63.0	62.3	56.0	54.4	62.9	63.1
Heavy Trucks:	63.8	63.2	54.2	55.5	63.8	63.9
Vehicle Noise:	71.1	70.2	67.0	62.3	70.9	71.3

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	182	392	845
CNEL:	91	195	421	907

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Imperial Highway
 Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,882 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,053 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.17	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.07	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.02	-0.88	-1.20	-5.30	0.000	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	64.7	58.6	67.3	67.9
Medium Trucks:	61.3	60.6	54.3	52.7	61.2	61.4
Heavy Trucks:	62.1	61.6	52.5	53.8	62.1	62.3
Vehicle Noise:	69.4	68.5	65.3	60.6	69.2	69.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	123	266	573
CNEL:	61	132	285	615

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Santa Ana Canyon Rd
 Road Segment: w/o Imperial Highway

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 29,978 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,473 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.98	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.26	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.21	-0.88	-1.20	-5.30	0.000	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	65.5	59.5	68.1	68.7
Medium Trucks:	62.1	61.4	55.1	53.5	62.0	62.2
Heavy Trucks:	63.0	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	70.2	69.3	66.1	61.4	70.0	70.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	140	301	649
CNEL:	70	150	323	696

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Imperial Highway

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt): 38,550 vehicles		Autos: 15					
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15					
Peak Hour Volume: 3,180 vehicles		Heavy Trucks (3+ Axles): 15					
Vehicle Speed: 45 mph		Vehicle Mix					
Near/Far Lane Distance: 64 feet							
		VehicleType	Day	Evening	Night	Daily	
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%					
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%					
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%					
		Noise Source Elevations (in feet)					
		Autos: 0.000					
		Medium Trucks: 2.297					
		Heavy Trucks: 8.006 Grade Adjustment: 0.0					
		Lane Equivalent Distance (in feet)					
		Autos: 56.798					
		Medium Trucks: 56.642					
		Heavy Trucks: 56.657					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.07	-0.93	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-14.16	-0.92	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.12	-0.92	-1.20	-5.30	0.000	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	66.6	60.5	69.1	69.7
Medium Trucks:	63.2	62.5	56.1	54.6	63.1	63.3
Heavy Trucks:	64.0	63.4	54.4	55.6	64.0	64.1
Vehicle Noise:	71.2	70.3	67.2	62.5	71.0	71.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	76	164	354	763
CNEL:	82	176	380	819

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Anaheim Hills Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,929 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,304 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
		Heavy Trucks: 35.847				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.67	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-15.56	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.52	2.06	-1.20	-5.56	0.000	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	68.1	62.1	70.7	71.3
Medium Trucks:	64.8	64.1	57.7	56.2	64.6	64.9
Heavy Trucks:	65.6	65.0	56.0	57.2	65.6	65.7
Vehicle Noise:	72.8	71.9	68.7	64.1	72.6	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	277	598
CNEL:	64	138	298	641

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Fairmont Blvd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,900 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,054 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
		Heavy Trucks: 35.847				
Barrier Height: 0.0 feet						
Barrier Type (0-Wall, 1-Berm): 0.0						
Centerline Dist. to Barrier: 40.0 feet						
Centerline Dist. to Observer: 40.0 feet						
Barrier Distance to Observer: 0.0 feet						
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet						
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.18	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-16.06	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-20.02	2.06	-1.20	-5.56	0.000	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	67.6	61.6	70.2	70.8
Medium Trucks:	64.3	63.6	57.2	55.7	64.1	64.4
Heavy Trucks:	65.1	64.5	55.5	56.7	65.1	65.2
Vehicle Noise:	72.3	71.4	68.2	63.6	72.1	72.6

Centerline Distance to Noise Contour (in feet)

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

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Deer Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 28,000 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,310 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
Barrier Height: 0.0 feet		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
		Heavy Trucks: 35.847				
Barrier Type (0-Wall, 1-Berm): 0.0						
Centerline Dist. to Barrier: 40.0 feet						
Centerline Dist. to Observer: 40.0 feet						
Barrier Distance to Observer: 0.0 feet						
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet						
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.69	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-15.55	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.51	2.06	-1.20	-5.56	0.000	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	68.1	62.1	70.7	71.3
Medium Trucks:	64.8	64.1	57.7	56.2	64.6	64.9
Heavy Trucks:	65.6	65.0	56.0	57.2	65.6	65.7
Vehicle Noise:	72.8	71.9	68.8	64.1	72.6	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	278	599
CNEL:	64	138	298	642

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,600 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,865 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 56.513				
Road Grade: 0.0%		Medium Trucks: 56.357				
Left View: -90.0 degrees		Heavy Trucks: 56.372				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.75	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.48	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.44	-0.88	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	66.1	64.3	58.2	66.9	67.5
Medium Trucks:	60.9	60.2	53.8	52.3	60.8	61.0
Heavy Trucks:	61.7	61.1	52.1	53.4	61.7	61.8
Vehicle Noise:	69.0	68.0	64.9	60.2	68.8	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	249	537
CNEL:	58	124	268	577

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Festival Center Dwy

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,561 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,779 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000		Grade Adjustment: 0.0		
Medium Trucks: 2.297						
Heavy Trucks: 8.006						
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 65.0 feet Centerline Dist. to Observer: 65.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.55	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.69	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.64	-0.88	-1.20	-5.30	0.000	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	64.1	58.0	66.6	67.3
Medium Trucks:	60.7	60.0	53.6	52.1	60.6	60.8
Heavy Trucks:	61.5	60.9	51.9	53.2	61.5	61.6
Vehicle Noise:	68.7	67.8	64.7	60.0	68.6	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	112	242	521
CNEL:	56	120	259	559

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,100 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,071 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.21	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	79.45	-16.03	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.98	-1.43	-1.20	-5.28	0.000	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	66.0	64.2	58.1	66.8	67.4
Medium Trucks:	60.8	60.1	53.8	52.2	60.7	60.9
Heavy Trucks:	61.6	61.1	52.0	53.3	61.6	61.8
Vehicle Noise:	68.9	68.0	64.8	60.1	68.7	69.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	123	265	571
CNEL:	61	132	284	613

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Weir Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,189 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,666 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 72 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos: 60.241				
		Medium Trucks: 60.094				
		Heavy Trucks: 60.109				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.19	-1.32	-1.20	-4.72	0.000	0.000
Medium Trucks:	81.00	-17.43	-1.30	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-21.39	-1.30	-1.20	-5.28	0.000	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	64.7	58.6	67.2	67.8
Medium Trucks:	61.1	60.4	54.0	52.5	61.0	61.2
Heavy Trucks:	61.5	60.9	51.9	53.1	61.5	61.6
Vehicle Noise:	69.2	68.3	65.2	60.4	69.0	69.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	129	278	600
CNEL:	64	139	299	645

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Weir Canyon Dr
 Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 44,408 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,664 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.20	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.04	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-16.99	-1.43	-1.20	-5.28	0.000	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	65.2	59.2	67.8	68.4
Medium Trucks:	62.1	61.4	55.0	53.5	61.9	62.2
Heavy Trucks:	63.4	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	70.1	69.2	65.9	61.4	69.9	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	320	689
CNEL:	74	159	342	738

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Weir Canyon Dr
Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,223 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,318 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.77	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.47	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.42	-1.43	-1.20	-5.28	0.000	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	64.8	58.8	67.4	68.0
Medium Trucks:	61.6	60.9	54.6	53.0	61.5	61.7
Heavy Trucks:	62.9	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	69.7	68.8	65.5	60.9	69.5	69.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	64	139	299	645
CNEL:	69	149	321	691

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
 Road Name: Weir Canyon Dr
 Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 43,168 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,561 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000		Grade Adjustment: 0.0		
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
Medium Trucks: 61.248						
Heavy Trucks: 61.262						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.08	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.16	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.12	-1.43	-1.20	-5.28	0.000	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	66.9	65.1	59.1	67.7	68.3
Medium Trucks:	61.9	61.3	54.9	53.3	61.8	62.0
Heavy Trucks:	63.2	62.7	53.6	54.9	63.2	63.4
Vehicle Noise:	70.0	69.1	65.8	61.2	69.8	70.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	146	314	676
CNEL:	72	156	336	724

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Weir Canyon Dr
Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,190 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,243 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.07	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-15.17	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-19.12	-1.43	-1.20	-5.28	0.000	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	64.9	63.1	57.1	65.7	66.3
Medium Trucks:	59.9	59.2	52.9	51.3	59.8	60.0
Heavy Trucks:	61.2	60.7	51.6	52.9	61.2	61.4
Vehicle Noise:	68.0	67.1	63.8	59.2	67.8	68.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	107	231	497
CNEL:	53	115	247	532

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Weir Canyon Dr
Road Segment: s/o Monte Vista Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 31,989 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,639 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.77	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-14.46	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-18.42	-1.43	-1.20	-5.28	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.6	65.6	63.8	57.8	66.4	67.0
Medium Trucks:	60.6	60.0	53.6	52.0	60.5	60.7
Heavy Trucks:	61.9	61.4	52.3	53.6	61.9	62.1
Vehicle Noise:	68.7	67.8	64.5	59.9	68.5	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	554
CNEL:	59	128	275	593

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Festival Dr
Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,500 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	701 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.40	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.64	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.60	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.3	62.3	60.5	54.5	63.1	63.7
Medium Trucks:	57.6	56.9	50.6	49.0	57.5	57.7
Heavy Trucks:	59.5	58.9	49.8	51.1	59.4	59.6
Vehicle Noise:	65.6	64.7	61.3	56.9	65.4	65.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	163
CNEL:	17	37	81	174

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Festival Dr
Road Segment: s/o Dwy 1

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,063 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	170 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet <i>Barrier Type (0-Wall, 1-Berm):</i> 0.0 <i>Centerline Dist. to Barrier:</i> 33.0 feet <i>Centerline Dist. to Observer:</i> 33.0 feet <i>Barrier Distance to Observer:</i> 0.0 feet <i>Observer Height (Above Pad):</i> 5.0 feet <i>Pad Elevation:</i> 0.0 feet <i>Road Elevation:</i> 0.0 feet <i>Road Grade:</i> 0.0% <i>Left View:</i> -90.0 degrees <i>Right View:</i> 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 32.833				
		Medium Trucks: 32.562				
Heavy Trucks: 32.589						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-8.55	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-25.79	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.75	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.2	56.1	54.4	48.3	56.9	57.5
Medium Trucks:	51.5	50.8	44.4	42.9	51.3	51.6
Heavy Trucks:	53.3	52.7	43.7	44.9	53.3	53.4
Vehicle Noise:	59.4	58.6	55.1	50.7	59.3	59.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	29	63
CNEL:	7	15	31	68

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Festival Dr
Road Segment: e/o Dwy 2

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,063 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	170 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 33.0 feet Centerline Dist. to Observer: 33.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 32.833				
		Medium Trucks: 32.562				
		Heavy Trucks: 32.589				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-8.55	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-25.79	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-29.75	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	57.2	56.1	54.4	48.3	56.9	57.5
Medium Trucks:	51.5	50.8	44.4	42.9	51.3	51.6
Heavy Trucks:	53.3	52.7	43.7	44.9	53.3	53.4
Vehicle Noise:	59.4	58.6	55.1	50.7	59.3	59.7

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	29	63
CNEL:	7	15	31	68

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Festival Dr
Road Segment: w/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	8,500 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	701 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.40	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.64	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.60	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.3	62.3	60.5	54.5	63.1	63.7
Medium Trucks:	57.6	56.9	50.6	49.0	57.5	57.7
Heavy Trucks:	59.5	58.9	49.8	51.1	59.4	59.6
Vehicle Noise:	65.6	64.7	61.3	56.9	65.4	65.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	76	163
CNEL:	17	37	81	174

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Monte Vista Rd
Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,105 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 834 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 35 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:	77.5%	12.9%	9.6%	97.42%
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	36.069			
		Medium Trucks:	35.823			
		Heavy Trucks:	35.847			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.65	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-18.89	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.84	2.06	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.5	62.4	60.6	54.6	63.2	63.8
Medium Trucks:	57.7	57.1	50.7	49.2	57.6	57.8
Heavy Trucks:	59.6	59.0	50.0	51.2	59.6	59.7
Vehicle Noise:	65.7	64.8	61.4	57.0	65.5	66.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	20	43	94	202
CNEL:	22	46	100	215

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO NP
Road Name: Roosevelt Rd
Road Segment: n/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	7,250 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	598 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 40.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 36.069				
Road Grade: 0.0%		Medium Trucks: 35.823				
Left View: -90.0 degrees		Heavy Trucks: 35.847				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-3.09	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-20.33	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-24.29	2.06	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	56.3	55.6	49.3	47.7	56.2	56.4
Heavy Trucks:	58.1	57.6	48.5	49.8	58.1	58.3
Vehicle Noise:	64.3	63.4	59.9	55.6	64.1	64.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	16	35	75	162
CNEL:	17	37	80	173

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Imperial Highway
Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 54,191 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 4,471 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height: 0.0 feet		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier: 74.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 74.0 feet		Autos:	0.000			
Barrier Distance to Observer: 0.0 feet		Medium Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:	0.0	
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos:	61.131			
Road Grade: 0.0%		Medium Trucks:	60.986			
Left View: -90.0 degrees		Heavy Trucks:	61.000			
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	4.55	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-12.69	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-16.64	-1.40	-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:	70.4	69.3	67.6	61.5	70.1	70.7
Medium Trucks:	64.2	63.5	57.1	55.6	64.0	64.3
Heavy Trucks:	65.0	64.4	55.4	56.6	65.0	65.1
Vehicle Noise:	72.2	71.3	68.2	63.5	72.0	72.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	101	218	470	1,013
CNEL:	109	234	504	1,087

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Imperial Highway
 Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 46,286 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,819 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 84 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 74.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 74.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.131				
Road Grade: 0.0%		Medium Trucks: 60.986				
Left View: -90.0 degrees		Heavy Trucks: 61.000				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.87	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.37	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.33	-1.40	-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	68.7	66.9	60.8	69.5	70.1
Medium Trucks:	63.5	62.8	56.4	54.9	63.4	63.6
Heavy Trucks:	64.3	63.7	54.7	56.0	64.3	64.4
Vehicle Noise:	71.6	70.6	67.5	62.8	71.4	71.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	197	423	912
CNEL:	98	211	454	978

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Imperial Highway
 Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS						
Highway Data		Site Conditions (Hard = 10, Soft = 15)						
Average Daily Traffic (Adt): 41,786 vehicles		Autos: 15						
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15						
Peak Hour Volume: 3,447 vehicles		Heavy Trucks (3+ Axles): 15						
Vehicle Speed: 45 mph		Vehicle Mix						
Near/Far Lane Distance: 84 feet								
Site Data		VehicleType	Day	Evening	Night	Daily		
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 74.0 feet Centerline Dist. to Observer: 74.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:		77.5%	12.9%	9.6%	97.42%	
		Medium Trucks:		84.8%	4.9%	10.3%	1.84%	
		Heavy Trucks:		86.5%	2.7%	10.8%	0.74%	
		Noise Source Elevations (in feet)						
		Autos:		0.000				
		Medium Trucks:		2.297				
		Heavy Trucks:		8.006	Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)						
		Autos:		61.131				
		Medium Trucks:		60.986				
Heavy Trucks:		61.000						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.42	-1.41	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-13.81	-1.40	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-17.77	-1.40	-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	66.4	60.4	69.0	69.6
Medium Trucks:	63.0	62.4	56.0	54.5	62.9	63.2
Heavy Trucks:	63.9	63.3	54.3	55.5	63.9	64.0
Vehicle Noise:	71.1	70.2	67.1	62.4	70.9	71.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	184	395	852
CNEL:	91	197	424	914

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Imperial Highway
 Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 24,882 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,053 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
Barrier Height: 0.0 feet		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				
Barrier Type (0-Wall, 1-Berm): 0.0						
Centerline Dist. to Barrier: 65.0 feet						
Centerline Dist. to Observer: 65.0 feet						
Barrier Distance to Observer: 0.0 feet						
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet						
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.17	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.07	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.02	-0.88	-1.20	-5.30	0.000	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	64.7	58.6	67.3	67.9
Medium Trucks:	61.3	60.6	54.3	52.7	61.2	61.4
Heavy Trucks:	62.1	61.6	52.5	53.8	62.1	62.3
Vehicle Noise:	69.4	68.5	65.3	60.6	69.2	69.6

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	57	123	266	573
CNEL:	61	132	285	615

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Santa Ana Canyon Rd
 Road Segment: w/o Imperial Highway

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS						
Highway Data		Site Conditions (Hard = 10, Soft = 15)						
Average Daily Traffic (Adt): 30,060 vehicles		Autos: 15						
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15						
Peak Hour Volume: 2,480 vehicles		Heavy Trucks (3+ Axles): 15						
Vehicle Speed: 45 mph		Vehicle Mix						
Near/Far Lane Distance: 65 feet								
Site Data		VehicleType	Day	Evening	Night	Daily		
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 65.0 feet Centerline Dist. to Observer: 65.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:		77.5%	12.9%	9.6%	97.42%	
		Medium Trucks:		84.8%	4.9%	10.3%	1.84%	
		Heavy Trucks:		86.5%	2.7%	10.8%	0.74%	
		Noise Source Elevations (in feet)						
		Autos:		0.000				
		Medium Trucks:		2.297				
		Heavy Trucks:		8.006	Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)						
		Autos:		56.513				
Medium Trucks:		56.357						
Heavy Trucks:		56.372						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.99	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.24	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.20	-0.88	-1.20	-5.30	0.000	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	65.5	59.5	68.1	68.7
Medium Trucks:	62.1	61.4	55.1	53.5	62.0	62.2
Heavy Trucks:	63.0	62.4	53.3	54.6	62.9	63.1
Vehicle Noise:	70.2	69.3	66.1	61.5	70.0	70.5

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	140	302	650
CNEL:	70	150	324	697

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Imperial Highway

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 39,120 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,227 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 64 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
Barrier Height: 0.0 feet		Autos: 0.000		Grade Adjustment: 0.0		
Barrier Type (0-Wall, 1-Berm): 0.0		Medium Trucks: 2.297				
Centerline Dist. to Barrier: 65.0 feet		Heavy Trucks: 8.006				
Centerline Dist. to Observer: 65.0 feet						
Barrier Distance to Observer: 0.0 feet		Lane Equivalent Distance (in feet)				
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet		Autos: 56.798				
Road Elevation: 0.0 feet		Medium Trucks: 56.642				
Road Grade: 0.0%		Heavy Trucks: 56.657				
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	3.14	-0.93	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-14.10	-0.92	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-18.06	-0.92	-1.20	-5.30	0.000	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	66.6	60.6	69.2	69.8
Medium Trucks:	63.2	62.6	56.2	54.7	63.1	63.3
Heavy Trucks:	64.1	63.5	54.5	55.7	64.1	64.2
Vehicle Noise:	71.3	70.4	67.2	62.6	71.1	71.6

Centerline Distance to Noise Contour (in feet)

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

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Anaheim Hills Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 28,497 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,351 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 40.0 feet Centerline Dist. to Observer: 40.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
		Heavy Trucks: 35.847				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.76	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-15.48	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.43	2.06	-1.20	-5.56	0.000	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	70.0	68.2	62.2	70.8	71.4
Medium Trucks:	64.8	64.2	57.8	56.3	64.7	65.0
Heavy Trucks:	65.7	65.1	56.1	57.3	65.7	65.8
Vehicle Noise:	72.9	72.0	68.8	64.2	72.7	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	130	281	606
CNEL:	65	140	302	650

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Fairmont Blvd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,468 vehicles				Autos: 15				
Peak Hour Percentage: 8.25%				Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,101 vehicles				Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph				Vehicle Mix				
Near/Far Lane Distance: 36 feet				VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height: 0.0 feet				Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0				Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier: 40.0 feet				Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 40.0 feet				Autos:	0.000			
Barrier Distance to Observer: 0.0 feet				Medium Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet				Heavy Trucks:	8.006	Grade Adjustment:	0.0	
Pad Elevation: 0.0 feet				Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet				Autos:	36.069			
Road Grade: 0.0%				Medium Trucks:	35.823			
Left View: -90.0 degrees				Heavy Trucks:	35.847			
Right View: 90.0 degrees								

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.27	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-15.96	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.92	2.06	-1.20	-5.56	0.000	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	67.7	61.7	70.3	70.9
Medium Trucks:	64.4	63.7	57.3	55.8	64.2	64.5
Heavy Trucks:	65.2	64.6	55.6	56.8	65.2	65.3
Vehicle Noise:	72.4	71.5	68.3	63.7	72.2	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	56	121	261	562
CNEL:	60	130	280	603

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Deer Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 28,568 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,357 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 36 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
		Heavy Trucks: 35.847				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.77	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	79.45	-15.47	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-19.42	2.06	-1.20	-5.56	0.000	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	68.2	62.2	70.8	71.4
Medium Trucks:	64.9	64.2	57.8	56.3	64.7	65.0
Heavy Trucks:	65.7	65.1	56.1	57.3	65.7	65.8
Vehicle Noise:	72.9	72.0	68.8	64.2	72.7	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	61	131	282	607
CNEL:	65	140	302	651

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 22,682 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,871 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos:	77.5%	12.9%	9.6%	97.42%
Barrier Height: 0.0 feet		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
Centerline Dist. to Barrier: 65.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 65.0 feet		Autos:	0.000			
Barrier Distance to Observer: 0.0 feet		Medium Trucks:	2.297			
Observer Height (Above Pad): 5.0 feet		Heavy Trucks:	8.006	Grade Adjustment:	0.0	
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos:	56.513			
Road Grade: 0.0%		Medium Trucks:	56.357			
Left View: -90.0 degrees		Heavy Trucks:	56.372			
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.77	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.47	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.42	-0.88	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	66.1	64.3	58.2	66.9	67.5
Medium Trucks:	60.9	60.2	53.9	52.3	60.8	61.0
Heavy Trucks:	61.7	61.2	52.1	53.4	61.7	61.9
Vehicle Noise:	69.0	68.1	64.9	60.2	68.8	69.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	54	116	250	539
CNEL:	58	125	268	578

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Festival Center Dwy

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 21,643 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,786 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 65 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 65.0 feet Centerline Dist. to Observer: 65.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 56.513				
		Medium Trucks: 56.357				
		Heavy Trucks: 56.372				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	0.57	-0.90	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.67	-0.88	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-20.63	-0.88	-1.20	-5.30	0.000	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	65.9	64.1	58.0	66.7	67.3
Medium Trucks:	60.7	60.0	53.7	52.1	60.6	60.8
Heavy Trucks:	61.5	61.0	51.9	53.2	61.5	61.6
Vehicle Noise:	68.8	67.9	64.7	60.0	68.6	69.0

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	52	113	242	522
CNEL:	56	121	260	560

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Santa Ana Canyon Rd
 Road Segment: e/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 25,670 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,118 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 45 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.31	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	79.45	-15.93	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-19.89	-1.43	-1.20	-5.28	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.1	66.1	64.3	58.2	66.9	67.5
Medium Trucks:	60.9	60.2	53.9	52.3	60.8	61.0
Heavy Trucks:	61.7	61.2	52.1	53.4	61.7	61.8
Vehicle Noise:	69.0	68.1	64.9	60.2	68.8	69.2

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	580
CNEL:	62	134	289	622

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Santa Ana Canyon Rd
Road Segment: e/o Weir Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 20,351 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 1,679 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 50 mph		Vehicle Mix				
Near/Far Lane Distance: 72 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
Barrier Height: 0.0 feet		Medium Trucks: 2.297				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
Centerline Dist. to Barrier: 70.0 feet		Lane Equivalent Distance (in feet)				
Centerline Dist. to Observer: 70.0 feet						
Barrier Distance to Observer: 0.0 feet		Autos: 60.241				
Observer Height (Above Pad): 5.0 feet		Medium Trucks: 60.094				
Pad Elevation: 0.0 feet		Heavy Trucks: 60.109				
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.16	-1.32	-1.20	-4.72	0.000	0.000
Medium Trucks:	81.00	-17.40	-1.30	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-21.35	-1.30	-1.20	-5.28	0.000	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	64.7	58.6	67.3	67.9
Medium Trucks:	61.1	60.4	54.1	52.5	61.0	61.2
Heavy Trucks:	61.5	60.9	51.9	53.2	61.5	61.6
Vehicle Noise:	69.2	68.3	65.3	60.5	69.0	69.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	60	130	280	603
CNEL:	65	140	301	648

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Weir Canyon Dr
 Road Segment: n/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 44,652 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,684 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				
Barrier Height: 0.0 feet						
Barrier Type (0-Wall, 1-Berm): 0.0						
Centerline Dist. to Barrier: 70.0 feet						
Centerline Dist. to Observer: 70.0 feet						
Barrier Distance to Observer: 0.0 feet						
Observer Height (Above Pad): 5.0 feet						
Pad Elevation: 0.0 feet						
Road Elevation: 0.0 feet						
Road Grade: 0.0%						
Left View: -90.0 degrees						
Right View: 90.0 degrees						

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.22	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.01	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-16.97	-1.43	-1.20	-5.28	0.000	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	65.3	59.2	67.8	68.4
Medium Trucks:	62.1	61.4	55.0	53.5	62.0	62.2
Heavy Trucks:	63.4	62.8	53.8	55.0	63.4	63.5
Vehicle Noise:	70.1	69.2	65.9	61.4	69.9	70.4

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	321	691
CNEL:	74	160	344	740

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Weir Canyon Dr
 Road Segment: s/o SR-91 WB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 40,711 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,359 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet		VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height: 0.0 feet		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm): 0.0		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier: 70.0 feet		Noise Source Elevations (in feet)				
Centerline Dist. to Observer: 70.0 feet		Autos: 0.000				
Barrier Distance to Observer: 0.0 feet		Medium Trucks: 2.297				
Observer Height (Above Pad): 5.0 feet		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation: 0.0 feet		Lane Equivalent Distance (in feet)				
Road Elevation: 0.0 feet		Autos: 61.392				
Road Grade: 0.0%		Medium Trucks: 61.248				
Left View: -90.0 degrees		Heavy Trucks: 61.262				
Right View: 90.0 degrees						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.82	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.42	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.37	-1.43	-1.20	-5.28	0.000	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	64.9	58.8	67.4	68.0
Medium Trucks:	61.7	61.0	54.6	53.1	61.6	61.8
Heavy Trucks:	63.0	62.4	53.4	54.6	63.0	63.1
Vehicle Noise:	69.7	68.8	65.5	61.0	69.5	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	65	140	302	650
CNEL:	70	150	323	696

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Weir Canyon Dr
 Road Segment: s/o SR-91 EB Ramps

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 43,900 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 3,622 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
		Autos: 77.5%		12.9%	9.6%	97.42%
		Medium Trucks: 84.8%		4.9%	10.3%	1.84%
		Heavy Trucks: 86.5%		2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006		Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos: 61.392				
		Medium Trucks: 61.248				
		Heavy Trucks: 61.262				

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	4.15	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-13.09	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-17.04	-1.43	-1.20	-5.28	0.000	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	65.2	59.1	67.8	68.4
Medium Trucks:	62.0	61.3	55.0	53.4	61.9	62.1
Heavy Trucks:	63.3	62.7	53.7	55.0	63.3	63.4
Vehicle Noise:	70.0	69.1	65.9	61.3	69.8	70.3

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	68	147	317	684
CNEL:	73	158	340	732

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Weir Canyon Dr
 Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 27,514 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,270 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:	77.5%	12.9%	9.6%	97.42%
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	61.392			
		Medium Trucks:	61.248			
Heavy Trucks:	61.262					

FHWA Noise Model Calculations							
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.12	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-15.12	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-19.07	-1.43	-1.20	-5.28	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)						
VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	64.9	63.2	57.1	65.7	66.3
Medium Trucks:	60.0	59.3	52.9	51.4	59.9	60.1
Heavy Trucks:	61.3	60.7	51.7	52.9	61.3	61.4
Vehicle Noise:	68.0	67.1	63.8	59.3	67.8	68.3

Centerline Distance to Noise Contour (in feet)				
	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	232	501
CNEL:	54	115	249	536

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
 Road Name: Weir Canyon Dr
 Road Segment: s/o Monte Vista Rd

Project Name: Winchester Hills SP. 293
 Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 32,071 vehicles		Autos: 15				
Peak Hour Percentage: 8.25%		Medium Trucks (2 Axles): 15				
Peak Hour Volume: 2,646 vehicles		Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 40 mph		Vehicle Mix				
Near/Far Lane Distance: 68 feet						
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 70.0 feet Centerline Dist. to Observer: 70.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:	77.5%	12.9%	9.6%	97.42%
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
		Noise Source Elevations (in feet)				
		Autos:	0.000			
		Medium Trucks:	2.297			
		Heavy Trucks:	8.006	Grade Adjustment: 0.0		
		Lane Equivalent Distance (in feet)				
		Autos:	61.392			
		Medium Trucks:	61.248			
		Heavy Trucks:	61.262			

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.79	-1.44	-1.20	-4.72	0.000	0.000
Medium Trucks:	77.72	-14.45	-1.43	-1.20	-4.88	0.000	0.000
Heavy Trucks:	82.99	-18.41	-1.43	-1.20	-5.28	0.000	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	63.8	57.8	66.4	67.0
Medium Trucks:	60.6	60.0	53.6	52.1	60.5	60.8
Heavy Trucks:	62.0	61.4	52.3	53.6	61.9	62.1
Vehicle Noise:	68.7	67.8	64.5	59.9	68.5	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	55	119	257	555
CNEL:	59	128	276	594

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Festival Dr
Road Segment: s/o Santa Ana Canyon Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	9,150 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	755 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.08	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.32	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.27	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.7	62.6	60.8	54.8	63.4	64.0
Medium Trucks:	57.9	57.2	50.9	49.3	57.8	58.0
Heavy Trucks:	59.8	59.2	50.2	51.4	59.8	59.9
Vehicle Noise:	65.9	65.0	61.6	57.2	65.7	66.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	79	171
CNEL:	18	39	85	183

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Festival Dr
Road Segment: s/o Dwy 1

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	2,469 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	204 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet	VehicleType	Day	Evening	Night	Daily
Site Data		Autos: 77.5% 12.9% 9.6% 97.42%				
Barrier Height:	0.0 feet	Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
Barrier Type (0-Wall, 1-Berm):	0.0	Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
Centerline Dist. to Barrier:	33.0 feet	Noise Source Elevations (in feet)				
Centerline Dist. to Observer:	33.0 feet	Autos: 0.000				
Barrier Distance to Observer:	0.0 feet	Medium Trucks: 2.297				
Observer Height (Above Pad):	5.0 feet	Heavy Trucks: 8.006 Grade Adjustment: 0.0				
Pad Elevation:	0.0 feet	Lane Equivalent Distance (in feet)				
Road Elevation:	0.0 feet	Autos: 32.833				
Road Grade:	0.0%	Medium Trucks: 32.562				
Left View:	-90.0 degrees	Heavy Trucks: 32.589				
Right View:	90.0 degrees					

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-7.77	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-25.01	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-28.96	2.69	-1.20	-5.69	0.000	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	55.1	49.1	57.7	58.3
Medium Trucks:	52.2	51.6	45.2	43.7	52.1	52.3
Heavy Trucks:	54.1	53.5	44.5	45.7	54.1	54.2
Vehicle Noise:	60.2	59.3	55.9	51.5	60.0	60.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	33	71
CNEL:	8	16	35	76

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Festival Dr
Road Segment: e/o Dwy 2

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS					
Highway Data		Site Conditions (Hard = 10, Soft = 15)					
Average Daily Traffic (Adt):	3,037 vehicles	Autos: 15					
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15					
Peak Hour Volume:	251 vehicles	Heavy Trucks (3+ Axles): 15					
Vehicle Speed:	35 mph	Vehicle Mix					
Near/Far Lane Distance:	12 feet						
Site Data		VehicleType	Day	Evening	Night	Daily	
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 33.0 feet Centerline Dist. to Observer: 33.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos:	77.5%	12.9%	9.6%	97.42%	
		Medium Trucks:	84.8%	4.9%	10.3%	1.84%	
		Heavy Trucks:	86.5%	2.7%	10.8%	0.74%	
		Noise Source Elevations (in feet)					
		Autos:	0.000				
		Medium Trucks:	2.297				
		Heavy Trucks:	8.006	Grade Adjustment: 0.0			
		Lane Equivalent Distance (in feet)					
		Autos:	32.833				
		Medium Trucks:	32.562				
		Heavy Trucks:	32.589				

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-6.87	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-24.11	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-28.07	2.69	-1.20	-5.69	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.9	57.8	56.0	50.0	58.6	59.2
Medium Trucks:	53.1	52.5	46.1	44.6	53.0	53.2
Heavy Trucks:	55.0	54.4	45.4	46.6	55.0	55.1
Vehicle Noise:	61.1	60.2	56.8	52.4	60.9	61.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	18	38	82
CNEL:	9	19	41	88

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Festival Dr
Road Segment: w/o Roosevelt Rd

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	9,474 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	782 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	12 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet Barrier Type (0-Wall, 1-Berm): 0.0 Centerline Dist. to Barrier: 33.0 feet Centerline Dist. to Observer: 33.0 feet Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet Pad Elevation: 0.0 feet Road Elevation: 0.0 feet Road Grade: 0.0% Left View: -90.0 degrees Right View: 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 32.833				
		Medium Trucks: 32.562				
Heavy Trucks: 32.589						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.93	2.64	-1.20	-4.52	0.000	0.000
Medium Trucks:	75.75	-19.17	2.69	-1.20	-4.86	0.000	0.000
Heavy Trucks:	81.57	-23.12	2.69	-1.20	-5.69	0.000	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	61.0	54.9	63.5	64.2
Medium Trucks:	58.1	57.4	51.0	49.5	58.0	58.2
Heavy Trucks:	59.9	59.3	50.3	51.6	59.9	60.0
Vehicle Noise:	66.1	65.2	61.7	57.3	65.9	66.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	38	81	175
CNEL:	19	40	87	187

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Monte Vista Rd
Road Segment: e/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA				NOISE MODEL INPUTS				
Highway Data				Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt): 10,511 vehicles				Autos: 15				
Peak Hour Percentage: 8.25%				Medium Trucks (2 Axles): 15				
Peak Hour Volume: 867 vehicles				Heavy Trucks (3+ Axles): 15				
Vehicle Speed: 35 mph				Vehicle Mix				
Near/Far Lane Distance: 36 feet				VehicleType	Day	Evening	Night	Daily
Site Data				Autos:	77.5%	12.9%	9.6%	97.42%
				Medium Trucks:	84.8%	4.9%	10.3%	1.84%
				Heavy Trucks:	86.5%	2.7%	10.8%	0.74%
				Noise Source Elevations (in feet)				
Barrier Height: 0.0 feet				Autos:	0.000			
Barrier Type (0-Wall, 1-Berm): 0.0				Medium Trucks:	2.297			
Centerline Dist. to Barrier: 40.0 feet				Heavy Trucks:	8.006	Grade Adjustment:	0.0	
Centerline Dist. to Observer: 40.0 feet				Lane Equivalent Distance (in feet)				
Barrier Distance to Observer: 0.0 feet				Autos:	36.069			
Observer Height (Above Pad): 5.0 feet				Medium Trucks:	35.823			
Pad Elevation: 0.0 feet				Heavy Trucks:	35.847			
Road Elevation: 0.0 feet								
Road Grade: 0.0%								
Left View: -90.0 degrees								
Right View: 90.0 degrees								

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-1.48	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-18.72	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-22.67	2.06	-1.20	-5.56	0.000	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	60.8	54.8	63.4	64.0
Medium Trucks:	57.9	57.2	50.9	49.3	57.8	58.0
Heavy Trucks:	59.8	59.2	50.1	51.4	59.7	59.9
Vehicle Noise:	65.9	65.0	61.6	57.2	65.7	66.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	45	96	207
CNEL:	22	48	103	221

Monday, April 22, 2024

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: GPBO WP
Road Name: Roosevelt Rd
Road Segment: n/o Festival Dr

Project Name: Winchester Hills SP. 293
Job Number: 8528

SITE SPECIFIC INPUT DATA		NOISE MODEL INPUTS				
Highway Data		Site Conditions (Hard = 10, Soft = 15)				
Average Daily Traffic (Adt):	7,818 vehicles	Autos: 15				
Peak Hour Percentage:	8.25%	Medium Trucks (2 Axles): 15				
Peak Hour Volume:	645 vehicles	Heavy Trucks (3+ Axles): 15				
Vehicle Speed:	35 mph	Vehicle Mix				
Near/Far Lane Distance:	36 feet					
Site Data		VehicleType	Day	Evening	Night	Daily
Barrier Height: 0.0 feet <i>Barrier Type (0-Wall, 1-Berm):</i> 0.0 <i>Centerline Dist. to Barrier:</i> 40.0 feet <i>Centerline Dist. to Observer:</i> 40.0 feet <i>Barrier Distance to Observer:</i> 0.0 feet <i>Observer Height (Above Pad):</i> 5.0 feet <i>Pad Elevation:</i> 0.0 feet <i>Road Elevation:</i> 0.0 feet <i>Road Grade:</i> 0.0% <i>Left View:</i> -90.0 degrees <i>Right View:</i> 90.0 degrees		Autos: 77.5% 12.9% 9.6% 97.42%				
		Medium Trucks: 84.8% 4.9% 10.3% 1.84%				
		Heavy Trucks: 86.5% 2.7% 10.8% 0.74%				
		Noise Source Elevations (in feet)				
		Autos: 0.000				
		Medium Trucks: 2.297				
		Heavy Trucks: 8.006 Grade Adjustment: 0.0				
		Lane Equivalent Distance (in feet)				
		Autos: 36.069				
		Medium Trucks: 35.823				
Heavy Trucks: 35.847						

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	64.30	-2.76	2.02	-1.20	-4.59	0.000	0.000
Medium Trucks:	75.75	-20.00	2.07	-1.20	-4.87	0.000	0.000
Heavy Trucks:	81.57	-23.96	2.06	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.4	61.3	59.5	53.5	62.1	62.7
Medium Trucks:	56.6	55.9	49.6	48.0	56.5	56.7
Heavy Trucks:	58.5	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	64.6	63.7	60.3	55.9	64.4	64.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	17	37	79	170
CNEL:	18	39	84	182

Monday, April 22, 2024

APPENDIX 10.1:
SAMPLE AIR CONDITIONER

This page intentionally left blank



**RESIDENTIAL
PRODUCT SPECIFICATIONS**

16ACX

MERIT® Series

R-410A - Two-Stage Compressor - 60 Hz

Bulletin No. 210873
May 2020
Supersedes March 2019



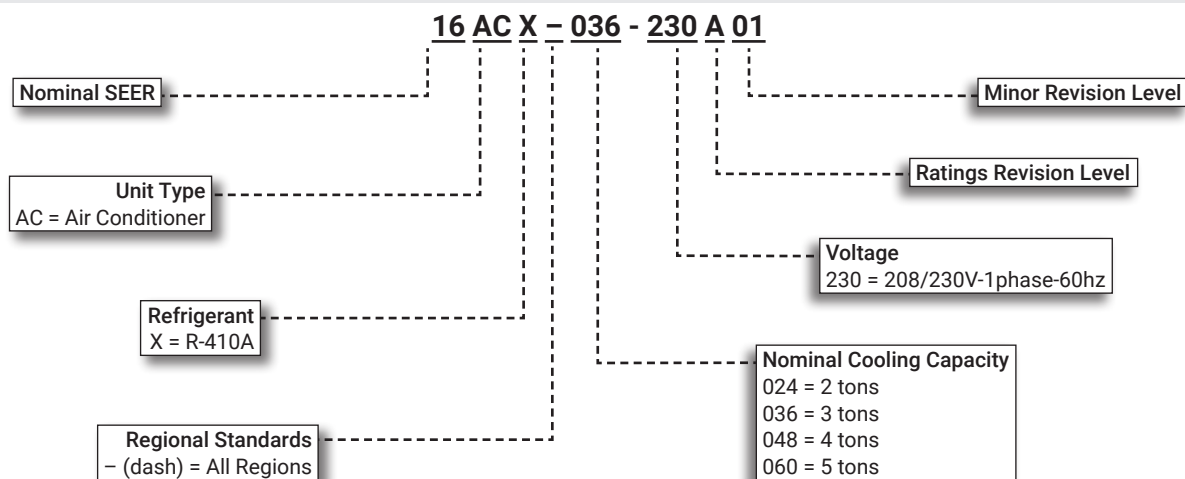
**MERIT®
SERIES**



**SEER up to 18.00
2 to 5 Tons**

Cooling Capacity - 23,000 to 59,000 Btuh

MODEL NUMBER IDENTIFICATION



CONTENTS

Approvals And Warranty	.2
Dimensions - Unit	.7
Electrical Data	.6
Features	.2
Field Wiring	.5
Installation Clearances	.5
Optional Accessories - Order Separately	.6
Sound Data	.7
Specifications	.6
TXV Usage.	.8

APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 210/240 certified
- AHRI Certified system match-ups and expanded ratings, visit www.LennoxPros.com
- ENERGY STAR® Certified (certain units)
- Sound rated to AHRI Standard 270-2008 test conditions
- Tested in Lennox' Research Laboratory environmental test room
- Rated According to U.S. Department of Energy (DOE) test procedures
- Region specific models meet the minimum efficiency requirements for U.S DOE Federal Regional Standards in that area
- Unit and components ETL, NEC and CEC bonded for grounding to meet safety standards for servicing
- ETL certified (U.S. and Canada)
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

- Compressor:
 - Limited five years in residential installations
 - Limited five years in non-residential installations
- All other covered components:
 - Limited five years in residential installations
 - Limited one year in non-residential installations

NOTE - Refer to Lennox Equipment Limited Warranty certificate included with unit for specific details.

FEATURES

APPLICATIONS

- 2 through 5 ton
- Sound levels as low as 76 dBA
- Single phase power supply
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- Shipped completely factory assembled, piped and wired

REFRIGERATION SYSTEM

R-410A Refrigerant

- Non-chlorine, ozone friendly
- Unit is factory pre-charged

Outdoor Coil Fan

- Direct drive fan
- Vertical air discharge

- Sleeve bearings
- Inherently protected
- Totally enclosed fan motor
- Louvered steel top fan guard

Copper Tube/Enhanced Fin Coil

- Lennox designed and fabricated coil
- Ripple-edged aluminum fins
- Copper tube construction
- Lanced fins for maximum fin surface exposure
- Fin collars grip tubing for maximum contact area
- Flared shoulder tubing connections
- Silver soldering construction
- Factory tested under high pressure
- Steel louvered panels provide complete coil protection
- Panels can be completely removed for servicing

FEATURES

REFRIGERATION SYSTEM (continued)

High Pressure Switch

- Protects the system from high pressure conditions
- Automatic reset

Low Pressure Switch

- Shuts off unit if suction pressure falls below setting
- Provides loss of charge and freeze-up protection
- Auto-reset

Hi-Capacity Liquid Line Drier

- Furnished for field installation.
- Approved for use with R-410A systems
- Traps any moisture or dirt that could contaminate the system

Optional Accessories

Expansion Valve Kits

- Field installed on certain indoor units
- See TXV Usage table
- Chatleff style fitting

Freezestat

- Senses suction line temperature
- Cycles compressor off when suction line temperature falls below it's setpoint
- Opens at 29°F and closes at 58°F
- Installs on or near the discharge line of the evaporator or on the suction line

Refrigerant Line Kits

- Refrigerant lines are shipped refrigeration clean
- Lines are cleaned, dried, pressurized and sealed at factory
- Suction line fully insulated
- Lines are stubbed at both ends

NOTE - Not available for -060 models. Must be field fabricated.

COMPRESSOR

Two-Stage Scroll Compressor

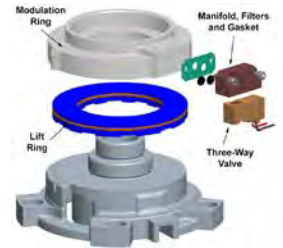
- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- Quiet operation

Compressor Operation

- Two involute spiral scrolls matched together generate a series of crescent shaped gas pockets between them
- During compression, one scroll remains stationary while the other scroll orbits around it
- Gas is drawn into the outer pocket, the pocket is sealed as the scroll rotates



- As the spiral movement continues, gas pockets are pushed to the center of the scrolls
- Volume between the pockets is simultaneously reduced
- When the pocket reaches the center, gas is now at high pressure and is forced out of a port located in the center of the fixed scrolls
- During compression, several pockets are compressed simultaneously resulting in a smooth continuous compression cycle
- Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency
- Compressor is tolerant to the effects of slugging and contaminants
- If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged
- During the compression process, there are several pockets in the scroll that are compressing gas
- Modulation is achieved by venting a portion of the gas in the first suction pocket back to the low side of the compressor thereby reducing the effective displacement of the compressor
- A 24-volt DC solenoid valve inside the compressor controls staging
- When the 3-way solenoid is energized it moves the lift ring assembly to block the ports and the compressor operates at full-load or 100% capacity
- When the solenoid is de-energized the lift ring assembly moves to unblock the compressor ports and the compressor operates at part-load or approximately 67% of its full-load capacity
- The "loading" and "unloading" of the two stage scroll is done "on the fly" without shutting off the single-speed compressor motor between stages
- Low gas pulses during compression reduces operational sound levels
- Compressor motor is internally protected from excessive current and temperature
- Compressor is installed in the unit on specially formulated, resilient rubber mounts for better sound dampening and vibration free operation



Crankcase Heater (048-060 models only)

- Prevents liquid refrigerant migration into compressor and ensures proper compressor lubrication

FEATURES

COMPRESSOR (continued)

Optional Accessories

Crankcase Heater (Optional for 024-036 models)

- Crankcase heater prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication.

Compressor Hard Start Kit

- Single-phase units are equipped with a PSC compressor motor. This type of motor normally does not need a potential relay and start capacitor.
- In conditions such as low voltage, kit may be required to increase the compressor starting torque.
- Hard start kit is required in applications where the supply voltage is less than 230V.

Compressor Sound Cover

- A reinforced vinyl compressor cover containing a 1-1/2 inch thick batt of fiberglass insulation.
- All open edges are sealed with a one-inch wide hook and loop fastening tape.

CONTROLS

Optional Accessories

iComfort® M30 Smart Wi-Fi Thermostat

- Wi-Fi-enabled, electronic 7-day, universal, multi-stage, programmable, touchscreen thermostat
- 4 Heat/2 Cool
- Auto-changeover
- Dual-fuel control with optional outdoor sensor
- Controls dehumidification during cooling mode and humidification during heating mode
- Offers enhanced capabilities including humidification / dehumidification / dewpoint measurement and control, Humiditol® control, and equipment maintenance reminders
- Easy to read 4.3 in. color touchscreen (measured diagonally)
- LCD display with backlight shows the current and set temperature, time, inside relative humidity, system status (operating mode and schedules) and outside temperature (optional outdoor sensor required)
- Smooth Setback Recovery starts system early to achieve setpoint at start of program period
- Compressor short-cycle protection (5 minutes)
- Up to four separate schedules are available plus Schedule IQ™
- One-Touch Away Mode - A quick and easy way to set the cooling and heating setpoints while away
- Smart Away™ - Uses geo-fencing technology to determine when the homeowner is within a predetermined distance from the home to operate the system when leaving, away and arriving



- Wi-Fi remote monitoring and adjustment through a home wireless network for desktop PCs, laptops and apps for smartphones or tablets

- Smart home automation compatible with Amazon Alexa®, Google Assistant and IFTTT

NOTE - See the iComfort® M30 Smart Wi-Fi Thermostat Product Specifications bulletin in the Controls section for more information.

Remote Outdoor Temperature Sensor

- Used with the iComfort® M30 Smart Wi-Fi Thermostat
- Outdoor sensor allows thermostat to display outdoor temperature

NOTE - Sensor is required for the Enhanced Dehumidification Accessory (EDA).



Thermostat

- Thermostat is not furnished with unit
- Lennox Price Book for selection

Blower Relay Kit (for use with furnaces equipped with constant torque blower motors)

- Allows furnace blower speed changes when matched with two-stage air conditioners

Indoor Blower Off Delay Relay

- Delays the indoor blower-off time during the cooling cycle

Indoor Blower Speed Relay

- Relay kit provides the option of changing blower speeds on standard permanent split capacitor (PSC) multi-tap blower motors during cooling operation
- Provides optimum humidity control conditions by automatically reducing indoor blower speed during continuous fan operation or low stage compressor operation to reduce humidity levels

Low Ambient Kit

- Air conditioners can operate down to 45°F outdoor air temperature without additional controls
- Allows unit to operate properly down to 30°F

NOTE - Crankcase heater and freezestat should be installed on compressors equipped with a low ambient kit.

NOTE - A Compressor Low Ambient Cut-Off Switch should be added to terminate compressor operation below recommended operation conditions.

FEATURES

CABINET

- Heavy-gauge steel construction
- Pre-painted cabinet finish
- Louvered heavy gauge steel panels surround unit on all four sides
- Control box is conveniently located with all controls factory wired
- Corner patch plate allows access to compressor components
- Drainage holes are provided in base section for moisture removal
- High density polyethylene unit support feet raise the unit off of the mounting surface, away from damaging moisture

PermaGuard™ Unit Base

- Durable zinc-coated base section resists rust and corrosion

Refrigerant Line Connections, Electrical Inlets and Service Valves

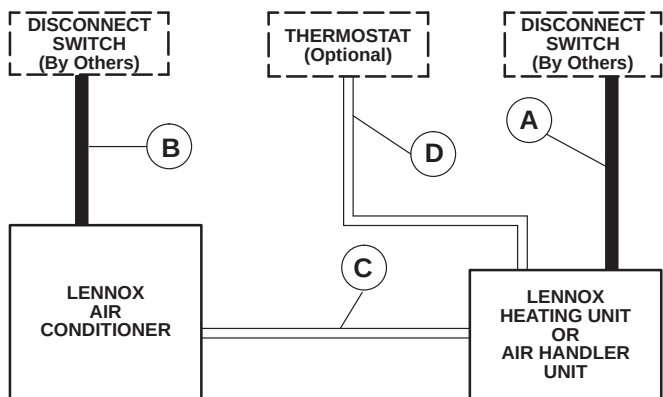
- Sweat connection suction and liquid lines
- Located on corner of unit cabinet
- Suction valve can be fully shut off, while liquid valve may be front seated to manage refrigerant charge while servicing system
- Refrigerant line connections and field wiring inlets are located in one central area of the cabinet
- See dimension drawing

Optional Accessories

Unit Stand-Off Kit

- Black high density polyethylene feet are available to raise unit off of mounting surface away from damaging moisture
- Four feet are furnished per order number

FIELD WIRING

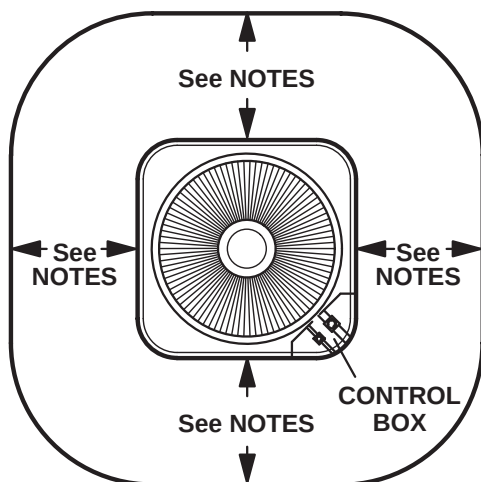


- A - Two Wire Power
- B - Two Wire Power (See Electrical Data)
- C - Four Wire Low Voltage (18 ga. minimum)
- D - Five Wire Low Voltage (18 ga. minimum)

NOTE - Field Wiring Not Furnished

All wiring must conform to NEC or CEC and local electrical codes.

INSTALLATION CLEARANCES



NOTES:

- Service clearance of 30 in. (762 mm) must be maintained on one of the sides adjacent to the control box.
- Clearance to one of the other three sides must be 36 in. (914 mm)
- Clearance to one of the remaining two sides may be 12 in. (305 mm) and the final side may be 6 in. (152 mm).
- A clearance of 24 in. must be maintained between two units.
- 48 in. (1219 mm) clearance required on top of unit.

SPECIFICATIONS

General Data	Model No.	All Regions Nominal Tonnage	16ACX-024	16ACX-036	16ACX-048	16ACX-060
			2	3	4	5
¹ Sound Rating Number (dB)			77	76	78	75
Connections (sweat)	Liquid line (o.d.) - in.		3/8	3/8	3/8	3/8
	Suction line (o.d.) - in.		3/4	7/8	7/8	1-1/8
Refrigerant ² R-410A charge furnished			7 lbs. 2 oz.	9 lbs. 0 oz.	10 lbs. 6 oz.	13 lbs. 2 oz.
Outdoor Coil	Net face area - sq. ft.	Outer coil	24.50	16.33	21.00	29.09
		Inner coil	- - -	15.76	20.27	28.24
	Tube diameter - in. and No. of rows		5/16 - 1	5/16 - 2	5/16 - 2	5/16 - 2
	Fins per inch		26	22	22	22
Outdoor Fan	Diameter - in. and No. of blades		22 - 3	22 - 3	22 - 3	26 - 3
	Motor hp		1/6	1/4	1/4	1/4
	Cfm		3260	3450	3800	4375
	Rpm		825	825	825	825
	Watts		220	290	305	270
Shipping Data - lbs. 1 pkg.			190	190	235	285

ELECTRICAL DATA

Line voltage data - 60hz			⁵ 230V-1ph	⁵ 230V-1ph	⁵ 230V-1ph	⁵ 230V-1ph
³ Maximum overcurrent protection (amps)			20	30	40	50
⁴ Minimum circuit ampacity			15.6	20.8	29.2	35.7
Compressor	Rated load amps		10.2	14.2	17	23.5
	Locked rotor amps		55	78	109	118
	Power factor		0.98	0.95	0.97	0.95
Outdoor Fan Motor	Full load amps		1.0	1.7	1.7	1.4
	Locked Rotor amps		1.9	3.2	3.2	3.2

CONTROLS - ORDER SEPARATELY

iComfort® M30 Smart Wi-Fi Thermostat	15Z69	•	•	•	•
Remote Outdoor Temperature Sensor	X2658	•	•	•	•

OPTIONAL ACCESSORIES - ORDER SEPARATELY

Blower Relay Kit (for constant torque gas furnaces)	85W66	•	•	•	•
Compressor Crankcase Heater	93M04	•	•	Factory	Factory
⁵ Compressor Hard Start Kit - Required in applications with less than 230V	63W22	•			
	10J42		•	•	
	63W24				•
Compressor Low Ambient Cut-Off	45F08	•	•	•	•
Compressor Sound Cover	18J42	•	•	•	•
Compressor Time-Off Control	47J27	•	•	•	•
Freezestat	3/8 in. tubing	93G35	•	•	•
	5/8 in. tubing	50A93	•	•	•
Indoor Blower Off Delay Relay	58M81	•	•	•	•
Indoor Blower Speed Relay Kit	40K58	•	•	•	•
⁶ Low Ambient Kit (Fan Cycling)	34M72	•	•	•	•
Refrigerant Line Sets	L15-41-20	L15-41-40	•		
	L15-41-30	L15-41-50			
	L15-65-30	L15-65-40		•	•
		L15-65-50			
		Field Fabricate			•
Unit Stand-Off Kit	94J45	•	•	•	•

NOTE - Extremes of operating range are plus 10% and minus 5% of line voltage.

¹ Sound Rating Number in accordance with test conditions included in AHRI Standard 270.

² Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the Installation Instructions for information about line set length and additional refrigerant charge required.

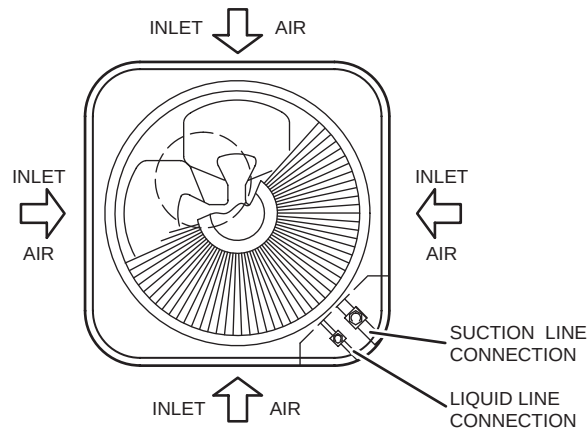
³ HACR type breaker or fuse.

⁴ Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

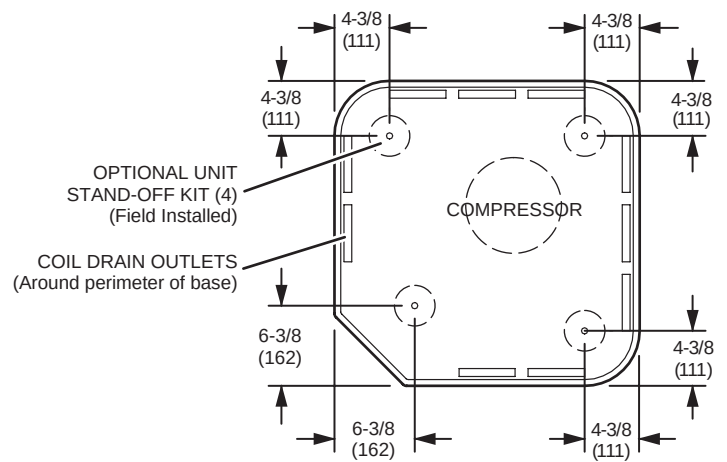
⁵ Hard Start Kit is required in applications where the supply voltage is less than 230V.

⁶ Freezestat is recommended with Low Ambient Kit.

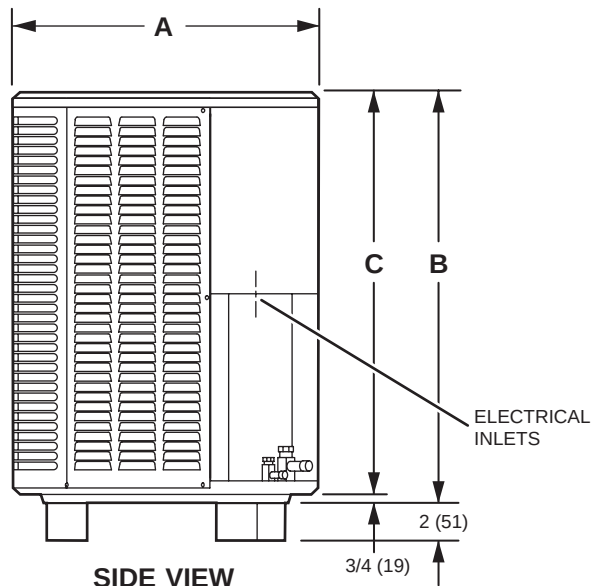
DIMENSIONS - UNIT



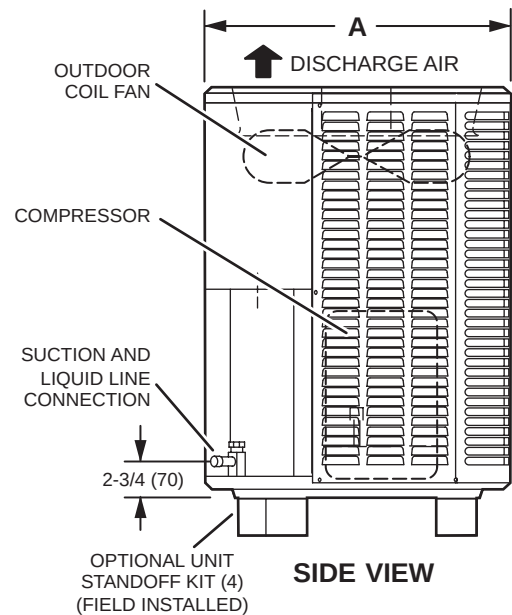
TOP VIEW



TOP VIEW BASE SECTION



SIDE VIEW



SIDE VIEW

Model	A		B		C	
	inches	mm	inches	mm	inches	mm
16ACX-024	28-1/4	718	43-1/4	1099	42-1/4	1073
16ACX-036	28-1/4	718	29-1/4	743	28-1/2	724
16ACX-048	28-1/4	718	37-1/4	946	36-1/2	927
16ACX-060	32-1/4	819	43-1/4	1099	42-1/4	1073

SOUND DATA

¹ Unit Model	Octave Band Sound Power Levels dBA, re 10 ⁻¹² Watts Center Frequency - HZ							¹ Sound Rating Number (dBA)	² Estimated Sound Pressure Level at Distance From Unit (dBA at distance in ft.)				
	125	250	500	1000	2000	4000	8000		3	5	10	15	50
024	54.9	64.3	70.7	74.5	67.3	64.4	57.6	77	70	65	59	56	45
036	58.5	67	70.7	71.1	67.6	64.6	57.7	76	69	64	58	55	44
048	63	66.9	72.5	73.7	70	68.7	60.3	78	71	66	60	57	46
060	60.6	65.7	69.2	64.2	66.6	65.4	56.5	75	68	63	57	54	43

NOTE - the octave sound power data does not include tonal correction.

¹ Tested according to AHRI Standard 270-2008 test conditions.

² Estimated sound pressure level at distance based on AHRI Standard 275-2010 method for equipment located on the ground, roof, or on side of building wall with no adjacent reflective surface within 9.8 feet. Sound pressure levels will increase based on changes to assumptions. For other applications, refer to AHRI Standard 275.

TXV USAGE

Use this table for C35, CH23, CH35 and CR33 Field Installed TXV Match-Ups.

Outdoor Unit Model No.	Order No.
16ACX-024	12J18
16ACX-036	12J19
16ACX-048	12J20
16ACX-060	12J20

CX35 and CHX35 coils and all Lennox air handlers are shipped with a factory installed TXV. In most cases, no change out of the valve is needed.

If a change out is required it will be listed in the "TXV SUBSTITUTIONS" table by size. The correct TXV must be ordered separately and field installed.

C35 and CH35 coils - Replace the factory installed RFC orifice with the expansion valve listed.

CR33 and CH23 coils - Use the expansion valve listed.

AHRI STANDARD 210/240

Cooling or heating capacities are net values, including the effects of blower motor heat, and do not include supplementary heat. Power input is the total power input to the compressor(s) and fan(s), plus any controls and other items required as part of the system for normal operation.

Units which do not have an indoor air-circulating blower furnished as part of the model, i.e., split system with indoor coil only, is established by subtracting from the total cooling capacity 1250 Btu/h per 1,000 cfm, and by adding the same amount to the heating capacity. Total power input for both heating and cooling is increased by 365 W per 1,000 cfm of indoor air circulated.

TXV SUBSTITUTION

A general guide for replacing the factory installed TXV if the indoor unit (coil/air handler) is larger than the outdoor unit.

Outdoor Unit		Indoor Unit		TXV Furnished	TXV Replacement
Size	Tons	Size	Tons		
024	2	38	3.5	12J19	12J18
024	2	42	3.5	12J20	12J18
024	2	48	4	12J20	12J18
024	2	49	4	12J20	12J18
030	2.5	38	3.5	12J19	12J18
030	2.5	42	3.5	12J20	12J18
030	2.5	43	3.5	12J20	12J18
030	2.5	44/48	4	12J20	12J18
030	2.5	48	4	12J20	12J18
030	2.5	50/60	4	12J20	12J18

TXV Ranges:

12J18 - 1.5 to 2.5 ton systems - Use on 2.5 ton and lower systems.

12J19 - 3 ton systems - Use down to 2 ton systems.

12J20 - 3.5 to 5 ton systems - Use down to 3 ton systems.

REVISIONS

Sections	Description of Change
Most Popular Matches	Section removed.
Optional Accessories	Sound Cover updated.



Visit us at www.lennox.com

For the latest technical information, www.LennoxPros.com

Contact us at 1-800-4-LENNOX

NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability. Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury. Installation and service must be performed by a qualified installer and servicing agency.

©2020 Lennox Industries, Inc.

APPENDIX 10.2:

OPERATIONAL NOISE LEVEL CALCULATIONS

This page intentionally left blank

15699 - Anaheim Hills Festival SPA No6

CadnaA Noise Prediction Model: 15699-02_Operation.cna

Date: 22.04.24

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 Rcvr - 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	33.9	31.4	38.1	0.0	0.0	0.0	x		Total	5.00	r 6107601.59	2261730.70	5.00
R2		R2	39.9	37.4	44.1	0.0	0.0	0.0	x		Total	5.00	r 6106501.29	2260991.11	5.00
R3		R3	43.5	41.1	47.7	0.0	0.0	0.0	x		Total	5.00	r 6105974.94	2261285.74	5.00
R4		R4	43.0	40.3	47.0	0.0	0.0	0.0	x		Total	5.00	r 6105475.04	2261951.57	5.00
R5		R5	41.8	39.1	45.8	0.0	0.0	0.0	x		Total	5.00	r 6105549.90	2262140.41	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	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105680.43	2261930.35	45.00
AC002		AC002	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105684.59	2261928.27	45.00
AC003		AC003	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105688.76	2261926.19	45.00
AC004		AC004	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105693.27	2261924.45	45.00
AC005		AC005	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105710.29	2261917.16	45.00
AC006		AC006	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105720.72	2261912.88	45.00
AC007		AC007	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105723.32	2261911.47	45.00
AC008		AC008	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105726.47	2261910.17	45.00
AC009		AC009	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105729.07	2261909.19	45.00
AC010		AC010	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105732.00	2261907.89	45.00
AC011		AC011	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105734.60	2261906.59	45.00
AC012		AC012	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105717.19	2261914.23	45.00
AC013		AC013	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105714.04	2261915.64	45.00
AC014		AC014	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105706.32	2261918.87	45.00
AC015		AC015	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105702.15	2261920.85	45.00

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)				(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)
AC016		AC016	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105697.98	2261922.58	45.00
AC017		AC017	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105699.55	2261916.07	45.00
AC018		AC018	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105686.16	2261921.41	45.00
AC019		AC019	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105720.72	2261906.70	45.00
AC020		AC020	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105677.82	2261925.58	45.00
AC021		AC021	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105718.11	2261908.11	45.00
AC022		AC022	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105703.71	2261914.10	45.00
AC023		AC023	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105690.67	2261919.68	45.00
AC024		AC024	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105732.00	2261901.82	45.00
AC025		AC025	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105714.59	2261909.45	45.00
AC026		AC026	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105726.47	2261904.42	45.00
AC027		AC027	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105711.44	2261910.87	45.00
AC028		AC028	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105729.40	2261903.12	45.00
AC029		AC029	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105723.86	2261905.40	45.00
AC030		AC030	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105707.68	2261912.38	45.00
AC031		AC031	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105681.99	2261923.50	45.00
AC032		AC032	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105695.38	2261917.81	45.00
AC033		AC033	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105739.68	2261849.78	45.00
AC034		AC034	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105750.96	2261850.74	45.00
AC035		AC035	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105774.88	2261840.51	45.00
AC036		AC036	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105755.67	2261848.87	45.00
AC037		AC037	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105784.16	2261836.46	45.00
AC038		AC038	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105792.29	2261832.88	45.00
AC039		AC039	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105772.27	2261835.74	45.00
AC040		AC040	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105735.51	2261851.86	45.00
AC041		AC041	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105759.84	2261847.13	45.00
AC042		AC042	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105753.07	2261844.10	45.00
AC043		AC043	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105743.85	2261847.70	45.00
AC044		AC044	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105738.12	2261856.64	45.00
AC045		AC045	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105746.45	2261852.47	45.00
AC046		AC046	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105769.13	2261837.15	45.00
AC047		AC047	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105778.41	2261832.98	45.00
AC048		AC048	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105784.16	2261830.71	45.00
AC049		AC049	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105781.55	2261831.68	45.00
AC050		AC050	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105767.98	2261843.44	45.00
AC051		AC051	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105764.01	2261845.16	45.00
AC052		AC052	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105765.37	2261838.67	45.00
AC053		AC053	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105787.09	2261829.40	45.00
AC054		AC054	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105757.24	2261842.36	45.00
AC055		AC055	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105778.41	2261839.17	45.00
AC056		AC056	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105786.76	2261835.48	45.00
AC057		AC057	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105761.40	2261840.38	45.00
AC058		AC058	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105781.01	2261837.76	45.00
AC059		AC059	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105789.69	2261828.10	45.00
AC060		AC060	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105771.73	2261841.93	45.00
AC061		AC061	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105742.28	2261854.56	45.00
AC062		AC062	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105775.80	2261834.39	45.00
AC063		AC063	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105748.36	2261845.96	45.00
AC064		AC064	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105789.69	2261834.18	45.00
AC065		AC065	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105844.19	2261805.34	45.00
AC066		AC066	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105879.99	2261795.83	45.00
AC067		AC067	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105853.07	2261801.73	45.00
AC068		AC068	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105874.24	2261798.54	45.00
AC069		AC069	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105831.35	2261811.24	45.00
AC070		AC070	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105861.21	2261798.04	45.00
AC071		AC071	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105848.90	2261803.47	45.00
AC072		AC072	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105885.52	2261787.48	45.00
AC073		AC073	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105879.99	2261790.08	45.00
AC074		AC074	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105888.13	2261792.25	45.00
AC075		AC075	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105871.63	2261793.77	45.00
AC076		AC076	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105855.67	2261806.51	45.00
AC077		AC077	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105846.80	2261810.11	45.00
AC078		AC078	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105835.51	2261809.16	45.00
AC079		AC079	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105867.57	2261801.30	45.00
AC080		AC080	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105859.84	2261804.53	45.00
AC081		AC081	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105877.39	2261791.06	45.00
AC082		AC082	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105838.12	2261813.93	45.00
AC083		AC083	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105863.81	2261802.82	45.00
AC084		AC084	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105870.71	2261799.89	45.00
AC085		AC085	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105868.11	2261795.12	45.00
AC086		AC086	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105864.96	2261796.53	45.00
AC087		AC087	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105885.52	2261793.55	45.00
AC088		AC088	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105851.51	2261808.24	45.00
AC089		AC089	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105839.68	2261807.07	45.00
AC090		AC090	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105882.59	2261794.85	45.00
AC091		AC091	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105874.24	2261792.36	45.00
AC092		AC092	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105842.28	2261811.85	45.00

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)				(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)
AC093		AC093	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105833.95	2261816.01	45.00
AC094		AC094	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105876.84	2261797.13	45.00
AC095		AC095	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105857.24	2261799.76	45.00
AC096		AC096	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105882.92	2261788.78	45.00
AC097		AC097	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105703.66	2261809.49	45.00
AC098		AC098	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105713.36	2261845.77	45.00
AC099		AC099	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105698.27	2261797.03	45.00
AC100		AC100	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105704.00	2261823.99	45.00
AC101		AC101	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105697.47	2261808.91	45.00
AC102		AC102	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105702.05	2261819.81	45.00
AC103		AC103	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105709.25	2261837.41	45.00
AC104		AC104	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105706.84	2261817.23	45.00
AC105		AC105	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105711.31	2261841.59	45.00
AC106		AC106	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105689.95	2261791.44	45.00
AC107		AC107	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105716.10	2261839.02	45.00
AC108		AC108	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105696.02	2261791.48	45.00
AC109		AC109	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105691.23	2261794.05	45.00
AC110		AC110	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105702.27	2261806.33	45.00
AC111		AC111	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105710.50	2261825.59	45.00
AC112		AC112	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105705.71	2261828.16	45.00
AC113		AC113	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105712.33	2261830.31	45.00
AC114		AC114	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105692.52	2261796.99	45.00
AC115		AC115	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105696.15	2261805.37	45.00
AC116		AC116	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105708.79	2261821.41	45.00
AC117		AC117	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105694.76	2261802.76	45.00
AC118		AC118	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105699.55	2261800.18	45.00
AC119		AC119	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105694.74	2261788.87	45.00
AC120		AC120	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105700.36	2261815.82	45.00
AC121		AC121	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105698.87	2261812.06	45.00
AC122		AC122	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105718.16	2261843.20	45.00
AC123		AC123	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105714.04	2261834.84	45.00
AC124		AC124	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105707.54	2261832.88	45.00
AC125		AC125	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105697.31	2261794.42	45.00
AC126		AC126	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105705.15	2261813.25	45.00
AC127		AC127	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105693.48	2261799.60	45.00
AC128		AC128	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105700.94	2261802.80	45.00
AC129		AC129	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105871.95	2261722.50	45.00
AC130		AC130	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105889.16	2261762.90	45.00
AC131		AC131	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105874.66	2261729.19	45.00
AC132		AC132	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105865.74	2261708.57	45.00
AC133		AC133	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105876.16	2261732.96	45.00
AC134		AC134	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105873.27	2261726.04	45.00
AC135		AC135	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105883.34	2261750.02	45.00
AC136		AC136	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105881.51	2261745.29	45.00
AC137		AC137	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105887.11	2261758.72	45.00
AC138		AC138	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105879.80	2261741.12	45.00
AC139		AC139	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105868.31	2261714.12	45.00
AC140		AC140	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105870.56	2261719.89	45.00
AC141		AC141	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105877.85	2261736.94	45.00
AC142		AC142	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105885.05	2261754.54	45.00
AC143		AC143	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105869.27	2261716.73	45.00
AC144		AC144	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105867.03	2261711.19	45.00
AC145		AC145	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106099.46	2261677.28	45.00
AC146		AC146	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106080.15	2261631.32	45.00
AC147		AC147	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106081.44	2261633.93	45.00
AC148		AC148	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106095.91	2261668.04	45.00
AC149		AC149	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106087.68	2261648.78	45.00
AC150		AC150	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106103.57	2261685.64	45.00
AC151		AC151	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106089.07	2261651.93	45.00
AC152		AC152	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106092.26	2261659.68	45.00
AC153		AC153	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106086.36	2261645.24	45.00
AC154		AC154	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106082.72	2261636.87	45.00
AC155		AC155	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106090.57	2261655.70	45.00
AC156		AC156	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106094.21	2261663.86	45.00
AC157		AC157	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106083.68	2261639.48	45.00
AC158		AC158	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106097.75	2261672.76	45.00
AC159		AC159	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106101.52	2261681.46	45.00
AC160		AC160	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106084.96	2261642.63	45.00
AC161		AC161	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106128.92	2261698.04	45.00
AC162		AC162	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106157.21	2261691.71	45.00
AC163		AC163	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106127.35	2261704.90	45.00
AC164		AC164	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106167.64	2261687.43	45.00
AC165		AC165	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106133.08	2261695.96	45.00
AC166		AC166	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106149.08	2261695.40	45.00
AC167		AC167	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106161.51	2261684.00	45.00
AC168		AC168	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106178.93	2261676.37	45.00
AC169		AC169	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106173.39	2261678.97	45.00

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)				(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)
AC170		AC170	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106176.32	2261677.67	45.00
AC171		AC171	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106170.25	2261686.02	45.00
AC172		AC172	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106160.97	2261690.19	45.00
AC173		AC173	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106178.93	2261682.44	45.00
AC174		AC174	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106146.47	2261690.62	45.00
AC175		AC175	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106176.00	2261683.74	45.00
AC176		AC176	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106181.53	2261681.14	45.00
AC177		AC177	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106131.52	2261702.82	45.00
AC178		AC178	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106144.91	2261697.13	45.00
AC179		AC179	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106154.61	2261686.93	45.00
AC180		AC180	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106142.31	2261692.36	45.00
AC181		AC181	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106150.64	2261688.65	45.00
AC182		AC182	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106135.69	2261700.74	45.00
AC183		AC183	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106153.24	2261693.42	45.00
AC184		AC184	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106137.60	2261694.23	45.00
AC185		AC185	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106140.20	2261699.00	45.00
AC186		AC186	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106170.79	2261679.95	45.00
AC187		AC187	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106158.36	2261685.41	45.00
AC188		AC188	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106165.04	2261682.66	45.00
AC189		AC189	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106167.64	2261681.25	45.00
AC190		AC190	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106173.39	2261684.72	45.00
AC191		AC191	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106164.11	2261688.78	45.00
AC192		AC192	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106124.75	2261700.13	45.00
AC193		AC193	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106258.81	2261647.29	45.00
AC194		AC194	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106241.18	2261648.96	45.00
AC195		AC195	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106229.28	2261654.16	45.00
AC196		AC196	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106264.34	2261644.68	45.00
AC197		AC197	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106261.74	2261639.91	45.00
AC198		AC198	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106261.74	2261645.98	45.00
AC199		AC199	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106256.20	2261642.51	45.00
AC200		AC200	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106210.17	2261668.44	45.00
AC201		AC201	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106223.01	2261662.54	45.00
AC202		AC202	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106227.72	2261660.68	45.00
AC203		AC203	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106225.12	2261655.90	45.00
AC204		AC204	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106253.60	2261643.49	45.00
AC205		AC205	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106250.45	2261644.79	45.00
AC206		AC206	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106231.89	2261658.94	45.00
AC207		AC207	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106236.06	2261656.96	45.00
AC208		AC208	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106243.78	2261653.73	45.00
AC209		AC209	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106233.45	2261652.19	45.00
AC210		AC210	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106247.85	2261646.20	45.00
AC211		AC211	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106259.13	2261641.21	45.00
AC212		AC212	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106256.20	2261648.26	45.00
AC213		AC213	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106250.45	2261650.97	45.00
AC214		AC214	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106214.33	2261666.36	45.00
AC215		AC215	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106253.06	2261649.56	45.00
AC216		AC216	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106246.93	2261652.32	45.00
AC217		AC217	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106220.41	2261657.77	45.00
AC218		AC218	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106218.50	2261664.28	45.00
AC219		AC219	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106244.32	2261647.55	45.00
AC220		AC220	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106240.03	2261655.25	45.00
AC221		AC221	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106211.73	2261661.59	45.00
AC222		AC222	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106237.42	2261650.48	45.00
AC223		AC223	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106207.56	2261663.67	45.00
AC224		AC224	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106215.89	2261659.50	45.00
AC225		AC225	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106002.79	2261833.80	45.00
AC226		AC226	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105985.62	2261840.81	45.00
AC227		AC227	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106011.21	2261830.28	45.00
AC228		AC228	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105976.86	2261844.19	45.00
AC229		AC229	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106024.73	2261824.90	45.00
AC230		AC230	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106015.96	2261828.52	45.00
AC231		AC231	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106007.00	2261831.92	45.00
AC232		AC232	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105982.45	2261842.04	45.00
AC233		AC233	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105979.82	2261842.95	45.00
AC234		AC234	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105991.82	2261838.19	45.00
AC235		AC235	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106028.94	2261822.92	45.00
AC236		AC236	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105995.00	2261836.86	45.00
AC237		AC237	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105988.26	2261839.46	45.00
AC238		AC238	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106020.51	2261826.89	45.00
AC239		AC239	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105974.23	2261845.43	45.00
AC240		AC240	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105998.78	2261835.42	45.00
AC241		AC241	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106132.41	2261776.39	45.00
AC242		AC242	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106089.10	2261794.28	45.00
AC243		AC243	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106119.43	2261782.00	45.00
AC244		AC244	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106077.70	2261798.90	45.00
AC245		AC245	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106085.92	2261795.51	45.00
AC246		AC246	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106083.30	2261796.43	45.00

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)				(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)
AC247		AC247	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106098.47	2261790.33	45.00
AC248		AC248	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106095.29	2261791.67	45.00
AC249		AC249	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106110.48	2261785.39	45.00
AC250		AC250	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106128.20	2261778.38	45.00
AC251		AC251	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106106.27	2261787.27	45.00
AC252		AC252	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106123.98	2261780.36	45.00
AC253		AC253	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106102.26	2261788.90	45.00
AC254		AC254	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106080.34	2261797.66	45.00
AC255		AC255	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106091.73	2261792.93	45.00
AC256		AC256	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106114.68	2261783.75	45.00
AC257		AC257	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106249.55	2261565.46	45.00
AC258		AC258	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106239.95	2261556.72	45.00
AC259		AC259	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106258.79	2261586.69	45.00
AC260		AC260	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106253.66	2261574.76	45.00
AC261		AC261	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106252.05	2261585.08	45.00
AC262		AC262	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106244.74	2261554.15	45.00
AC263		AC263	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106254.00	2261589.26	45.00
AC264		AC264	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106241.23	2261559.33	45.00
AC265		AC265	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106266.10	2261604.29	45.00
AC266		AC266	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106259.25	2261602.69	45.00
AC267		AC267	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106262.33	2261595.59	45.00
AC268		AC268	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106243.48	2261564.88	45.00
AC269		AC269	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106246.15	2261570.65	45.00
AC270		AC270	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106246.02	2261556.76	45.00
AC271		AC271	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106264.04	2261600.11	45.00
AC272		AC272	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106250.94	2261568.07	45.00
AC273		AC273	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106248.87	2261577.34	45.00
AC274		AC274	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106248.27	2261562.31	45.00
AC275		AC275	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106268.16	2261608.47	45.00
AC276		AC276	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106250.36	2261581.10	45.00
AC277		AC277	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106257.54	2261598.16	45.00
AC278		AC278	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106263.36	2261611.05	45.00
AC279		AC279	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106261.31	2261606.87	45.00
AC280		AC280	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106260.50	2261590.87	45.00
AC281		AC281	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106242.52	2261562.27	45.00
AC282		AC282	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106255.15	2261578.53	45.00
AC283		AC283	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106256.84	2261582.51	45.00
AC284		AC284	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106252.27	2261571.61	45.00
AC285		AC285	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106255.71	2261593.44	45.00
AC286		AC286	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106247.31	2261559.70	45.00
AC287		AC287	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106247.47	2261574.18	45.00
AC288		AC288	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106244.76	2261568.03	45.00
AC289		AC289	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106205.74	2261499.39	45.00
AC290		AC290	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106200.95	2261501.96	45.00
AC291		AC291	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106207.47	2261517.04	45.00
AC292		AC292	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106209.18	2261521.22	45.00
AC293		AC293	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106205.52	2261512.86	45.00
AC294		AC294	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106210.31	2261510.29	45.00
AC295		AC295	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106213.97	2261518.65	45.00
AC296		AC296	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106207.13	2261502.54	45.00
AC297		AC297	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106198.23	2261495.81	45.00
AC298		AC298	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106198.21	2261481.92	45.00
AC299		AC299	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106202.34	2261505.12	45.00
AC300		AC300	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106214.78	2261534.64	45.00
AC301		AC301	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106203.83	2261508.88	45.00
AC302		AC302	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106217.51	2261527.89	45.00
AC303		AC303	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106212.72	2261530.46	45.00
AC304		AC304	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106194.70	2261487.11	45.00
AC305		AC305	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106196.95	2261492.66	45.00
AC306		AC306	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106193.42	2261484.50	45.00
AC307		AC307	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106200.78	2261487.47	45.00
AC308		AC308	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106208.62	2261506.31	45.00
AC309		AC309	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106201.74	2261490.08	45.00
AC310		AC310	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106212.26	2261514.47	45.00
AC311		AC311	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106221.63	2261536.25	45.00
AC312		AC312	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106204.41	2261495.85	45.00
AC313		AC313	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106215.81	2261523.37	45.00
AC314		AC314	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106203.02	2261493.24	45.00
AC315		AC315	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106195.99	2261490.05	45.00
AC316		AC316	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106211.02	2261525.94	45.00
AC317		AC317	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106219.57	2261532.07	45.00
AC318		AC318	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106216.84	2261538.82	45.00
AC319		AC319	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106199.62	2261498.43	45.00
AC320		AC320	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106199.49	2261484.54	45.00
AC321		AC321	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106041.24	2261509.76	45.00
AC322		AC322	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106060.17	2261495.96	45.00
AC323		AC323	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106078.95	2261493.75	45.00

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)				(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)
AC324		AC324	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106062.77	2261500.74	45.00
AC325		AC325	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106070.59	2261491.69	45.00
AC326		AC326	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106069.67	2261497.81	45.00
AC327		AC327	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106052.03	2261499.65	45.00
AC328		AC328	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106081.88	2261486.70	45.00
AC329		AC329	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106087.09	2261490.17	45.00
AC330		AC330	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106063.92	2261494.44	45.00
AC331		AC331	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106084.48	2261485.39	45.00
AC332		AC332	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106032.91	2261513.93	45.00
AC333		AC333	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106030.30	2261509.16	45.00
AC334		AC334	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106084.48	2261491.47	45.00
AC335		AC335	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106056.19	2261497.68	45.00
AC336		AC336	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106073.20	2261490.28	45.00
AC337		AC337	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106076.34	2261488.97	45.00
AC338		AC338	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106047.86	2261501.39	45.00
AC339		AC339	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106034.47	2261507.07	45.00
AC340		AC340	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106058.80	2261502.45	45.00
AC341		AC341	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106078.95	2261488.00	45.00
AC342		AC342	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106037.07	2261511.85	45.00
AC343		AC343	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106075.80	2261495.05	45.00
AC344		AC344	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106038.64	2261504.99	45.00
AC345		AC345	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106081.55	2261492.77	45.00
AC346		AC346	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106066.52	2261499.22	45.00
AC347		AC347	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106043.15	2261503.25	45.00
AC348		AC348	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106050.46	2261506.16	45.00
AC349		AC349	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106054.63	2261504.43	45.00
AC350		AC350	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106045.76	2261508.03	45.00
AC351		AC351	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106073.20	2261496.46	45.00
AC352		AC352	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106067.07	2261493.03	45.00
AC353		AC353	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106167.81	2261449.98	45.00
AC354		AC354	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106146.10	2261465.32	45.00
AC355		AC355	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106139.53	2261462.26	45.00
AC356		AC356	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106142.13	2261467.03	45.00
AC357		AC357	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106129.09	2261472.61	45.00
AC358		AC358	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106135.36	2261464.23	45.00
AC359		AC359	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106156.53	2261454.86	45.00
AC360		AC360	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106162.28	2261452.58	45.00
AC361		AC361	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106117.80	2261471.66	45.00
AC362		AC362	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106167.81	2261456.05	45.00
AC363		AC363	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106165.21	2261451.28	45.00
AC364		AC364	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106113.64	2261473.74	45.00
AC365		AC365	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106126.48	2261467.84	45.00
AC366		AC366	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106153.00	2261462.39	45.00
AC367		AC367	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106159.68	2261453.56	45.00
AC368		AC368	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106143.50	2261460.54	45.00
AC369		AC369	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106137.96	2261469.01	45.00
AC370		AC370	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106121.97	2261469.57	45.00
AC371		AC371	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106164.89	2261457.35	45.00
AC372		AC372	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106150.40	2261457.62	45.00
AC373		AC373	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106159.13	2261459.63	45.00
AC374		AC374	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106156.53	2261461.04	45.00
AC375		AC375	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106116.24	2261478.51	45.00
AC376		AC376	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106124.57	2261474.35	45.00
AC377		AC377	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106170.42	2261454.75	45.00
AC378		AC378	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106147.25	2261459.03	45.00
AC379		AC379	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106133.80	2261470.74	45.00
AC380		AC380	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106162.28	2261458.33	45.00
AC381		AC381	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106120.41	2261476.43	45.00
AC382		AC382	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106131.19	2261465.97	45.00
AC383		AC383	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106153.93	2261456.27	45.00
AC384		AC384	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6106149.86	2261463.80	45.00
AC385		AC385	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105673.71	2261665.06	45.00
AC386		AC386	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105663.46	2261675.74	45.00
AC387		AC387	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105660.86	2261670.96	45.00
AC388		AC388	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105697.08	2261661.02	45.00
AC389		AC389	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105693.32	2261662.54	45.00
AC390		AC390	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105712.43	2261648.50	45.00
AC391		AC391	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105685.19	2261666.23	45.00
AC392		AC392	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105715.04	2261647.20	45.00
AC393		AC393	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105706.36	2261656.86	45.00
AC394		AC394	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105703.75	2261658.27	45.00
AC395		AC395	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105700.23	2261659.61	45.00
AC396		AC396	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105709.50	2261649.80	45.00
AC397		AC397	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105690.72	2261657.77	45.00
AC398		AC398	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105715.04	2261653.27	45.00
AC399		AC399	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105712.11	2261654.58	45.00
AC400		AC400	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105681.02	2261667.97	45.00

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)				(min)	(min)	(min)	(ft)	(ft)	(ft)	(ft)
AC401		AC401	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105678.42	2261663.19	45.00
AC402		AC402	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105717.64	2261651.97	45.00
AC403		AC403	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105706.90	2261650.78	45.00
AC404		AC404	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105686.75	2261659.48	45.00
AC405		AC405	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105689.35	2261664.26	45.00
AC406		AC406	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105697.62	2261654.84	45.00
AC407		AC407	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105709.50	2261655.55	45.00
AC408		AC408	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105682.58	2261661.46	45.00
AC409		AC409	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105669.19	2261666.79	45.00
AC410		AC410	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105665.03	2261668.88	45.00
AC411		AC411	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105694.48	2261656.25	45.00
AC412		AC412	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105676.31	2261669.83	45.00
AC413		AC413	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105701.15	2261653.49	45.00
AC414		AC414	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105667.63	2261673.65	45.00
AC415		AC415	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105671.80	2261671.57	45.00
AC416		AC416	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105703.75	2261652.08	45.00
AC417		AC417	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105781.71	2261622.48	45.00
AC418		AC418	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105774.94	2261619.44	45.00
AC419		AC419	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105783.28	2261615.73	45.00
AC420		AC420	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105791.00	2261612.50	45.00
AC421		AC421	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105789.85	2261618.79	45.00
AC422		AC422	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105811.56	2261609.52	45.00
AC423		AC423	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105802.88	2261613.11	45.00
AC424		AC424	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105765.72	2261623.04	45.00
AC425		AC425	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105779.11	2261617.71	45.00
AC426		AC426	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105808.96	2261604.75	45.00
AC427		AC427	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105761.55	2261625.13	45.00
AC428		AC428	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105797.68	2261609.74	45.00
AC429		AC429	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105785.88	2261620.51	45.00
AC430		AC430	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105770.23	2261621.31	45.00
AC431		AC431	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105768.32	2261627.82	45.00
AC432		AC432	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105803.43	2261607.03	45.00
AC433		AC433	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105772.84	2261626.08	45.00
AC434		AC434	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105811.56	2261603.45	45.00
AC435		AC435	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105800.28	2261614.52	45.00
AC436		AC436	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105793.61	2261617.27	45.00
AC437		AC437	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105757.39	2261627.21	45.00
AC438		AC438	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105808.64	2261610.83	45.00
AC439		AC439	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105794.15	2261611.09	45.00
AC440		AC440	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105787.25	2261614.02	45.00
AC441		AC441	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105814.17	2261608.22	45.00
AC442		AC442	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105764.16	2261629.90	45.00
AC443		AC443	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105806.03	2261606.05	45.00
AC444		AC444	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105806.03	2261611.80	45.00
AC445		AC445	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105777.55	2261624.22	45.00
AC446		AC446	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105800.28	2261608.33	45.00
AC447		AC447	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105796.75	2261615.86	45.00
AC448		AC448	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105759.99	2261631.99	45.00
AC449		AC449	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105950.37	2261552.93	45.00
AC450		AC450	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105945.82	2261554.56	45.00
AC451		AC451	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105954.59	2261550.95	45.00
AC452		AC452	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105915.49	2261566.85	45.00
AC453		AC453	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105912.31	2261568.08	45.00
AC454		AC454	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105921.68	2261564.24	45.00
AC455		AC455	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105906.73	2261570.23	45.00
AC456		AC456	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105909.68	2261569.00	45.00
AC457		AC457	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105924.86	2261562.90	45.00
AC458		AC458	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105941.07	2261556.32	45.00
AC459		AC459	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105936.87	2261557.96	45.00
AC460		AC460	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105958.80	2261548.96	45.00
AC461		AC461	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105928.64	2261561.46	45.00
AC462		AC462	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105904.09	2261571.47	45.00
AC463		AC463	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105932.65	2261559.84	45.00
AC464		AC464	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105918.12	2261565.50	45.00
AC465		AC465	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105657.41	2261701.19	45.00
AC466		AC466	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105669.51	2261729.56	45.00
AC467		AC467	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105656.15	2261711.93	45.00
AC468		AC468	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105673.17	2261737.92	45.00
AC469		AC469	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105655.19	2261709.32	45.00
AC470		AC470	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105663.62	2261715.12	45.00
AC471		AC471	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105658.70	2261703.81	45.00
AC472		AC472	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105666.33	2261721.81	45.00
AC473		AC473	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105662.22	2261712.51	45.00
AC474		AC474	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105660.15	2261721.23	45.00
AC475		AC475	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105664.94	2261718.66	45.00
AC476		AC476	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105670.22	2261745.21	45.00
AC477		AC477	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g 6105666.67	2261736.31	45.00

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)
AC478		AC478	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105661.54	2261724.39	45.00
AC479		AC479	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105663.03	2261728.15	45.00
AC480		AC480	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105657.43	2261715.08	45.00
AC481		AC481	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105659.98	2261706.74	45.00
AC482		AC482	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105658.82	2261717.70	45.00
AC483		AC483	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105652.62	2261703.77	45.00
AC484		AC484	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105668.38	2261740.49	45.00
AC485		AC485	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105676.72	2261747.16	45.00
AC486		AC486	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105673.98	2261753.92	45.00
AC487		AC487	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105676.04	2261758.10	45.00
AC488		AC488	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105680.83	2261755.52	45.00
AC489		AC489	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105664.72	2261732.13	45.00
AC490		AC490	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105667.82	2261725.58	45.00
AC491		AC491	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105660.94	2261709.35	45.00
AC492		AC492	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105671.92	2261749.74	45.00
AC493		AC493	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105653.91	2261706.38	45.00
AC494		AC494	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105675.01	2261742.64	45.00
AC495		AC495	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105671.46	2261733.74	45.00
AC496		AC496	78.0	78.0	78.0	Lw	78		675.00	0.00	270.00	3.00	g	6105678.77	2261751.34	45.00
TRASH1		TRASH1	88.9	88.9	88.9	Lw	88.9		150.00	0.00	90.00	8.00	r	6105860.70	2261481.83	8.00

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)	
PARK1		PARK1	79.0	79.0	79.0	42.1	42.1	42.1	Lw	79					0. g
PARK4		PARK4	76.6	76.6	76.6	45.4	45.4	45.4	Lw	76.6					0. a
PARK5		PARK5	74.0	74.0	74.0	57.0	57.0	57.0	Lw	74					0. a
PARK6		PARK6	74.0	74.0	74.0	57.1	57.1	57.1	Lw	74					0. a
PARK7		PARK7	74.0	74.0	74.0	56.7	56.7	56.7	Lw	74					0. a

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
PARK1	PARK1	0.00	g	6105948.29	2261851.59	42.00	0.00
				6106124.33	2261775.20	42.00	0.00
				6106017.86	2261524.59	42.00	0.00
				6105839.47	2261602.98	42.00	0.00
PARK4	PARK4	0.00	a	6105815.66	2262086.98	0.00	0.00
				6105949.56	2262030.88	0.00	0.00
				6105912.56	2261944.51	0.00	0.00
				6105771.72	2261999.85	0.00	0.00
PARK5	PARK5	0.00	a	6105809.26	2261906.42	0.00	0.00
				6105834.87	2261895.57	0.00	0.00
				6105826.19	2261878.21	0.00	0.00
				6105801.45	2261887.76	0.00	0.00
PARK6	PARK6	0.00	a	6105850.93	2261887.33	0.00	0.00
				6105876.10	2261878.64	0.00	0.00
				6105868.29	2261859.11	0.00	0.00
				6105843.55	2261870.83	0.00	0.00
PARK7	PARK7	0.00	a	6105987.65	2261928.99	0.00	0.00
				6105976.80	2261903.38	0.00	0.00
				6105958.13	2261909.46	0.00	0.00
				6105968.11	2261937.24	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		42.00	a	6105655.64	2261976.81	42.00	0.00
									6105679.00	2261966.73	42.00	0.00
									6105677.70	2261964.30	42.00	0.00
									6105687.77	2261960.13	42.00	0.00
									6105688.64	2261962.56	42.00	0.00
									6105734.73	2261942.42	42.00	0.00
									6105733.17	2261939.21	42.00	0.00
									6105743.93	2261934.70	42.00	0.00
									6105746.36	2261939.30	42.00	0.00
									6105766.07	2261931.05	42.00	0.00
									6105765.55	2261930.18	42.00	0.00
									6105785.80	2261921.38	42.00	0.00
									6105771.91	2261891.17	42.00	0.00
									6105768.96	2261892.56	42.00	0.00
									6105765.32	2261883.71	42.00	0.00
									6105770.87	2261870.34	42.00	0.00
									6105779.03	2261867.04	42.00	0.00
									6105780.59	2261870.34	42.00	0.00
									6105791.18	2261865.48	42.00	0.00
									6105792.75	2261868.78	42.00	0.00
									6105859.76	2261839.44	42.00	0.00
									6105858.55	2261836.14	42.00	0.00
									6105867.57	2261832.49	42.00	0.00
									6105866.36	2261829.19	42.00	0.00
									6105877.47	2261824.68	42.00	0.00
									6105890.49	2261829.37	42.00	0.00
									6105894.14	2261838.22	42.00	0.00
									6105887.71	2261841.52	42.00	0.00
									6105907.85	2261886.49	42.00	0.00
									6105936.67	2261874.16	42.00	0.00
									6105934.24	2261869.65	42.00	0.00
									6105967.23	2261856.10	42.00	0.00
									6106005.07	2261946.03	42.00	0.00
									6106081.42	2261912.14	42.00	0.00
									6106067.75	2261881.80	42.00	0.00
									6106054.86	2261887.79	42.00	0.00
									6106045.87	2261867.61	42.00	0.00
									6106042.62	2261868.91	42.00	0.00
									6106038.97	2261860.44	42.00	0.00
									6106044.05	2261847.42	42.00	0.00
									6106052.64	2261843.65	42.00	0.00
									6106055.64	2261850.16	42.00	0.00
									6106101.73	2261830.11	42.00	0.00
									6106099.91	2261826.98	42.00	0.00
									6106122.04	2261817.87	42.00	0.00
									6106123.09	2261820.73	42.00	0.00
									6106146.13	2261811.22	42.00	0.00
									6106150.56	2261820.86	42.00	0.00
									6106170.09	2261812.40	42.00	0.00
									6106169.70	2261811.36	42.00	0.00
									6106190.59	2261803.36	42.00	0.00
									6106176.01	2261772.46	42.00	0.00
									6106178.26	2261771.76	42.00	0.00
									6106168.37	2261748.85	42.00	0.00
									6106165.42	2261749.89	42.00	0.00
									6106160.56	2261739.47	42.00	0.00
									6106157.43	2261740.86	42.00	0.00
									6106153.44	2261732.35	42.00	0.00
									6106158.47	2261718.99	42.00	0.00
									6106167.33	2261715.34	42.00	0.00
									6106169.24	2261719.33	42.00	0.00
									6106178.78	2261714.65	42.00	0.00
									6106179.65	2261717.77	42.00	0.00
									6106248.40	2261688.08	42.00	0.00
									6106247.71	2261686.52	42.00	0.00
									6106259.86	2261681.14	42.00	0.00
									6106260.56	2261682.53	42.00	0.00
									6106273.40	2261676.62	42.00	0.00
									6106273.75	2261678.19	42.00	0.00
									6106291.81	2261670.37	42.00	0.00
									6106291.46	2261668.99	42.00	0.00
									6106295.62	2261667.60	42.00	0.00
									6106303.78	2261687.91	42.00	0.00
									6106343.72	2261669.85	42.00	0.00
									6106329.65	2261639.47	42.00	0.00
									6106326.18	2261641.03	42.00	0.00
									6106308.30	2261599.37	42.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
							Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)
								6106301.53	2261602.15	42.00	0.00
								6106291.63	2261579.05	42.00	0.00
								6106288.51	2261580.44	42.00	0.00
								6106278.96	2261559.26	42.00	0.00
								6106282.43	2261557.70	42.00	0.00
								6106272.53	2261534.26	42.00	0.00
								6106267.50	2261536.52	42.00	0.00
								6106258.99	2261518.12	42.00	0.00
								6106253.78	2261520.72	42.00	0.00
								6106243.72	2261497.28	42.00	0.00
								6106240.42	2261498.85	42.00	0.00
								6106227.57	2261468.64	42.00	0.00
								6106230.69	2261467.25	42.00	0.00
								6106220.80	2261444.68	42.00	0.00
								6106217.33	2261445.72	42.00	0.00
								6106212.47	2261435.30	42.00	0.00
								6106205.87	2261437.91	42.00	0.00
								6106197.53	2261418.29	42.00	0.00
								6106196.67	2261418.81	42.00	0.00
								6106187.64	2261398.15	42.00	0.00
								6106168.02	2261406.83	42.00	0.00
								6106168.02	2261407.53	42.00	0.00
								6106157.43	2261412.04	42.00	0.00
								6106161.42	2261421.94	42.00	0.00
								6106150.83	2261426.45	42.00	0.00
								6106152.22	2261429.75	42.00	0.00
								6106144.24	2261433.57	42.00	0.00
								6106130.87	2261428.01	42.00	0.00
								6106126.87	2261419.33	42.00	0.00
								6106131.39	2261417.42	42.00	0.00
								6106127.05	2261407.70	42.00	0.00
								6106129.83	2261406.83	42.00	0.00
								6106119.58	2261383.92	42.00	0.00
								6106089.90	2261396.94	42.00	0.00
								6106089.37	2261395.55	42.00	0.00
								6106056.56	2261410.13	42.00	0.00
								6106060.90	2261420.20	42.00	0.00
								6106057.78	2261421.59	42.00	0.00
								6106067.59	2261445.11	42.00	0.00
								6106074.31	2261442.51	42.00	0.00
								6106078.00	2261450.97	42.00	0.00
								6106072.58	2261463.99	42.00	0.00
								6106064.33	2261467.36	42.00	0.00
								6106061.40	2261461.28	42.00	0.00
								6105992.17	2261491.23	42.00	0.00
								6105994.78	2261497.41	42.00	0.00
								6105986.21	2261501.21	42.00	0.00
								6105973.51	2261495.90	42.00	0.00
								6105969.71	2261487.65	42.00	0.00
								6105976.01	2261484.83	42.00	0.00
								6105966.24	2261461.82	42.00	0.00
								6105962.88	2261462.91	42.00	0.00
								6105958.54	2261452.38	42.00	0.00
								6105925.12	2261466.60	42.00	0.00
								6105925.33	2261468.23	42.00	0.00
								6105896.25	2261480.70	42.00	0.00
								6105906.13	2261503.82	42.00	0.00
								6105908.30	2261502.84	42.00	0.00
								6105912.42	2261511.95	42.00	0.00
								6105916.76	2261510.54	42.00	0.00
								6105920.56	2261519.12	42.00	0.00
								6105915.03	2261532.24	42.00	0.00
								6105906.78	2261535.93	42.00	0.00
								6105905.15	2261532.35	42.00	0.00
								6105894.84	2261537.02	42.00	0.00
								6105893.11	2261533.87	42.00	0.00
								6105848.40	2261553.40	42.00	0.00
								6105849.49	2261556.33	42.00	0.00
								6105837.66	2261561.87	42.00	0.00
								6105836.47	2261558.61	42.00	0.00
								6105817.91	2261566.86	42.00	0.00
								6105820.52	2261573.15	42.00	0.00
								6105812.27	2261576.84	42.00	0.00
								6105798.92	2261571.42	42.00	0.00
								6105795.34	2261563.17	42.00	0.00
								6105799.25	2261561.32	42.00	0.00
								6105795.02	2261551.56	42.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
							Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)
								6105797.40	2261550.58	42.00	0.00
								6105787.86	2261527.90	42.00	0.00
								6105758.45	2261540.60	42.00	0.00
								6105757.91	2261539.41	42.00	0.00
								6105724.38	2261553.51	42.00	0.00
								6105729.04	2261564.69	42.00	0.00
								6105725.90	2261565.99	42.00	0.00
								6105735.88	2261588.70	42.00	0.00
								6105742.39	2261586.23	42.00	0.00
								6105746.30	2261594.56	42.00	0.00
								6105740.96	2261607.84	42.00	0.00
								6105732.23	2261611.75	42.00	0.00
								6105730.93	2261608.36	42.00	0.00
								6105720.13	2261612.79	42.00	0.00
								6105718.56	2261609.80	42.00	0.00
								6105649.55	2261639.74	42.00	0.00
								6105651.12	2261642.87	42.00	0.00
								6105640.18	2261647.95	42.00	0.00
								6105639.79	2261647.43	42.00	0.00
								6105620.26	2261655.76	42.00	0.00
								6105620.52	2261656.67	42.00	0.00
								6105600.20	2261665.66	42.00	0.00
								6105608.80	2261685.19	42.00	0.00
								6105609.35	2261685.11	42.00	0.00
								6105614.03	2261695.70	42.00	0.00
								6105621.67	2261692.40	42.00	0.00
								6105625.67	2261700.90	42.00	0.00
								6105620.28	2261714.10	42.00	0.00
								6105611.43	2261717.57	42.00	0.00
								6105609.35	2261713.93	42.00	0.00
								6105600.49	2261717.75	42.00	0.00
								6105599.45	2261715.14	42.00	0.00
								6105576.53	2261725.38	42.00	0.00
								6105589.03	2261755.07	42.00	0.00
								6105585.91	2261756.46	42.00	0.00
								6105600.10	2261789.43	42.00	0.00
								6105610.91	2261785.00	42.00	0.00
								6105612.34	2261788.13	42.00	0.00
								6105635.39	2261778.23	42.00	0.00
								6105632.39	2261771.85	42.00	0.00
								6105640.99	2261767.81	42.00	0.00
								6105654.01	2261773.15	42.00	0.00
								6105657.91	2261781.88	42.00	0.00
								6105654.14	2261783.44	42.00	0.00
								6105659.22	2261794.25	42.00	0.00
								6105655.70	2261795.68	42.00	0.00
								6105684.00	2261859.84	42.00	0.00
								6105687.36	2261858.76	42.00	0.00
								6105692.03	2261869.28	42.00	0.00
								6105695.28	2261868.41	42.00	0.00
								6105699.08	2261875.90	42.00	0.00
								6105693.44	2261889.68	42.00	0.00
								6105684.98	2261893.04	42.00	0.00
								6105682.05	2261886.97	42.00	0.00
								6105636.26	2261906.72	42.00	0.00
								6105637.43	2261910.10	42.00	0.00
								6105627.01	2261914.27	42.00	0.00
								6105641.34	2261947.73	42.00	0.00
								6105642.90	2261947.34	42.00	0.00
BUILDING			BUILDING00002	x	0		10.00 g	6105654.45	2261784.51	10.00	0.00
								6105719.03	2261757.08	10.00	0.00
								6105716.95	2261753.95	10.00	0.00
								6105717.56	2261752.78	10.00	0.00
								6105709.36	2261734.16	10.00	0.00
								6105707.66	2261735.07	10.00	0.00
								6105702.45	2261722.70	10.00	0.00
								6105701.41	2261723.09	10.00	0.00
								6105696.34	2261711.12	10.00	0.00
								6105693.73	2261711.90	10.00	0.00
								6105689.47	2261704.28	10.00	0.00
								6105694.94	2261691.52	10.00	0.00
								6105703.01	2261687.61	10.00	0.00
								6105706.14	2261693.08	10.00	0.00
								6105793.90	2261655.58	10.00	0.00
								6105791.56	2261649.33	10.00	0.00
								6105799.37	2261645.42	10.00	0.00
								6105812.39	2261650.37	10.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
							Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)
								6105816.30	2261660.01	10.00	0.00
								6105857.18	2261642.30	10.00	0.00
								6105839.47	2261602.98	10.00	0.00
								6106017.86	2261524.59	10.00	0.00
								6106035.05	2261565.48	10.00	0.00
								6106076.71	2261547.25	10.00	0.00
								6106173.07	2261505.32	10.00	0.00
								6106195.46	2261495.95	10.00	0.00
								6106190.51	2261483.19	10.00	0.00
								6106228.28	2261468.60	10.00	0.00
								6106230.69	2261467.25	10.00	0.00
								6106220.80	2261444.68	10.00	0.00
								6106217.33	2261445.72	10.00	0.00
								6106212.47	2261435.30	10.00	0.00
								6106205.87	2261437.91	10.00	0.00
								6106197.53	2261418.29	10.00	0.00
								6106196.67	2261418.81	10.00	0.00
								6106187.64	2261398.15	10.00	0.00
								6106157.43	2261412.04	10.00	0.00
								6106161.42	2261421.94	10.00	0.00
								6106150.83	2261426.45	10.00	0.00
								6106152.22	2261429.75	10.00	0.00
								6106144.24	2261433.57	10.00	0.00
								6106130.87	2261428.01	10.00	0.00
								6106126.87	2261419.33	10.00	0.00
								6106131.39	2261417.42	10.00	0.00
								6106127.05	2261407.70	10.00	0.00
								6106129.83	2261406.83	10.00	0.00
								6106119.58	2261383.92	10.00	0.00
								6106089.90	2261396.94	10.00	0.00
								6106089.37	2261395.55	10.00	0.00
								6106056.56	2261410.13	10.00	0.00
								6106060.90	2261420.20	10.00	0.00
								6106057.78	2261421.59	10.00	0.00
								6106067.59	2261445.11	10.00	0.00
								6106074.31	2261442.51	10.00	0.00
								6106078.00	2261450.97	10.00	0.00
								6106072.58	2261463.99	10.00	0.00
								6106064.33	2261467.36	10.00	0.00
								6106061.40	2261461.28	10.00	0.00
								6105992.17	2261491.23	10.00	0.00
								6105994.78	2261497.41	10.00	0.00
								6105986.21	2261501.21	10.00	0.00
								6105973.51	2261495.90	10.00	0.00
								6105969.71	2261487.65	10.00	0.00
								6105976.01	2261484.83	10.00	0.00
								6105966.24	2261461.82	10.00	0.00
								6105962.88	2261462.91	10.00	0.00
								6105958.54	2261452.38	10.00	0.00
								6105925.12	2261466.60	10.00	0.00
								6105925.33	2261468.23	10.00	0.00
								6105896.25	2261480.70	10.00	0.00
								6105906.13	2261503.82	10.00	0.00
								6105908.30	2261502.84	10.00	0.00
								6105912.42	2261511.95	10.00	0.00
								6105916.76	2261510.54	10.00	0.00
								6105920.56	2261519.12	10.00	0.00
								6105915.03	2261532.24	10.00	0.00
								6105906.78	2261535.93	10.00	0.00
								6105905.15	2261532.35	10.00	0.00
								6105894.84	2261537.02	10.00	0.00
								6105893.11	2261533.87	10.00	0.00
								6105848.40	2261553.40	10.00	0.00
								6105849.49	2261556.33	10.00	0.00
								6105837.66	2261561.87	10.00	0.00
								6105836.47	2261558.61	10.00	0.00
								6105817.91	2261566.86	10.00	0.00
								6105820.52	2261573.15	10.00	0.00
								6105812.27	2261576.84	10.00	0.00
								6105798.92	2261571.42	10.00	0.00
								6105795.34	2261563.17	10.00	0.00
								6105799.25	2261561.32	10.00	0.00
								6105795.02	2261551.56	10.00	0.00
								6105797.40	2261550.58	10.00	0.00
								6105787.86	2261527.90	10.00	0.00
								6105758.45	2261540.60	10.00	0.00
								6105757.91	2261539.41	10.00	0.00

Name	Sel.	M.	ID	RB	Residents	Absorption	Height	Coordinates			
							Begin	x	y	z	Ground
							(ft)	(ft)	(ft)	(ft)	(ft)
								6105724.38	2261553.51	10.00	0.00
								6105728.81	2261564.14	10.00	0.00
								6105725.90	2261565.99	10.00	0.00
								6105735.88	2261588.70	10.00	0.00
								6105742.39	2261586.23	10.00	0.00
								6105746.30	2261594.56	10.00	0.00
								6105740.96	2261607.84	10.00	0.00
								6105736.17	2261609.99	10.00	0.00
								6105732.23	2261611.75	10.00	0.00
								6105730.93	2261608.36	10.00	0.00
								6105720.13	2261612.79	10.00	0.00
								6105718.56	2261609.80	10.00	0.00
								6105649.55	2261639.74	10.00	0.00
								6105651.12	2261642.87	10.00	0.00
								6105640.18	2261647.95	10.00	0.00
								6105639.79	2261647.43	10.00	0.00
								6105620.26	2261655.76	10.00	0.00
								6105620.52	2261656.67	10.00	0.00
								6105600.20	2261665.66	10.00	0.00
								6105614.03	2261695.70	10.00	0.00
								6105621.67	2261692.40	10.00	0.00
								6105625.67	2261700.90	10.00	0.00
								6105620.28	2261714.10	10.00	0.00
								6105611.43	2261717.57	10.00	0.00
								6105609.35	2261713.93	10.00	0.00
								6105600.49	2261717.75	10.00	0.00
								6105599.45	2261715.14	10.00	0.00
								6105576.53	2261725.38	10.00	0.00
								6105589.03	2261755.07	10.00	0.00
								6105585.91	2261756.46	10.00	0.00
								6105600.10	2261789.43	10.00	0.00
								6105610.91	2261785.00	10.00	0.00
								6105612.34	2261788.13	10.00	0.00
								6105635.39	2261778.23	10.00	0.00
								6105632.39	2261771.85	10.00	0.00
								6105640.99	2261767.81	10.00	0.00
								6105654.01	2261773.15	10.00	0.00
								6105657.91	2261781.88	10.00	0.00

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)
Garage1	Garage1			6105863.14	2261592.58	20.00	0.00
				6105884.77	2261583.07	20.00	0.00
				6105884.77	2261583.07	10.00	0.00
				6105863.14	2261592.58	10.00	0.00
Garage2	Garage2			6105963.12	2261845.16	10.00	0.00
				6105963.12	2261845.16	0.00	0.00
				6105987.66	2261836.32	10.00	0.00
				6105987.66	2261836.32	0.00	0.00

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:

CONSTRUCTION NOISE LEVEL CALCULATIONS

This page intentionally left blank

15699 - Anaheim Hills Festival SPA No6

CadnaA Noise Prediction Model: 15699-02_Construction.cna

Date: 22.04.24

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 Rcvr - 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	-80.2	-80.2	-73.5	0.0	0.0	0.0	x		Total	5.00	r 6107601.59	2261730.70	5.00
R2		R2	-80.2	-80.2	-73.5	0.0	0.0	0.0	x		Total	5.00	r 6106501.29	2260991.11	5.00
R3		R3	-80.2	-80.2	-73.5	0.0	0.0	0.0	x		Total	5.00	r 6105974.94	2261285.74	5.00
R4		R4	-80.2	-80.2	-73.5	0.0	0.0	0.0	x		Total	5.00	r 6105475.04	2261951.57	5.00
R5		R5	-80.2	-80.2	-73.5	0.0	0.0	0.0	x		Total	5.00	r 6105549.90	2262140.41	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)	
ConstructionArea		ConstructionArea1	21.7	-99.0	-99.0	-24.3	-145.0	-145.0	PWL-Pt	1					8 a

Name	ID	Height		Coordinates			
		Begin	End	x	y	z	Ground
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
ConstructionArea	ConstructionArea1	8.00	a	6106198.74	2261320.11	8.00	0.00
				6105699.18	2261535.76	8.00	0.00
				6105680.25	2261545.05	8.00	0.00
				6105659.84	2261557.21	8.00	0.00
				6105637.07	2261573.88	8.00	0.00
				6105619.14	2261589.83	8.00	0.00
				6105602.66	2261607.28	8.00	0.00
				6105587.78	2261626.09	8.00	0.00
				6105577.40	2261641.53	8.00	0.00
				6105565.70	2261662.21	8.00	0.00
				6105553.68	2261689.28	8.00	0.00
				6105546.13	2261712.06	8.00	0.00
				6105540.59	2261735.40	8.00	0.00
				6105537.38	2261756.59	8.00	0.00
				6105536.37	2261770.62	8.00	0.00
				6105536.09	2261802.15	8.00	0.00
				6105538.47	2261826.21	8.00	0.00
				6105542.96	2261849.97	8.00	0.00
				6105549.51	2261873.24	8.00	0.00
				6105553.20	2261882.96	8.00	0.00
				6105627.05	2262056.19	8.00	0.00
				6105763.00	2261997.71	8.00	0.00
				6105787.38	2262054.38	8.00	0.00
				6105937.56	2262082.97	8.00	0.00
				6105957.55	2261979.26	8.00	0.00
				6106167.04	2262021.07	8.00	0.00
				6106359.95	2261842.89	8.00	0.00
				6106454.48	2261753.16	8.00	0.00
				6106436.16	2261716.97	8.00	0.00
				6106407.48	2261731.15	8.00	0.00
				6106390.55	2261698.38	8.00	0.00
				6106373.19	2261707.49	8.00	0.00
				6106278.28	2261522.76	8.00	0.00
				6106273.07	2261525.63	8.00	0.00
				6106245.47	2261472.24	8.00	0.00
				6106250.67	2261469.12	8.00	0.00
				6106201.72	2261373.28	8.00	0.00
				6106218.21	2261364.86	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)			

This page intentionally left blank