Appendix L-1

Noise Impact Analysis Report

Meridian D-1 Gateway Aviation Center

NOISE IMPACT ANALYSIS

MARCH JOINT POWERS AUTHORITY

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TABLE OF CONTENTS

TABLE OF CONTENTS ..... **III**
APPENDICES ..... **IV**
LIST OF EXHIBITS ..... **V**
LIST OF TABLES ..... **V**
LIST OF ABBREVIATED TERMS ..... **VII**
EXECUTIVE SUMMARY **1**
1 INTRODUCTION **3**
1.1 Site Location 3
1.2 Project Overview 3
2 FUNDAMENTALS **7**
2.1 Range of Noise 7
2.2 Noise Descriptors 8
2.3 Sound Propagation 8
2.4 Noise Control 9
2.5 Noise Barrier Attenuation 9
2.6 Land Use Compatibility With Noise 10
2.7 Community Response to Noise 10
2.8 Vibration 11
3 REGULATORY SETTING **13**
3.1 Federal Regulations 13
3.2 State of California Noise Requirements 13
3.3 State of California Green Building Standards Code 15
3.4 March JPA Noise/Air Quality Element 15
3.5 Operational Noise Standards 16
3.6 Construction Noise Standards 17
3.7 Vibration Standards 19
4 SIGNIFICANCE CRITERIA **21**
4.1 Noise Level Increases 21
4.2 Significance Criteria Summary 23
5 EXISTING NOISE LEVEL MEASUREMENTS **25**
5.1 Measurement Procedure and Criteria 25
5.2 Noise Measurement Locations 25
5.3 Noise Measurement Results 26
6 METHODS AND PROCEDURES **29**
6.1 FHWA Traffic Noise Prediction Model 29
6.2 Off-Site Traffic Noise Prediction Model Inputs 29
7 OFF-SITE OPERATIONAL TRANSPORTATION NOISE IMPACTS **37**
7.1 Traffic Noise Contours 37
7.2 Existing With Project (Non-Peak) Traffic Noise Increase 44
7.3 Existing With Project (Peak) Traffic Noise Increase 44
7.4 OYC With Project (Non-Peak) Traffic Noise Increase 44
7.5 OYC With Project (Peak) Traffic Noise Increase 45

7.6 HY With Project w/o Heacock Street Ext. (Non-Peak) Traffic Noise Increase 45
7.7 HY With Project w/o Heacock Street Ext. (Peak) Traffic Noise Increase 45
7.8 HY With Project With Heacock Street Ext. (Non-Peak) Traffic Noise Increase 46
7.9 HY With Project With Heacock Street Ext. (Peak) Traffic Noise Increase 46

8 SENSITIVE RECEIVER LOCATIONS 55
9 OPERATIONAL NOISE IMPACTS 57

9.1 Operational Noise Sources 57
9.2 Reference Noise Levels 57
9.3 CadnaA Noise Prediction Model 61
9.4 Project Operational Noise Levels 61
9.5 Project Operational Noise Level Compliance 62
9.6 Project Operational Noise Level Increases 63

10 CONSTRUCTION IMPACTS 67

10.1 Construction Noise Levels 67
10.2 Construction Reference Noise Levels 67
10.4 Construction Noise Level Compliance 70
10.5 Nighttime Concrete Pour Noise Analysis 70
10.6 Typical Construction Vibration Impacts 72

11 REFERENCES 75
12 CERTIFICATION 77

APPENDICES

APPENDIX 3.1: MARCH JPA DEVELOPMENT CODE
APPENDIX 3.2: CITY OF MORENO VALLEY MUNICIPAL CODE
APPENDIX 5.1: STUDY AREA PHOTOS
APPENDIX 5.2: NOISE LEVEL MEASUREMENT WORKSHEETS
APPENDIX 7.1: OFF-SITE TRAFFIC NOISE CONTOURS
APPENDIX 9.1: CADNAA OPERATIONAL NOISE MODEL INPUTS
APPENDIX 10.1: CADNAA CONSTRUCTION NOISE MODEL INPUTS
APPENDIX 10.2: CADNAA CONCRETE POUR NOISE MODEL INPUTS

LIST OF EXHIBITS

EXHIBIT 1-A: LOCATION MAP 5
EXHIBIT 1-B: SITE PLAN 6
EXHIBIT 2-A: TYPICAL NOISE LEVELS 7
EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION 10
EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION 12
EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY CRITERIA 14
EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS 27
EXHIBIT 8-A: RECEIVER LOCATIONS 56
EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS 58
EXHIBIT 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS 68
EXHIBIT 10-B: NIGHTTIME CONCRETE POUR NOISE SOURCE AND RECEIVER LOCATIONS 71

LIST OF TABLES

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS 1
TABLE 3-1: OPERATIONAL NOISE STANDARDS 17
TABLE 3-2: CONSTRUCTION NOISE STANDARDS 19
TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY 23
TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS 26
TABLE 6-1: OFF-SITE ROADWAY PARAMETERS 30
TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES 31
TABLE 6-3: TIME OF DAY VEHICLE SPLITS 32
TABLE 6-4: EXISTING WITHOUT PROJECT VEHICLE MIX 32
TABLE 6-5: EXISTING WITH (NON-PEAK) PROJECT VEHICLE MIX 33
TABLE 6-6: EXISTING WITH (PEAK) PROJECT VEHICLE MIX 33
TABLE 6-7: OYC WITH (NON-PEAK) PROJECT VEHICLE MIX 34
TABLE 6-8: OYC WITH (PEAK) PROJECT VEHICLE MIX 34
TABLE 6-9: HY WITH (NON-PEAK) PROJECT VEHICLE MIX W/O HEACOCK STREET EXT. 35
TABLE 6-10: HY WITH (PEAK) PROJECT VEHICLE MIX W/O HEACOCK STREET EXT. 35
TABLE 6-11: HY WITH (NON-PEAK) PROJECT VEHICLE MIX WITH HEACOCK STREET EXT. 36
TABLE 6-12: HY WITH (PEAK) PROJECT VEHICLE MIX WITH HEACOCK STREET EXT. 36
TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS 38
TABLE 7-2: EXISTING WITH (NON-PEAK) PROJECT CONTOURS 38
TABLE 7-3: EXISTING WITH (PEAK) PROJECT CONTOURS 39
TABLE 7-4: OYC WITHOUT PROJECT CONTOURS 39
TABLE 7-5: OYC WITH (NON-PEAK) PROJECT CONTOURS 40
TABLE 7-6: OYC WITH (PEAK) PROJECT CONTOURS 40
TABLE 7-7: HY WITHOUT PROJECT CONTOURS W/O HEACOCK STREET EXT. 41
TABLE 7-8: HY WITH (NON-PEAK) PROJECT CONTOURS W/O HEACOCK STREET EXT. 41
TABLE 7-9: HY WITH (PEAK) PROJECT CONTOURS W/O HEACOCK STREET EXT. 42
TABLE 7-10: HY WITHOUT PROJECT CONTOURS WITH HEACOCK STREET EXT. 42
TABLE 7-11: HY WITH (NON-PEAK) PROJECT CONTOURS WITH HEACOCK STREET EXT. 43
TABLE 7-12: HY WITH (PEAK) PROJECT CONTOURS WITH HEACOCK STREET EXT. 43
TABLE 7-13: EXISTING PROJECT (NON-PEAK) TRAFFIC NOISE INCREASES 47

TABLE 7-14: EXISTING PROJECT (PEAK) TRAFFIC NOISE INCREASES 48
TABLE 7-15: OYC PROJECT (NON-PEAK) TRAFFIC NOISE INCREASES 49
TABLE 7-16: OYC PROJECT (PEAK) TRAFFIC NOISE INCREASES 50
TABLE 7-17: HY W/O HEACOCK STREET EXT. (NON-PEAK) PROJECT TRAFFIC NOISE INCREASES 51
TABLE 7-18: HY W/O HEACOCK STREET EXT. (PEAK) PROJECT TRAFFIC NOISE INCREASES 52
TABLE 7-19: HY WITH HEACOCK STREET EXT. (NON-PEAK) PROJECT TRAFFIC NOISE INCREASES 53
TABLE 7-20: HY WITH HEACOCK STREET EXT. (PEAK) PROJECT TRAFFIC NOISE INCREASES 54
TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS 59
TABLE 9-2: ENTRY GATE & TRUCK MOVEMENTS BY LOCATION 60
TABLE 9-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS 62
TABLE 9-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS 62
TABLE 9-5: OPERATIONAL NOISE LEVEL COMPLIANCE 63
TABLE 9-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES 64
TABLE 9-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES 65
TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS 69
TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY 70
TABLE 10-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE 70
TABLE 10-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE 72
TABLE 10-5: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT 72
TABLE 10-6: CONSTRUCTION VIBRATION LEVELS 73

LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
MARB/IPA	March Air Reserve Base/Inland Port Airport
MJPA	March Joint Powers Authority
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak Particle Velocity
Project	Meridian D-1 Gateway Aviation Center
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

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EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Meridian D-1 Gateway Aviation Center development ("Project"). The Project site is in the southeastern portion of the March Air Reserve Base, west of Heacock Street and south of Krameria Avenue in the March Joint Powers Authority (March JPA) jurisdiction. The Project is proposed to consist of construction of a 180,800 square foot industrial warehouse with 9 at-grade (ground level) loading doors and 31 dock-high door positions.

This Noise Impact Analysis has been prepared to focus solely on the transportation truck-related operations at the Project site. It is our understanding that a separate aircraft-related noise study is being prepared for the Project. Therefore, no analysis of aircraft-related operational activity (e.g., aircraft overflights, taxiing, or ground support equipment) is included in this report.

The results of this Meridian D-1 Gateway Aviation Center Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA. All impacts are considered less than significant without mitigation.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Less Than Significant*	-
Operational Noise	9	*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-
Nighttime Concrete Pour		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Meridian D-1 Gateway Aviation Center ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational and short-term construction noise impacts.

1.1 SITE LOCATION

The proposed Project site is in the southeastern portion of the March Air Reserve Base, west of Heacock Street and south of Krameria Avenue in the March Joint Powers Authority (March JPA) jurisdiction as shown on Exhibit 1-A.

1.2 PROJECT OVERVIEW

The proposed Project consists of two components: Air Cargo Center Component and the Off-Site Component. The Air Cargo Center Component would be constructed within approximately 34-acres under the March JPA's jurisdiction of the overall 46-acre site. The Off-Site Component would be constructed within approximately 12-acres and would include taxiway construction/realignment, storm drain extensions, and access roadway construction within the March Air Reserve Base (March ARB).

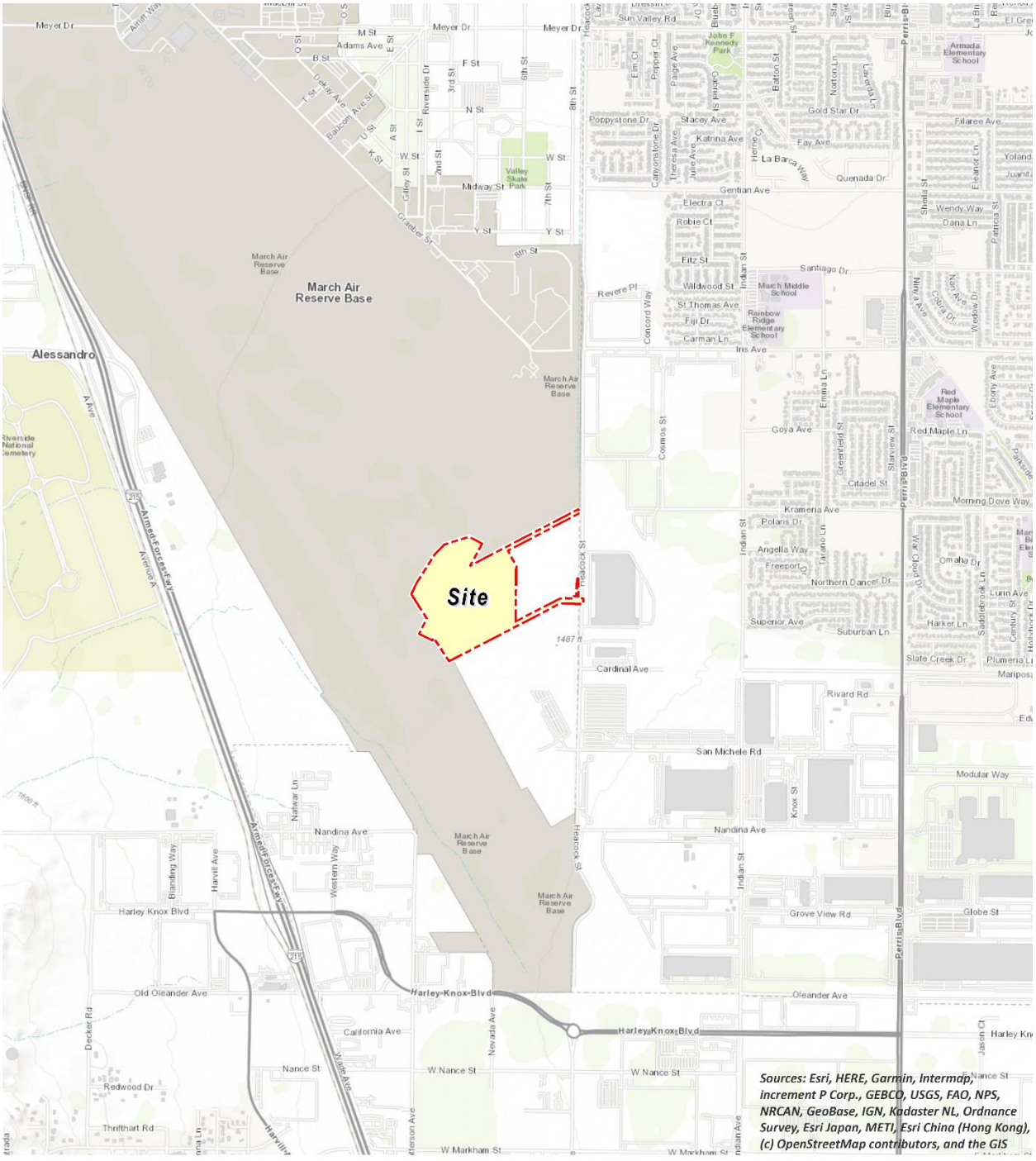
The Air Cargo Center Component of the Project includes the development of a gateway air freight cargo center, which consists of construction of a 180,800 square foot cargo building with 9 at-grade (ground level) loading doors, 31 dock-high door positions, and 37 trailer storage positions. The cargo building would contain approximately 9,000 square feet of office space. The cargo building would be constructed to a maximum height of 45-feet. The Project would also construct a tarmac and parking apron sized to accommodate commercial cargo airplanes, allowing for aircraft to access 4 proposed parking gates along the northern side of the cargo building (see Exhibit 1-B). The tarmac/parking apron would be paved to meet Federal Aviation Administration (FAA) standards. The construction of a new taxilane (Taxilane J) would provide aircraft access to the existing Taxiway A within March ARB. In addition, the existing Taxiway G is proposed to be expanded with the construction of a parking apron adjacent to the western boundary of the cargo building, within the March JPA and would allow for aircraft to access 3 proposed aircraft parking gates along the western side of the cargo building. The proposed tarmac expansion, Taxilane J, and parking aprons would be sized to accommodate commercial cargo airplanes and would be paved to meet FAA standards. Parking aprons would connect with existing Taxiways A and G, which would be used by aircraft to access the March Inland Port Airport runway. Construction and development activities within the public right-of-way along Heacock Street would include construction of a 225-foot right-turn pocket into the project site along the southbound side of Heacock Street, and installation of a traffic signal at the existing access roadway (Access Road).

The Off-site Component of the Project would include construction of Project features on land owned by March ARB. Development occurring on March ARB would require easements from the United States Air Force within 5 work areas as identified below:

- **Work Area 1:** Construction of a 50-foot-wide perimeter patrol road running along the northern and northwestern boundaries of the Project site that would connect with the existing patrol road on the eastern and western ends of the constructed patrol road; replacement of an existing chain-link fence with a security fence.
- **Work Area 2:** Construction of a headwall and inlet apron for a storm drain culvert; extension of a dual 36-inch-diameter storm drain backbone via jack and bore under Taxiway A to replace the existing silt-filled culvert; connection of the culvert to the storm drain extension.
- **Work Area 3:** Reconfiguration of the Taxiway A to Taxilane J transition to allow for aircraft access to the proposed cargo building. Portions of Taxiway A would be demolished and reconstructed to allow for the taxiway to connect with the proposed Taxilane J within the proposed Project.
- **Work Area 4:** Removal of an existing inverted culvert apron outlet; cleaning of the existing 36-inch-diameter culvert; extension of the existing single 36-inch diameter storm drain under Taxiway A via jack and bore to connect the culvert.
- **Wort Area 5:** Reconstruction and realignment of the intersection of Taxiway A and taxiway G. This would result in widened entryway for aircraft to turn from Taxiway A to Taxiway G, and to accommodate aircraft access to the aircraft parking stations along the western boundary of the cargo building.

The on-site Project-related noise sources are expected to include: loading dock activity, entry gate and truck movements, roof-top air conditioning, and trash enclosure activity. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site. This report assumes the Project will operate 24-hours daily for seven days per week.

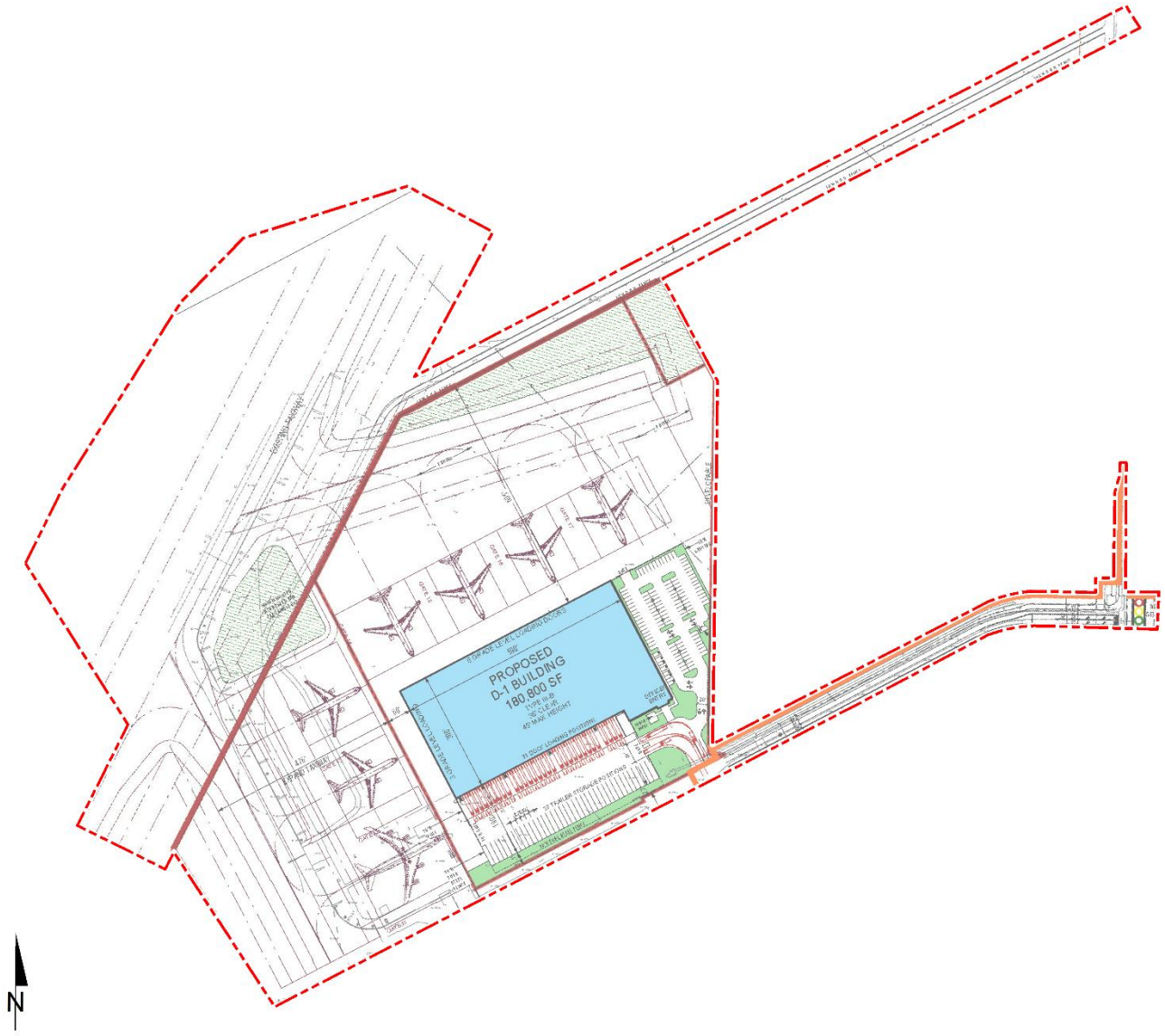
EXHIBIT 1-A: LOCATION MAP



LEGEND:

Project Action/Project Location

EXHIBIT 1-B: SITE PLAN



2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

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

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

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 1,000 feet, which can cause serious discomfort. (3) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Day-Night Noise level (Ldn) or Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The Ldn or CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m. for CNEL, and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. for Ldn and CNEL. These additions are made to account for the noise sensitive time periods during the evening and night hours when noise can become more intrusive. Ldn or CNEL do not represent the actual sound level heard at any time, but rather represents the total sound exposure. The March JPA 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. (2)

2.3.2 GROUND ABSORPTION

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

expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

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

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

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

2.6 LAND USE COMPATIBILITY WITH NOISE

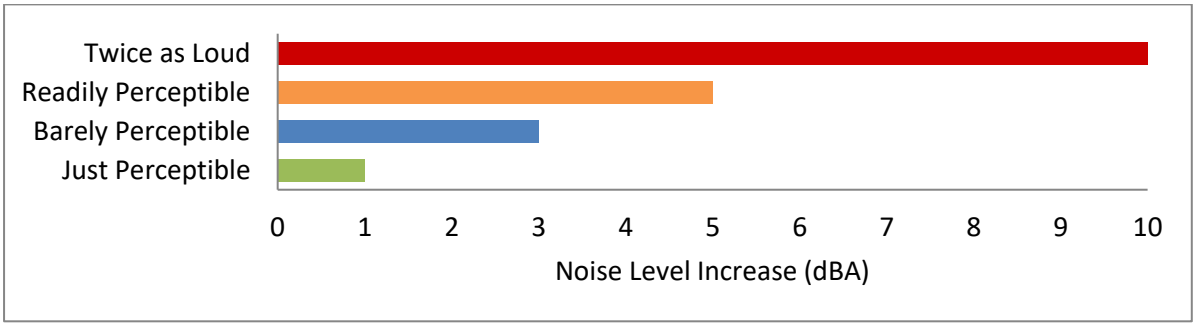
Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (6)

2.7 COMMUNITY RESPONSE TO NOISE

Approximately sixteen percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints may occur. Twenty to thirty percent of the population will not complain even in very severe noise environments (7 pp. 8-6). Thus, a variety of reactions can be expected from people exposed to any given noise environment.

Surveys have shown that community response to noise varies from no reaction to vigorous action for newly introduced noises averaging from 10 dB below existing to 25 dB above existing. (8) According to research originally published in the Noise Effects Handbook (7), the percentage of high annoyance ranges from approximately 0 percent at 45 dB or less, 10 percent are highly annoyed around 60 dB, and increases rapidly to approximately 70 percent being highly annoyed at approximately 85 dB or greater. Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA is considered barely perceptible, and changes of 5 dBA are considered readily perceptible. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



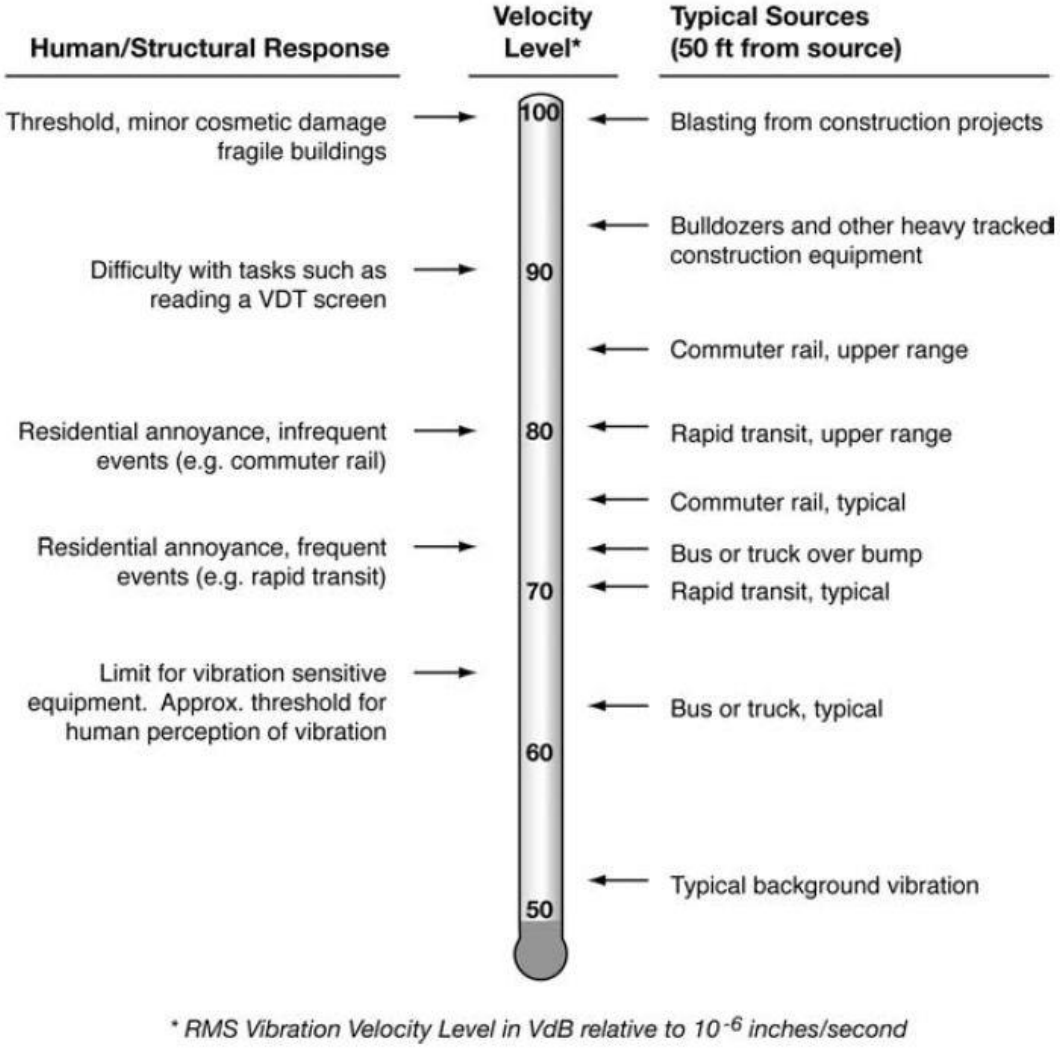
2.8 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Impact Assessment Manual* (8), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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

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



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

3 REGULATORY SETTING

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

3.1 FEDERAL REGULATIONS

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under Title 40 of the Code of Federal Regulations, Part 205, Subpart B. (9) The federal truck pass-by noise standard is 80 dBA at 50 feet from the vehicle pathway centerline, under specified test procedures. These controls are implemented through regulatory controls on truck manufacturers. There are no comparable standards for vibration, which tend to be specific to the roadway surface, the vehicle load, and other factors.

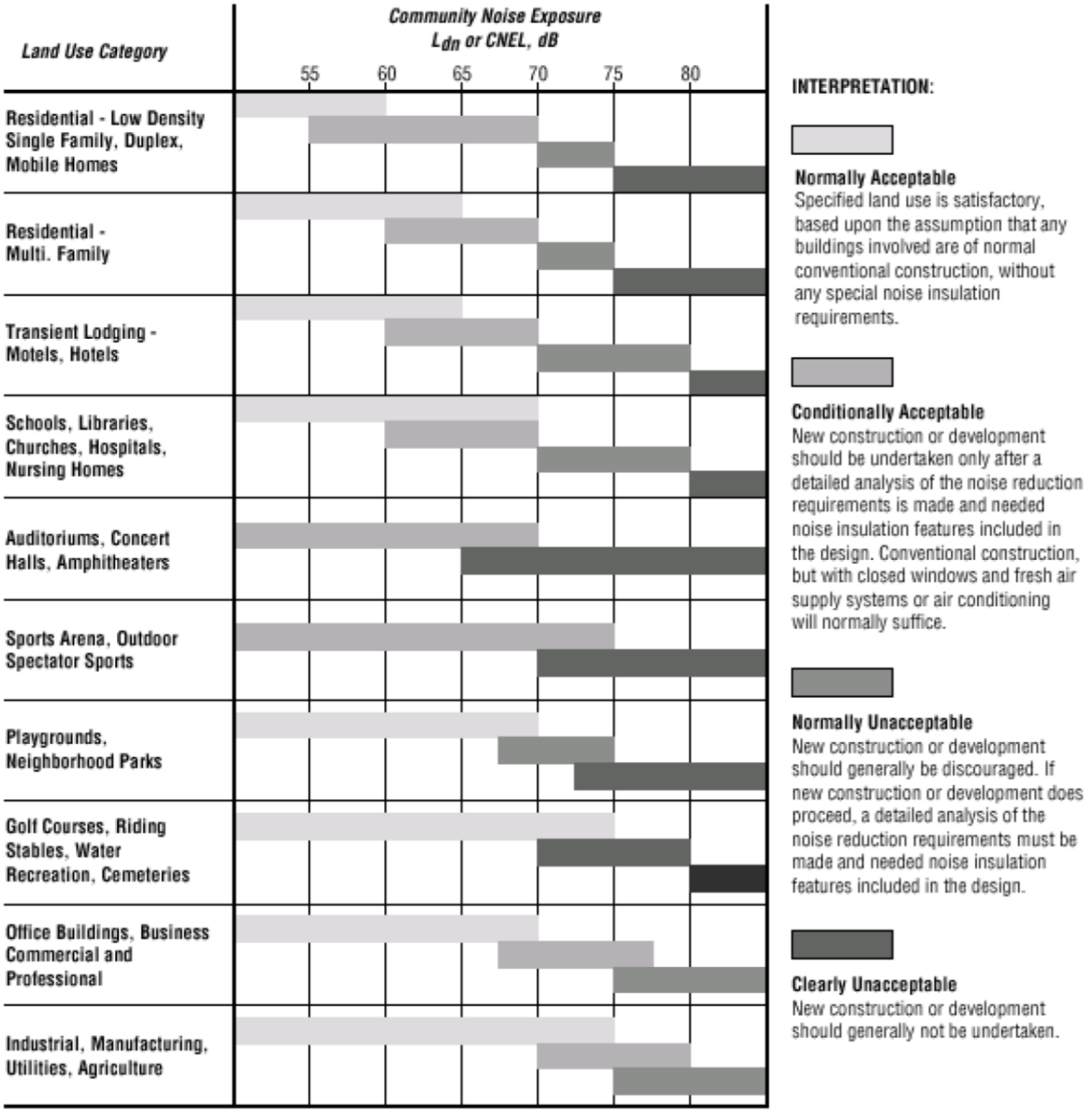
In 1972, the Noise Control Act (42 U.S.C. Section 4901 et seq.) was passed by Congress to promote noise environments in support of public health and welfare. It also established the U.S. Environmental Protection Agency (USEPA) Office of Noise Abatement and Control to coordinate federal noise control activities. The USEPA established guidelines for noise levels that would be considered safe for community exposure without the risk of adverse health or welfare effects. The USEPA found that to prevent hearing loss over the lifetime of a receiver, the yearly average L_{eq} should not exceed 70 dBA, and the Ldn should not exceed 55 dBA in outdoor activity areas or 45 dBA indoors to prevent interference and annoyance. However, in 1982, the USEPA phased out the office's funding as part of a shift in federal noise control policy to transfer the primary responsibility of regulating noise to state and local governments.

3.2 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (10) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. OPR identifies suggested land use noise compatibility levels as part of its General Plan Guidelines as shown on Exhibit 3-A. These suggested guidelines provide planners with a tool to gauge the compatibility of land uses relative to existing and future noise levels. The guidelines identify normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable noise levels for various land uses.

The land use compatibility guidelines are intended to be an advisory resource when considering changes in land use and policies, such as zoning modifications. The Project industrial land use is considered *normally acceptable* unmitigated exterior noise levels of less than 75 dBA CNEL. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a Project be analyzed, including environmental noise impacts.

EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY CRITERIA



Source: OPR General Plan Guidelines, Appendix D: Noise Element Guidelines, Figure 2.

3.3 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (11) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1.1).

3.4 MARCH JPA NOISE/AIR QUALITY ELEMENT

The March JPA General Plan Noise/Air Quality Element identifies several goals and policies to protect and enhance the quality of life for those who live and work in the March JPA jurisdiction. (12) The Noise Element provides policy guidance which addresses the generation, mitigation, avoidance, and the control of excessive noise. The March JPA General Plan includes the following goals in the Noise/Air Quality Element:

1 Ensure that land uses are protected from excessive and unwanted noise.

2 Minimize incompatible noise level exposures throughout the Planning Area, and where possible, mitigate the effect of noise incompatibilities to provide a safe and healthy environment.

3 Work toward the reduction of noise impacts from vehicular traffic, and aviation and rail operations.

The noise policies specified in the March JPA Noise/Air Quality Element provide the guidelines necessary to satisfy these goals. The policies are provided below:

Policy 1.1 Establish acceptable limits of noise for various land uses throughout the March JPA Planning Area. Future development that could increase ambient noise levels shall be required to mitigate the anticipated noise increase, to the extent possible.

Policy 1.2 Noise sensitive uses (such as schools, libraries, hospitals, medical facilities, residential uses, etc.) shall be discouraged in areas where noise levels exceed acceptable limits.

Policy 1.3 Encourage good acoustical design in new construction.

Policy 1.4 Provide buffer areas between noise sources and other developments, where practical.

Policy 2.1 Avoid placing noise sensitive land uses in proximity to areas devoted to noise generating facilities such as areas of aviation related activities, industrial parks, transportation facilities, and other noise generating land uses.

Policy 2.2 Noise generating facilities shall be located in areas with compatible noise generating land uses (i.e., airport noise contour areas) to minimize land use incompatibilities, noise abatement and mitigation measures needed.

Policy 2.3 Noise sensitive land uses shall not be located in areas influenced by noise generating land uses, in particular the noise contours associated with the joint use airfield, unless appropriate mitigation is utilized.

Policy 2.4 March JPA shall evaluate noise sensitivity and noise generation when considering land use Projects and transportation improvement Projects, and where appropriate mitigation measures shall be employed.

Policy 2.5 March JPA shall utilize and comply with the CALTRANS standards for noise compatibility for aviation generated noise to proposed land use development.

Policy 3.1 Include mitigating measures such as landscaping, berming and site orientation, in the design of Projects located near noise generating sources such as arterial roadways.

Policy 3.2 Coordinate with adjacent cities and county agencies for noise abatement.

Policy 3.3 Adhere to the adopted AICUZ and Comprehensive Land Use Plan standards and promote the use of newer and quieter aircraft and support equipment.

Policy 3.4 Where appropriate, noise mitigation measures shall be incorporated in the design and approval of development on property located adjacent to aviation and rail facilities.

Policy 3.5 Where appropriate, development in areas adjacent to freeways, arterial streets, and other noise source shall be designed to reduce the potential for noise impacts.

Policy 3.6 Regulate the use of local streets by trucks, trailers, and construction vehicles, to the extent possible.

Policy 3.7 Limit trucking operations to appropriate routes, times and speeds.

Policy 3.8 Appropriate muffling systems for construction equipment and operations shall be required, as necessary.

Policy 3.9 March JPA shall encourage and facilitate the use of mass transit services and alternative transportation systems to minimize dependence of the automobile within the Planning Area, thereby minimizing the level of noise generated by surface transportation.

3.5 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Meridian D-1 Gateway Aviation Center Project, stationary-source (operational) noise such as the expected loading dock activity, entry gate and truck movements, roof-top air conditioning, and trash enclosure activity are typically evaluated against standards established under a jurisdiction's Municipal Code. Although the Project site is located within the March JPA, noise-sensitive receivers potentially impacted by operational noise activities are also located in the City of Moreno Valley. Therefore, to accurately describe the potential Project-related operational noise level contributions, this analysis presents the appropriate operational noise standards for both jurisdictions. The March JPA and the City of Moreno Valley operational noise level standards are shown on Table 3-1.

3.5.1 MARCH JPA OPERATIONAL NOISE STANDARDS

The March JPA Development Code, Chapter 9.10 *Performance Standards*, Section 9.10.140 identifies the exterior stationary-source noise level standards for commercial and industrial land uses. Based on Section 9.10.140 of the Development Code, the exterior noise level shall not exceed 55 dBA L_{eq} at any time. (14) The March JPA Development Code is included in Appendix 3.1.

3.5.2 CITY OF MORENO VALLEY OPERATIONAL NOISE STANDARDS

The City of Moreno Valley Municipal Code, Chapter 11.80 *Noise Regulation*, provides performance standards and noise control guidelines for determining and mitigating non-transportation or stationary-source noise impacts from operations at private properties. The City of Moreno Valley Municipal Code defines *Maximum Sound Levels (in dB(A)) for Source Land Uses* in Table 11.80.030-2 for *Residential* and *Commercial* land uses. As defined by the Municipal Code, Section 11.80.020 *Definitions*, *Commercial* land use *means all uses of land not otherwise classified as residential,* and *Residential* land use *means all uses of land primarily for dwelling units, as well as hospitals, schools, colleges and universities, and places of religious assembly.* (15) For the purpose of this analysis, the Meridian D-1 Gateway Aviation Center Project is considered *Commercial* land use since it is not classified as residential. Based on this standard, the operational noise level limits for commercial land use, from Table 11.80.030-2, of 65 dBA L_{eq} during the daytime (8:00 a.m. to 10:00 p.m.) hours and 60 dBA L_{eq} during the nighttime (10:01 p.m. to 7:59 a.m.) hours shall apply to the operational noise source activities from the Project.

Further, Section 11.80.030(C) *Prohibited Acts*, *Nonimpulsive Sound Decibel Limits*, states: *No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimpulsive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table 11.80.030-2 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on a privately owned property…* (15) Therefore, at a distance of 200 feet from the property line, the Project's operational noise levels shall not exceed the 65 dBA L_{eq} daytime and 60 dBA L_{eq} nighttime noise level standards for commercial land uses, as shown on Table 3-1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land use	Noise Level Standards (dBA L_{eq})[1]	
		Daytime	Nighttime
March JPA[2]	Commercial & Industrial	55	
Moreno Valley[3]	Commercial	65	60

[1] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given period. "Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.
[2] March Joint Powers Authority, Development Code, Chapter 9.10 Performance Standards, Section 9.10.140 (Appendix 3.1).
[3] City of Moreno Valley Municipal Code, Chapter 11.80 Noise Regulation, Table 11.80.030-2 Maximum Sound Levels (in dB(A)) for Source Land Uses when measured at 200 feet from the property line of the source land use (Appendix 3.2).

3.6 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Project, noise from construction activities is typically limited to the hours of operation established under a jurisdiction's Code. To accurately describe the potential Project-related construction noise level contributions to the existing noise environment, this analysis presents the appropriate

construction noise standards for each jurisdiction adjacent to the Project site including the March JPA and City of Moreno Valley. However, the permitted hours of construction for the March JPA are the only applicable hour restrictions for the Project since the construction activity will be within the March JPA jurisdiction.

3.6.1 MARCH JPA CONSTRUCTION NOISE STANDARDS

The March JPA Development Code, Section 9.10.140, states that *outdoor construction and grading activities, including the operation of any tools or equipment associated with construction, drilling, repair, alteration, grading/grubbing or demolition work within 500 feet of the property line of a residential use, shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m. Monday through Friday and between 5:00 p.m. and 8:00 a.m. on Saturdays or at any time on Sunday or a Federal Holiday.* The March JPA Development Code does not identify a specific noise level standard for construction activity. The March JPA Development Code construction noise standards are shown on Table 3-2 and included in Appendix 3.1.

3.6.2 CITY OF MORENO VALLEY CONSTRUCTION NOISE STANDARDS

The Municipal Code noise standards for construction are described below for the City of Moreno Valley to determine the potential noise impacts at the nearest sensitive receiver locations. As a subset of its stationary-source noise regulations, the City Municipal Code establishes permitted hours of construction activity. More specifically, Municipal Code Section 11.80.030(D)(7), *Construction and Demolition*, provides the following:

> *No person shall operate, or cause operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee.*

Therefore, based on the Section 11.80.030(D)(7) construction regulations, a construction-related *noise disturbance* occurs if Project construction activity occurs outside of the permitted hours. However, for this analysis, the stationary-source noise level limits of 65 dBA L_{eq} during the daytime hours and 60 dBA L_{eq} during the nighttime hours are used as appropriate thresholds for the nearest sensitive land uses (e.g. residential homes) in the Project study area. The City of Moreno Valley construction noise standards are shown on Table 3-2 and included in Appendix 3.2.

TABLE 3-2: CONSTRUCTION NOISE STANDARDS

Jurisdiction	Permitted Hours of Construction Activity	Construction Noise Level Standard (dBA L_{eq})[1]	
		Daytime	Nighttime
March JPA[2]	7:00 a.m. to 7:00 p.m.	n/a	
Moreno Valley[3]	General Activity: 7:00 a.m. to 8:00 p.m. on any day. Grading is limited to 7:00 a.m. to 7:00 p.m. Monday to Friday, excluding holidays; 8:00 a.m. to 4:00 p.m. on Saturdays.	65	60[4]

[1] "Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.
[2] March Joint Powers Authority, Development Code, Chapter 9.10 Performance Standards, Section 9.10.040 (Appendix 3.1).
[3] City of Moreno Valley Municipal Code, Section 11.80.030(D)(7) and 8.21.050(O) as shown in Appendix 3.2.
[4] Any nighttime construction activity requires an exemption from the City of Moreno Valley Municipal Code as indicated in Section 11.80.030(E)(8) for a special event permit (Section 11.80.040). The special event permit application shall be submitted to the City of Moreno Valley Planning Department for approval and meet the requirements of Municipal Code Section 11.80.040.

3.7 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. (8) To analyze vibration impacts originating from the operation and construction of the Meridian D-1 Gateway Aviation Center, vibration-generating activities are appropriately evaluated against standards established under a City's Municipal Code, if such standards exist. However, the March JPA and City of Moreno Valley do not identify specific vibration level limits. Therefore, for analysis purposes, the Caltrans *Transportation and Construction Vibration Guidance Manual*, (16 p. 38) Table 19, vibration damage are used in this noise study to assess potential temporary construction-related impacts at adjacent building locations. The nearest noise sensitive buildings adjacent to the Project site can best be described as "older residential structures" with a maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec).

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4 SIGNIFICANCE CRITERIA

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

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

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

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

While the CEQA Guidelines and the March JPA and Moreno Valley General Plans provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial for use under CEQA Significance Criteria A.

The closest airport which would require additional noise analysis under CEQA Significance Criteria C is the March Air Reserve Base/Inland Port Airport (MARB/IPA) which is located just north of the Project site. As previously stated in the Executive Summary, this noise study does not include an analysis of aircraft-related noise levels to address CEQA Significance Criteria C since a separate noise analysis is being prepared to address aircraft-related noise levels.

4.1 NOISE LEVEL INCREASES

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 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.

4.1.1 NOISE-SENSITIVE RECEIVERS

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}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling in *Gray v. County of Madera*, 167 Cal.App.4th 1099. (17) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in 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 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 (4 p. 9) and Caltrans (19 p. 2_48).

4.1.2 NON-NOISE-SENSITIVE RECEIVERS

The OPR land use/noise compatibility standards were used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise level for non-noise-sensitive land use is 70 dBA CNEL. To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. When the without Project noise levels are greater than the *normally acceptable* 70 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a significant impact since the noise level criteria is already exceeded. The noise level increases used to determine significant impacts for non-noise-sensitive land uses is generally consistent with the FICON noise level increase thresholds for noise-sensitive land uses but instead rely on the OPR land use/noise compatibility standards *normally acceptable* 70 dBA CNEL exterior noise level criteria.

4.2 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.

TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Jurisdiction	Condition(s)	Significance Criteria	
				Daytime	Nighttime
Off-Site	Noise-Sensitive[1]	All	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	
	Non-Noise-Sensitive[2]	All	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
			If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Noise-Sensitive	March JPA[3]	Noise Level Threshold	55 dBA L_{eq}	
		Moreno Valley	Exterior Noise Standards[4]	65 dBA L_{eq}	60 dBA L_{eq}
		All[1]	If ambient is < 60 dBA L_{eq}	≥ 5 dBA CNEL Project increase	
			If ambient is 60 - 65 dBA L_{eq}	≥ 3 dBA CNEL Project increase	
			If ambient is > 65 dBA L_{eq}	≥ 1.5 dBA CNEL Project increase	
Construction	Noise-Sensitive	All	Permitted hours between 7:00 a.m. to 7:00 p.m.[5]		
			Vibration Level Threshold[6]	0.3 PPV (in/sec)	

[1] FICON, 1992.
[2] OPR land use/noise compatibility standards.
[3] March Joint Powers Authority, Development Code, Chapter 9.10 Performance Standards, Section 9.10.140 (Appendix 3.1).
[4] City of Moreno Valley Municipal Code, Chapter 11.80 Noise Regulation (Appendix 3.2).
[5] March Joint Powers Authority, Development Code, Chapter 9.10 Performance Standards, Section 9.10.030 (Appendix 3.1).
[6] Caltrans Transportation and Construction Vibration Manual, April 2020 Table 19.
"Daytime" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, May 20, 2020. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the 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. (20)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

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. (8) 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 nearest 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 hourly daytime (8:00 a.m. to 10:00 p.m.) and nighttime (10:01 p.m. to 7:59 a.m.) noise levels at each noise level measurement location.

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

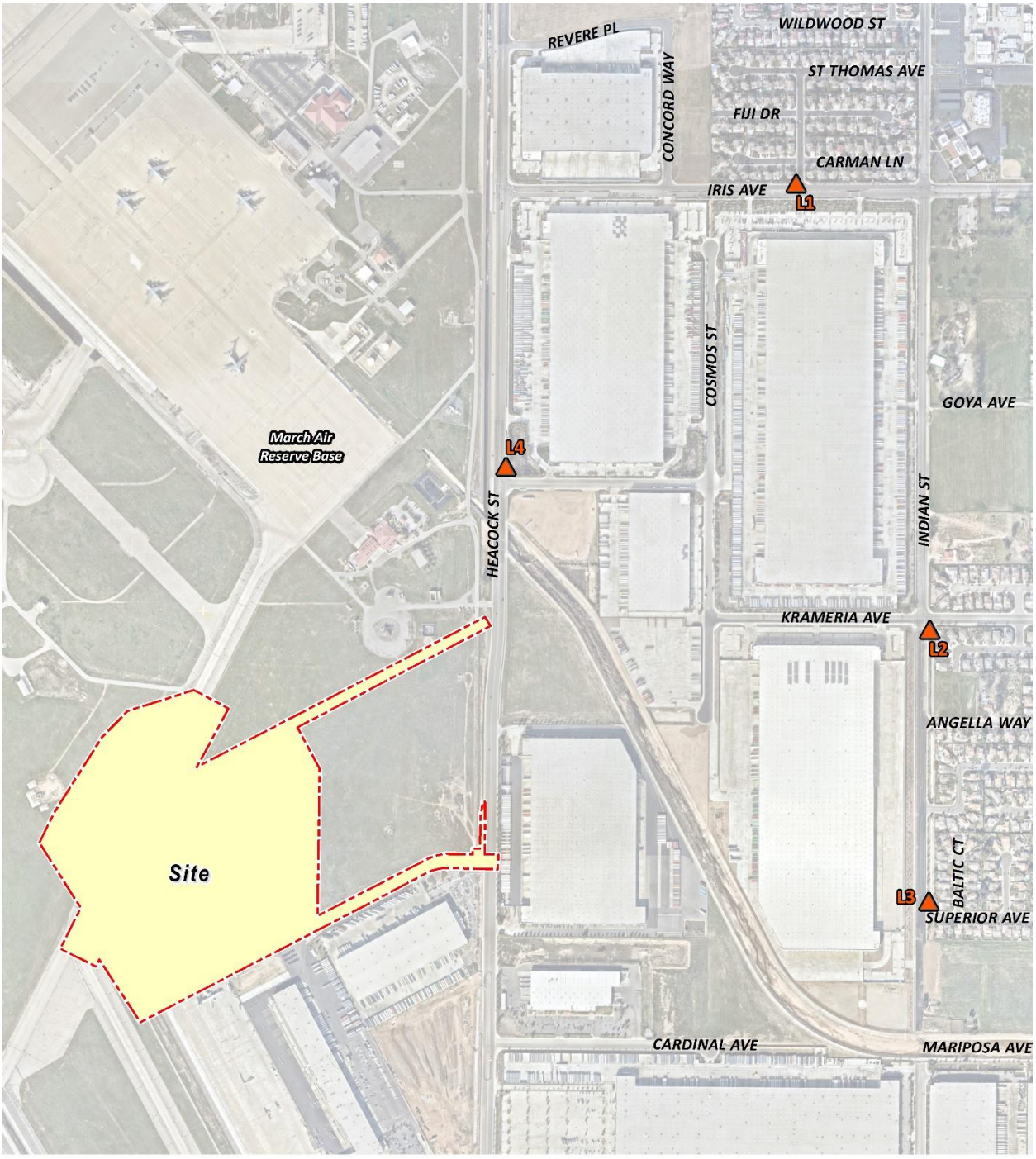
Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located north of the Project site on Iris Avenue near existing single-family residential homes at 24307 Carman Lane.	65.6	62.6	69.7
L2	Located east of the Project site on Indian Street near existing single-family residential home at 16537 Libra Lane.	60.9	58.7	65.9
L3	Located east of the Project site on Indian Street near existing single-family residential home at 16855 Baltic Court.	58.5	53.9	61.7
L4	Located east of the Project site on Heacock Street near F&D Distribution Center.	68.6	67.8	74.4

[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" = 8:00 a.m. to 10:00 p.m.; "Nighttime" = 10:01 p.m. to 7:59 a.m.

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.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with surface streets. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



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6 METHODS AND PROCEDURES

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

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (21) 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. (22) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (23)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the nine study area roadway segments, the distance from the centerline to adjacent receiving land use based on the functional roadway classifications per the City of Moreno Valley, and City of Perris General Plan Circulation Elements, and the posted vehicle speeds. The ADT volumes used in this study are presented on Table 6-2 and obtained from the *Meridian D-1 Gateway Aviation Center Traffic Analysis* prepared by Urban Crossroads, Inc., for the following traffic scenarios:

- Existing
- Existing plus Project (E+P) (Non-Peak) Conditions
- E+P (Peak) Conditions
- Opening Year Cumulative (OYC) (2026) Without Project Conditions
- OYC (2026) With Project (Non-Peak) Conditions
- OYC (2026) With Project (Peak) Conditions
- Horizon Year (HY) (2045) Without Project, Without Heacock Street Extension Conditions
- HY (2045) With Project (Non-Peak), Without Heacock Street Extension Conditions
- HY (2045) With Project (Peak), Without Heacock Street Extension Conditions
- HY (2045) Without Project, With Heacock Street Extension Conditions
- HY (2045) With Project (Non-Peak), With Heacock Street Extension Conditions
- HY (2045) With Project (Peak), With Heacock Street Extension Conditions

Consistent with *Meridian D-1 Gateway Aviation Center Traffic Analysis* prepared by Urban Crossroads, Inc. (24), the off-site traffic noise analysis maintains a peak hour to average daily traffic (peak-to-daily) relationship of approximately 8.08%.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Distance from Centerline to Receiving Land Use (Feet)[2]	Posted Vehicle Speed (mph)
1	Heacock St.	n/o Gentian Av.	Sensitive	50'	50
2	Heacock St.	s/o Iris Av.	Non-Sensitive	50'	50
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	50'	50
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	50'	50
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	44'	45
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	55'	50
7	Cactus Av.	e/o Heacock St.	Sensitive	44'	40
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	64'	45
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	64'	45

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the General Plan Circulation Elements.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]											
			Existing 2020			Opening Year Cumulative 2026			Horizon Year 2045 w/o Heacock Street Extension			Horizon Year 2045 with Heacock Street Extension		
			Without Project	With Project (Non-Peak)	With Project (Peak)	Without Project	With Project (Non-Peak)	With Project (Peak)	Without Project	With Project (Non-Peak)	With Project (Peak)	Without Project	With Project (Non-Peak)	With Project (Peak)
1	Heacock St.	n/o Gentian Av.	23,451	23,851	24,040	30,518	30,918	31,106	33,022	33,422	33,611	33,022	33,422	33,611
2	Heacock St.	s/o Iris Av.	14,212	14,712	14,948	28,359	28,859	29,095	28,473	28,973	29,209	28,473	28,973	29,209
3	Heacock St.	s/o Cardinal Av.	15,260	15,986	16,330	29,218	29,944	30,288	31,784	32,510	32,854	31,784	32,510	32,854
4	Heacock St.	s/o Nandina Av.	0	0	0	0	0	0	0	0	0	14,626	14,626	14,626
5	Indian Av.	s/o Nandina Av.	10,148	10,774	11,071	30,195	30,821	31,119	32,978	33,604	33,901	27,978	28,604	28,901
6	Cactus Av.	w/o Heacock St.	38,888	39,088	39,182	54,347	54,547	54,641	58,874	59,074	59,168	58,874	59,074	59,168
7	Cactus Av.	e/o Heacock St.	23,388	23,518	23,580	36,831	36,961	37,022	39,968	40,098	40,159	39,968	40,098	40,159
8	Harley Knox Bl.	e/o Patterson Av.	17,290	17,866	18,140	31,409	31,985	32,258	34,146	34,722	34,995	34,146	34,722	34,995
9	Harley Knox Bl.	e/o Indian Av.	8,896	8,896	8,896	15,031	15,031	15,031	16,326	16,326	16,326	16,647	16,647	16,647

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.

To quantify the off-site noise levels, the Project-related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project-related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix. Due to the added Project truck trips, the change in Project traffic volumes and the distributions of trucks on the study area road segments, the percentage of autos, medium trucks and heavy trucks will vary for each of the traffic scenarios. This explains why the existing and future traffic volumes and vehicle mixes vary between seemingly identical study area roadway segments.

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Traffic Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all 'without Project' traffic scenarios, and Tables 6-5 to 6-12 show the vehicle mixes used for the 'with Project' traffic scenarios.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			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%

[1] County of Riverside Office of Industrial Hygiene. Values rounded to the nearest one hundredth.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: EXISTING WITHOUT PROJECT VEHICLE MIX

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	86.23%	2.67%	11.10%	100.00%

Based on an existing vehicle count taken at Patterson Avenue and Harley Knox Boulevard (Gateway Aviation Traffic Analysis, Urban Crossroads, Inc.). Vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-5: EXISTING WITH (NON-PEAK) PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Heacock St.	n/o Gentian Av.	87.07%	1.90%	11.02%	100.00%
2	Heacock St.	s/o Iris Av.	87.30%	1.87%	10.83%	100.00%
3	Heacock St.	s/o Cardinal Av.	85.72%	2.02%	12.25%	100.00%
4	Heacock St.	s/o Nandina Av.	86.85%	1.94%	11.21%	100.00%
5	Indian Av.	s/o Nandina Av.	85.06%	2.08%	12.86%	100.00%
6	Cactus Av.	w/o Heacock St.	86.92%	1.93%	11.15%	100.00%
7	Cactus Av.	e/o Heacock St.	86.93%	1.93%	11.15%	100.00%
8	Harley Knox Bl.	e/o Patterson Av.	85.73%	2.03%	12.24%	100.00%
9	Harley Knox Bl.	e/o Indian Av.	86.85%	1.94%	11.21%	100.00%

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: EXISTING WITH (PEAK) PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Heacock St.	n/o Gentian Av.	87.18%	1.89%	10.94%	100.00%
2	Heacock St.	s/o Iris Av.	87.50%	1.84%	10.66%	100.00%
3	Heacock St.	s/o Cardinal Av.	85.22%	2.06%	12.72%	100.00%
4	Heacock St.	s/o Nandina Av.	86.85%	1.94%	11.21%	100.00%
5	Indian Av.	s/o Nandina Av.	84.26%	2.14%	13.59%	100.00%
6	Cactus Av.	w/o Heacock St.	86.95%	1.92%	11.13%	100.00%
7	Cactus Av.	e/o Heacock St.	86.96%	1.92%	11.12%	100.00%
8	Harley Knox Bl.	e/o Patterson Av.	85.22%	2.07%	12.71%	100.00%
9	Harley Knox Bl.	e/o Indian Av.	86.85%	1.94%	11.21%	100.00%

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-7: OYC WITH (NON-PEAK) PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Heacock St.	n/o Gentian Av.	87.02%	1.91%	11.06%	100.00%
2	Heacock St.	s/o Iris Av.	87.08%	1.90%	11.02%	100.00%
3	Heacock St.	s/o Cardinal Av.	86.25%	1.98%	11.77%	100.00%
4	Heacock St.	s/o Nandina Av.	86.85%	1.94%	11.21%	100.00%
5	Indian Av.	s/o Nandina Av.	86.23%	1.99%	11.79%	100.00%
6	Cactus Av.	w/o Heacock St.	86.90%	1.93%	11.17%	100.00%
7	Cactus Av.	e/o Heacock St.	86.90%	1.93%	11.17%	100.00%
8	Harley Knox Bl.	e/o Patterson Av.	86.23%	1.99%	11.78%	100.00%
9	Harley Knox Bl.	e/o Indian Av.	86.85%	1.94%	11.21%	100.00%

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-8: OYC WITH (PEAK) PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Heacock St.	n/o Gentian Av.	87.10%	1.90%	11.00%	100.00%
2	Heacock St.	s/o Iris Av.	87.19%	1.89%	10.93%	100.00%
3	Heacock St.	s/o Cardinal Av.	85.97%	2.00%	12.03%	100.00%
4	Heacock St.	s/o Nandina Av.	86.85%	1.94%	11.21%	100.00%
5	Indian Av.	s/o Nandina Av.	85.93%	2.01%	12.06%	100.00%
6	Cactus Av.	w/o Heacock St.	86.92%	1.93%	11.15%	100.00%
7	Cactus Av.	e/o Heacock St.	86.92%	1.93%	11.15%	100.00%
8	Harley Knox Bl.	e/o Patterson Av.	85.94%	2.01%	12.05%	100.00%
9	Harley Knox Bl.	e/o Indian Av.	86.85%	1.94%	11.21%	100.00%

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-9: HY WITH (NON-PEAK) PROJECT VEHICLE MIX W/O HEACOCK STREET EXT.

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Heacock St.	n/o Gentian Av.	87.01%	1.91%	11.08%	100.00%
2	Heacock St.	s/o Iris Av.	87.08%	1.90%	11.02%	100.00%
3	Heacock St.	s/o Cardinal Av.	86.30%	1.98%	11.72%	100.00%
4	Heacock St.	s/o Nandina Av.	86.85%	1.94%	11.21%	100.00%
5	Indian Av.	s/o Nandina Av.	86.28%	1.98%	11.74%	100.00%
6	Cactus Av.	w/o Heacock St.	86.90%	1.93%	11.17%	100.00%
7	Cactus Av.	e/o Heacock St.	86.90%	1.93%	11.17%	100.00%
8	Harley Knox Bl.	e/o Patterson Av.	86.28%	1.98%	11.74%	100.00%
9	Harley Knox Bl.	e/o Indian Av.	86.85%	1.94%	11.21%	100.00%

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-10: HY WITH (PEAK) PROJECT VEHICLE MIX W/O HEACOCK STREET EXT.

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Heacock St.	n/o Gentian Av.	87.08%	1.90%	11.01%	100.00%
2	Heacock St.	s/o Iris Av.	87.19%	1.89%	10.93%	100.00%
3	Heacock St.	s/o Cardinal Av.	86.04%	2.00%	11.96%	100.00%
4	Heacock St.	s/o Nandina Av.	86.85%	1.94%	11.21%	100.00%
5	Indian Av.	s/o Nandina Av.	86.01%	2.00%	11.99%	100.00%
6	Cactus Av.	w/o Heacock St.	86.92%	1.93%	11.15%	100.00%
7	Cactus Av.	e/o Heacock St.	86.92%	1.93%	11.16%	100.00%
8	Harley Knox Bl.	e/o Patterson Av.	86.01%	2.01%	11.99%	100.00%
9	Harley Knox Bl.	e/o Indian Av.	86.85%	1.94%	11.21%	100.00%

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-11: HY WITH (NON-PEAK) PROJECT VEHICLE MIX WITH HEACOCK STREET EXT.

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Heacock St.	n/o Gentian Av.	87.01%	1.91%	11.08%	100.00%
2	Heacock St.	s/o Iris Av.	87.08%	1.90%	11.02%	100.00%
3	Heacock St.	s/o Cardinal Av.	86.30%	1.98%	11.72%	100.00%
4	Heacock St.	s/o Nandina Av.	86.85%	1.94%	11.21%	100.00%
5	Indian Av.	s/o Nandina Av.	86.18%	1.99%	11.83%	100.00%
6	Cactus Av.	w/o Heacock St.	86.90%	1.93%	11.17%	100.00%
7	Cactus Av.	e/o Heacock St.	86.90%	1.93%	11.17%	100.00%
8	Harley Knox Bl.	e/o Patterson Av.	86.28%	1.98%	11.74%	100.00%
9	Harley Knox Bl.	e/o Indian Av.	86.85%	1.94%	11.21%	100.00%

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-12: HY WITH (PEAK) PROJECT VEHICLE MIX WITH HEACOCK STREET EXT.

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Heacock St.	n/o Gentian Av.	87.08%	1.90%	11.01%	100.00%
2	Heacock St.	s/o Iris Av.	87.19%	1.89%	10.93%	100.00%
3	Heacock St.	s/o Cardinal Av.	86.04%	2.00%	11.96%	100.00%
4	Heacock St.	s/o Nandina Av.	86.85%	1.94%	11.21%	100.00%
5	Indian Av.	s/o Nandina Av.	85.86%	2.02%	12.12%	100.00%
6	Cactus Av.	w/o Heacock St.	86.92%	1.93%	11.15%	100.00%
7	Cactus Av.	e/o Heacock St.	86.92%	1.93%	11.16%	100.00%
8	Harley Knox Bl.	e/o Patterson Av.	86.01%	2.01%	11.99%	100.00%
9	Harley Knox Bl.	e/o Indian Av.	86.85%	1.94%	11.21%	100.00%

[1] Meridian D-1 Gateway Aviation Traffic Analysis, Urban Crossroads, Inc., May 2022.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

7 OFF-SITE OPERATIONAL TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with the operation of the proposed Project, noise contours were developed based on the *Meridian D-1 Gateway Aviation Center Traffic Analysis*. (24) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise 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 7-1 through 7-12 present a summary of the exterior dBA CNEL traffic noise levels without barrier attenuation. Roadway segments are analyzed from the 'without Project' to the 'with Project' conditions in each of the following timeframes:

- Existing
- Existing plus Project (E+P) (Non-Peak) Conditions
- E+P (Peak) Conditions
- Opening Year Cumulative (OYC) (2026) Without Project Conditions
- OYC (2026) With Project (Non-Peak) Conditions
- OYC (2026) With Project (Peak) Conditions
- Horizon Year (HY) (2045) Without Project, Without Heacock Street Extension Conditions
- HY (2045) With Project (Non-Peak), Without Heacock Street Extension Conditions
- HY (2045) With Project (Peak), Without Heacock Street Extension Conditions
- HY (2045) Without Project, With Heacock Street Extension Conditions
- HY (2045) With Project (Non-Peak), With Heacock Street Extension Conditions
- HY (2045) With Project (Peak), With Heacock Street Extension Conditions

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

TABLE 7-1: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	77.3	152	328	708
2	Heacock St.	s/o Iris Av.	Non-Sensitive	75.1	109	235	507
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	75.4	114	247	531
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	73.4	74	160	344
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	79.9	250	539	1162
7	Cactus Av.	e/o Heacock St.	Sensitive	76.8	125	270	581
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	74.3	124	267	575
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	71.4	79	171	369

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-2: EXISTING WITH (NON-PEAK) PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	77.3	153	329	709
2	Heacock St.	s/o Iris Av.	Non-Sensitive	75.1	110	236	509
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	75.9	124	266	574
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	74.1	83	179	385
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	79.9	251	540	1163
7	Cactus Av.	e/o Heacock St.	Sensitive	76.8	125	270	582
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	74.7	133	286	615
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	71.4	79	171	369

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-3: EXISTING WITH (PEAK) PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	77.3	153	330	710
2	Heacock St.	s/o Iris Av.	Non-Sensitive	75.1	110	237	510
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	76.1	128	275	593
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	74.4	87	188	404
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	79.9	251	540	1163
7	Cactus Av.	e/o Heacock St.	Sensitive	76.8	125	270	582
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	74.9	137	294	634
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	71.4	79	171	369

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-4: OYC WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.4	182	391	843
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	173	373	803
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.2	177	380	819
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.1	153	330	712
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.3	313	674	1452
7	Cactus Av.	e/o Heacock St.	Sensitive	78.8	170	365	787
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	76.9	184	397	855
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	73.7	113	243	523

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-5: OYC WITH (NON-PEAK) PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.4	182	392	845
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	173	374	805
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.5	184	396	854
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.4	160	344	741
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.3	313	675	1453
7	Cactus Av.	e/o Heacock St.	Sensitive	78.8	170	365	787
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.1	191	413	889
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	73.7	113	243	523

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-6: OYC WITH (PEAK) PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.4	182	393	846
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	174	374	806
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.6	187	404	870
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.5	163	350	755
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.3	313	675	1454
7	Cactus Av.	e/o Heacock St.	Sensitive	78.8	170	366	788
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.3	195	420	905
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	73.7	113	243	523

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-7: HY WITHOUT PROJECT CONTOURS W/O HEACOCK STREET EXT.

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.7	192	413	889
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	173	374	805
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.6	187	402	867
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.5	163	350	755
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	330	711	1532
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	179	386	831
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.3	195	420	904
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.0	119	257	553

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-8: HY WITH (NON-PEAK) PROJECT CONTOURS W/O HEACOCK STREET EXT.

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.8	192	413	890
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	174	375	807
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.8	194	418	900
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.8	169	364	783
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	330	711	1533
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	179	386	831
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.5	202	435	937
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.0	119	257	553

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-9: HY WITH (PEAK) PROJECT CONTOURS W/O HEACOCK STREET EXT.

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.8	192	414	891
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	174	375	808
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.9	197	425	916
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	33.6	n/a	n/a	n/a
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.9	172	370	797
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	330	712	1533
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	179	386	832
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.6	205	442	952
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.0	119	257	553

[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 adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.
"n/a"= Heacock Street Extension not yet built.

TABLE 7-10: HY WITHOUT PROJECT CONTOURS WITH HEACOCK STREET EXT.

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.7	192	413	889
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	173	374	805
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.6	187	402	867
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	75.2	111	240	516
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	77.8	146	314	677
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	330	711	1532
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	179	386	831
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.3	195	420	904
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.1	121	260	560

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

TABLE 7-11: HY WITH (NON-PEAK) PROJECT CONTOURS WITH HEACOCK STREET EXT.

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.8	192	413	890
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	174	375	807
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.8	194	418	900
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	75.2	111	240	516
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.1	152	328	706
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	330	711	1533
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	179	386	831
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.5	202	435	937
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.1	121	260	560

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

TABLE 7-12: HY WITH (PEAK) PROJECT CONTOURS WITH HEACOCK STREET EXT.

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Heacock St.	n/o Gentian Av.	Sensitive	78.8	192	414	891
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	174	375	808
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.9	197	425	916
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	75.2	111	240	516
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.2	155	334	721
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	330	712	1533
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	179	386	832
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.6	205	442	952
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.1	121	260	560

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

7.2 EXISTING WITH PROJECT (NON-PEAK) TRAFFIC NOISE INCREASE

An analysis of Existing traffic noise levels plus traffic (Non-Peak) noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze all the traffic scenarios identified in the *Meridian D-1 Gateway Aviation Center Traffic Analysis* prepared by Urban Crossroads, Inc. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Therefore, no mitigation measures are considered to reduce the Existing with Project condition traffic noise level increases. The long-range conditions under Opening Year Cumulative 2026 and Horizon Year 2045 scenarios represent the expected cumulative conditions without and with Project traffic, and are therefore, used to determine the significance of the Project off-site traffic noise level increases on the study area roadway segments.

Table 7-1 shows the Existing without Project noise levels. The Existing without Project exterior noise levels are expected to range from 71.4 to 79.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows that the Existing with Project (Non-Peak) conditions traffic noise levels will also range from 71.4 to 79.9 dBA CNEL. Table 7-13 shows that the Project off-site traffic noise level will experience a noise level increase ranging from 0.0 to 0.7 dBA CNEL on the study area roadway segments.

7.3 EXISTING WITH PROJECT (PEAK) TRAFFIC NOISE INCREASE

An analysis of Existing traffic noise levels plus traffic (Peak) noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze all the traffic scenarios identified in the *Meridian D-1 Gateway Aviation Center Traffic Analysis* prepared by Urban Crossroads, Inc. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Therefore, no mitigation measures are considered to reduce the Existing with Project condition traffic noise level increases. The long-range conditions under Opening Year Cumulative 2026 and Horizon Year 2045 scenarios represent the expected cumulative conditions without and with Project traffic, and are therefore, used to determine the significance of the Project off-site traffic noise level increases on the study area roadway segments.

Table 7-1 shows the Existing without Project noise levels. The Existing without Project exterior noise levels are expected to range from 71.4 to 79.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-3 shows that the Existing with Project (Peak) conditions traffic noise levels will also range from 71.4 to 79.9 dBA CNEL. Table 7-14 shows that the Project off-site traffic noise level will experience a noise level increase ranging from 0.0 to 1.0 dBA CNEL on the study area roadway segments.

7.4 OYC WITH PROJECT (NON-PEAK) TRAFFIC NOISE INCREASE

Table 7-4 presents the Opening Year Cumulative 2026 without Project conditions CNEL noise levels. The Opening Year Cumulative 2026 without Project exterior noise levels are expected to range from 73.7 to 81.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-5 shows the Opening Year Cumulative 2026 with Project

(Non-Peak) conditions will range from 73.7 to 81.3 dBA CNEL. Table 7-15 shows that the Project off-site traffic noise level increase ranging from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

7.5 OYC WITH PROJECT (PEAK) TRAFFIC NOISE INCREASE

Table 7-4 presents the Opening Year Cumulative 2026 without Project conditions CNEL noise levels. The Opening Year Cumulative 2026 without Project exterior noise levels are expected to range from 73.7 to 81.3 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the Opening Year Cumulative 2026 with Project (Peak) conditions will range from 73.7 to 81.3 dBA CNEL. Table 7-16 shows that the Project off-site traffic noise level increase ranging from 0.0 to 0.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

7.6 HY WITH PROJECT W/O HEACOCK STREET EXT. (NON-PEAK) TRAFFIC NOISE INCREASE

Table 7-7 presents the Horizon Year 2045 without Project conditions without Heacock Street Extension CNEL noise levels. The Horizon Year 2045 without Project exterior noise levels are expected to range from 74.0 to 81.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-8 shows the Horizon Year 2045 with Project (Non-Peak) conditions without Heacock Street Conditions will range from 74.0 to 81.7 dBA CNEL. Table 7-17 shows that the Project off-site traffic noise level increase ranging from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

7.7 HY WITH PROJECT W/O HEACOCK STREET EXT. (PEAK) TRAFFIC NOISE INCREASE

Table 7-7 presents the Horizon Year 2045 without Project conditions without Heacock Street Extension CNEL noise levels. The Horizon Year 2045 without Project exterior noise levels are expected to range from 74.0 to 81.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-9 shows the Horizon Year 2045 with Project (Peak) conditions without Heacock Street Conditions will range from 74.0 to 81.7 dBA CNEL. Table 7-18 shows that the Project off-site traffic noise level increase ranging from 0.0 to 0.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

7.8 HY WITH PROJECT WITH HEACOCK STREET EXT. (NON-PEAK) TRAFFIC NOISE INCREASE

Table 7-10 presents the Horizon Year 2045 without Project conditions with Heacock Street Extension CNEL noise levels. The Horizon Year 2045 without Project exterior noise levels are expected to range from 74.1 to 81.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-11 shows the Horizon Year 2045 with Project (Non-Peak) conditions with Heacock Street Conditions will range from 74.1 to 81.7 dBA CNEL. Table 7-19 shows that the Project off-site traffic noise level increase ranging from 0.0 to 0.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

7.9 HY WITH PROJECT WITH HEACOCK STREET EXT. (PEAK) TRAFFIC NOISE INCREASE

Table 7-10 presents the Horizon Year 2045 without Project conditions with Heacock Street Extension CNEL noise levels. The Horizon Year 2045 without Project exterior noise levels are expected to range from 74.1 to 81.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography.

Table 7-12 shows the Horizon Year 2045 with Project (Peak) conditions with Heacock Street Conditions will range from 74.1 to 81.7 dBA CNEL. Table 7-20 shows that the Project off-site traffic noise level increase ranging from 0.0 to 0.4 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

TABLE 7-13: EXISTING PROJECT (NON-PEAK) TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Threshold[2]	
				Without Project	With Project	Project Addition	Limit	Exceeded?
1	Heacock St.	n/o Gentian Av.	Sensitive	77.3	77.3	0.0	1.5	No
2	Heacock St.	s/o Iris Av.	Non-Sensitive	75.1	75.1	0.0	3.0	No
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	75.4	75.9	0.5	3.0	No
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	n/a	n/a	n/a	n/a	No
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	73.4	74.1	0.7	3.0	No
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	79.9	79.9	0.0	3.0	No
7	Cactus Av.	e/o Heacock St.	Sensitive	76.8	76.8	0.0	1.5	No
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	74.3	74.7	0.4	3.0	No
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	71.4	71.4	0.0	3.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a"= Heacock Street Extension not yet built.

TABLE 7-14: EXISTING PROJECT (PEAK) TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Threshold[2]	
				Without Project	With Project	Project Addition	Limit	Exceeded?
1	Heacock St.	n/o Gentian Av.	Sensitive	77.3	77.3	0.0	1.5	No
2	Heacock St.	s/o Iris Av.	Non-Sensitive	75.1	75.1	0.0	3.0	No
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	75.4	76.1	0.7	3.0	No
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	n/a	n/a	n/a	n/a	No
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	73.4	74.4	1.0	3.0	No
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	79.9	79.9	0.0	3.0	No
7	Cactus Av.	e/o Heacock St.	Sensitive	76.8	76.8	0.0	1.5	No
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	74.3	74.9	0.6	3.0	No
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	71.4	71.4	0.0	3.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a"= Heacock Street Extension not yet built.

TABLE 7-15: OYC PROJECT (NON-PEAK) TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Threshold[2]	
				Without Project	With Project	Project Addition	Limit	Exceeded?
1	Heacock St.	n/o Gentian Av.	Sensitive	78.4	78.4	0.0	1.5	No
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	78.1	0.0	3.0	No
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.2	78.5	0.3	3.0	No
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	n/a	n/a	n/a	n/a	No
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.1	78.4	0.3	3.0	No
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.3	81.3	0.0	3.0	No
7	Cactus Av.	e/o Heacock St.	Sensitive	78.8	78.8	0.0	1.5	No
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	76.9	77.1	0.2	3.0	No
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	73.7	73.7	0.0	3.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a"= Heacock Street Extension not yet built.

TABLE 7-16: OYC PROJECT (PEAK) TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Threshold[2]	
				Without Project	With Project	Project Addition	Limit	Exceeded?
1	Heacock St.	n/o Gentian Av.	Sensitive	78.4	78.4	0.0	1.5	No
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	78.1	0.0	3.0	No
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.2	78.6	0.4	3.0	No
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	n/a	n/a	n/a	n/a	No
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.1	78.5	0.4	3.0	No
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.3	81.3	0.0	3.0	No
7	Cactus Av.	e/o Heacock St.	Sensitive	78.8	78.8	0.0	1.5	No
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	76.9	77.3	0.4	3.0	No
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	73.7	73.7	0.0	3.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a"= Heacock Street Extension not yet built.

TABLE 7-17: HY W/O HEACOCK STREET EXT. (NON-PEAK) PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Threshold[2]	
				Without Project	With Project	Project Addition	Limit	Exceeded?
1	Heacock St.	n/o Gentian Av.	Sensitive	78.7	78.8	0.1	1.5	No
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	78.1	0.0	3.0	No
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.6	78.8	0.2	3.0	No
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	n/a	n/a	n/a	n/a	No
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.5	78.8	0.3	3.0	No
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	81.7	0.0	3.0	No
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	79.1	0.0	1.5	No
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.3	77.5	0.2	3.0	No
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.0	74.0	0.0	3.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a"= Heacock Street Extension not yet built.

TABLE 7-18: HY W/O HEACOCK STREET EXT. (PEAK) PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Threshold[2]	
				Without Project	With Project	Project Addition	Limit	Exceeded?
1	Heacock St.	n/o Gentian Av.	Sensitive	78.7	78.8	0.1	1.5	No
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	78.1	0.0	3.0	No
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.6	78.9	0.3	3.0	No
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	n/a	n/a	n/a	n/a	No
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	78.5	78.9	0.4	3.0	No
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	81.7	0.0	3.0	No
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	79.1	0.0	1.5	No
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.3	77.6	0.3	3.0	No
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.0	74.0	0.0	3.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?
"n/a"= Heacock Street Extension not yet built.

TABLE 7-19: HY WITH HEACOCK STREET EXT. (NON-PEAK) PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Threshold[2]	
				Without Project	With Project	Project Addition	Limit	Exceeded?
1	Heacock St.	n/o Gentian Av.	Sensitive	78.7	78.8	0.1	1.5	No
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	78.1	0.0	3.0	No
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.6	78.8	0.2	3.0	No
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	75.2	75.2	0.0	3.0	No
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	77.8	78.1	0.3	3.0	No
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	81.7	0.0	3.0	No
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	79.1	0.0	1.5	No
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.3	77.5	0.2	3.0	No
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.1	74.1	0.0	3.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

TABLE 7-20: HY WITH HEACOCK STREET EXT. (PEAK) PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[1]			Threshold[2]	
				Without Project	With Project	Project Addition	Limit	Exceeded?
1	Heacock St.	n/o Gentian Av.	Sensitive	78.7	78.8	0.1	1.5	No
2	Heacock St.	s/o Iris Av.	Non-Sensitive	78.1	78.1	0.0	3.0	No
3	Heacock St.	s/o Cardinal Av.	Non-Sensitive	78.6	78.9	0.3	3.0	No
4	Heacock St.	s/o Nandina Av.	Non-Sensitive	75.2	75.2	0.0	3.0	No
5	Indian Av.	s/o Nandina Av.	Non-Sensitive	77.8	78.2	0.4	3.0	No
6	Cactus Av.	w/o Heacock St.	Non-Sensitive	81.7	81.7	0.0	3.0	No
7	Cactus Av.	e/o Heacock St.	Sensitive	79.1	79.1	0.0	1.5	No
8	Harley Knox Bl.	e/o Patterson Av.	Non-Sensitive	77.3	77.6	0.3	3.0	No
9	Harley Knox Bl.	e/o Indian Av.	Non-Sensitive	74.1	74.1	0.0	3.0	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[2] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-1)?

8 SENSITIVE 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 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

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

R1: Location R1 represents the existing noise sensitive residence at 24307 Carman Lane, approximately 3,140 feet northeast of the Project site. R1 is placed at the private outdoor living area (backyard) facing the Project site behind an existing 6’ foot high wall. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

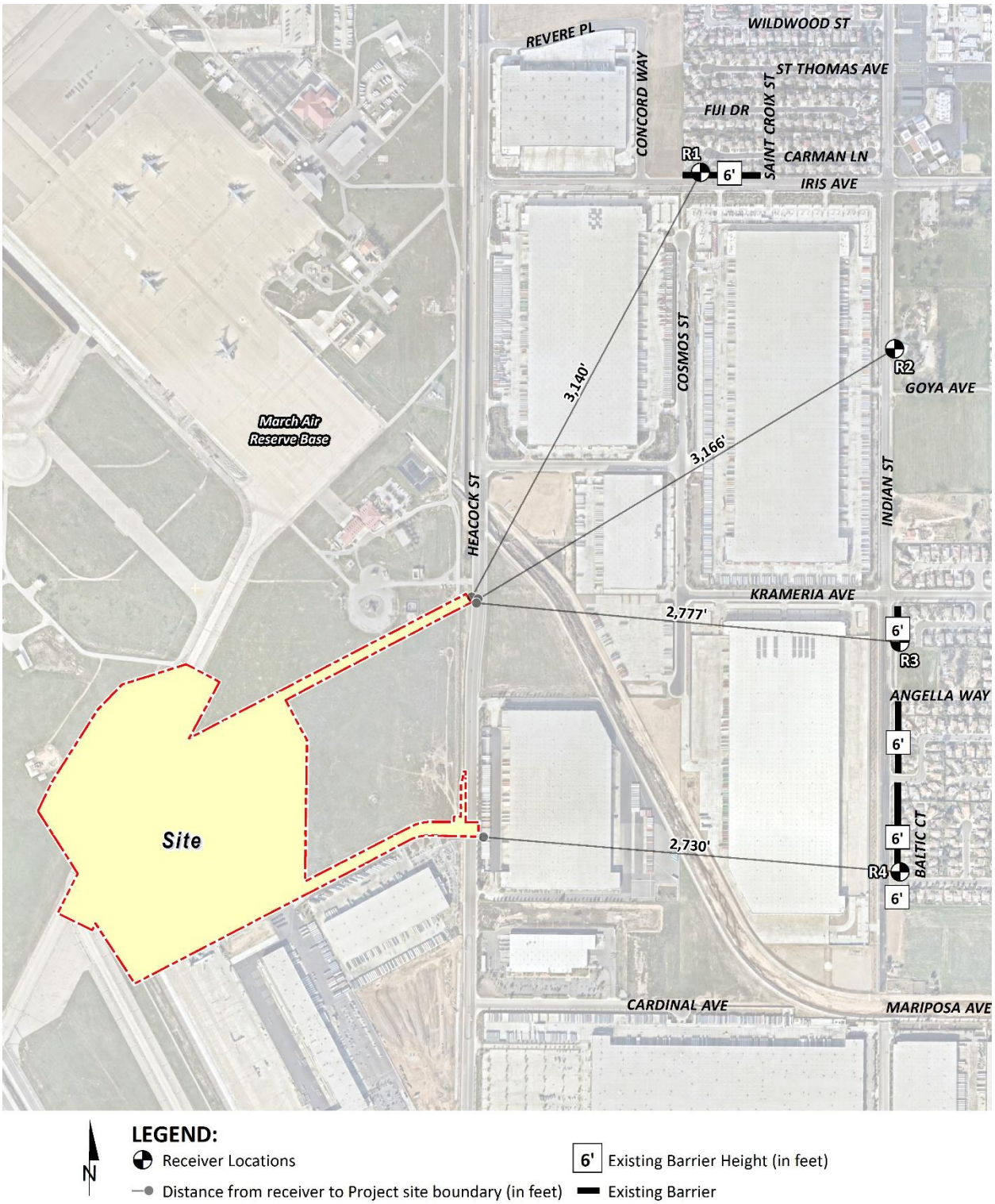
R2: Location R2 represents La Iglesia Misionera Cristiana at 16220 Indian Street, approximately 3,166 feet northeast of the Project site. Receiver R2 is placed at the residential building façade because there are no private outdoor living areas (backyards) facing the Project site. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing noise sensitive residence at 16537 Libra Lane, approximately 2,777 feet east of the Project site. R3 is placed at the private outdoor living area (backyard) facing the Project site behind an existing 6’ foot high wall. A 24-hour noise measurement near this location, L2, is used to describe the existing ambient noise environment.

R4: Location R4 represents the existing noise sensitive residence at 16855 Baltic Court, approximately 2,730 feet southeast of the Project site. R4 is placed at the private outdoor living area (backyard) facing the Project site behind an existing 6’ foot high wall. A 24-

hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

EXHIBIT 8-A: RECEIVER LOCATIONS



9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearest receiver locations, identified in Section 8, resulting from the operation of the proposed Meridian D-1 Gateway Aviation Center Project. Exhibit 9-A identifies the noise source locations used to assess the operational noise levels.

9.1 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. To present the potential worst-case noise conditions, this analysis assumes the Project would be operational 24 hours per day, seven days per week. Consistent with similar warehouse uses, the Project business operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: loading dock activity, entry gate and truck movements, roof-top air conditioning, and trash enclosure activity.

This Noise Impact Analysis has been prepared to focus solely on the transportation truck-related operations at the Project site. It is our understanding that a separate aircraft-related noise study is being prepared for the Project. Therefore, no analysis of aircraft-related operational activity (e.g., aircraft overflights, taxiing, or ground support equipment) is included in this report.

9.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the loading dock activity, entry gate and truck movements, roof-top air conditioning, and trash enclosure activity all operating continuously. These sources of noise activity will likely vary throughout the day.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

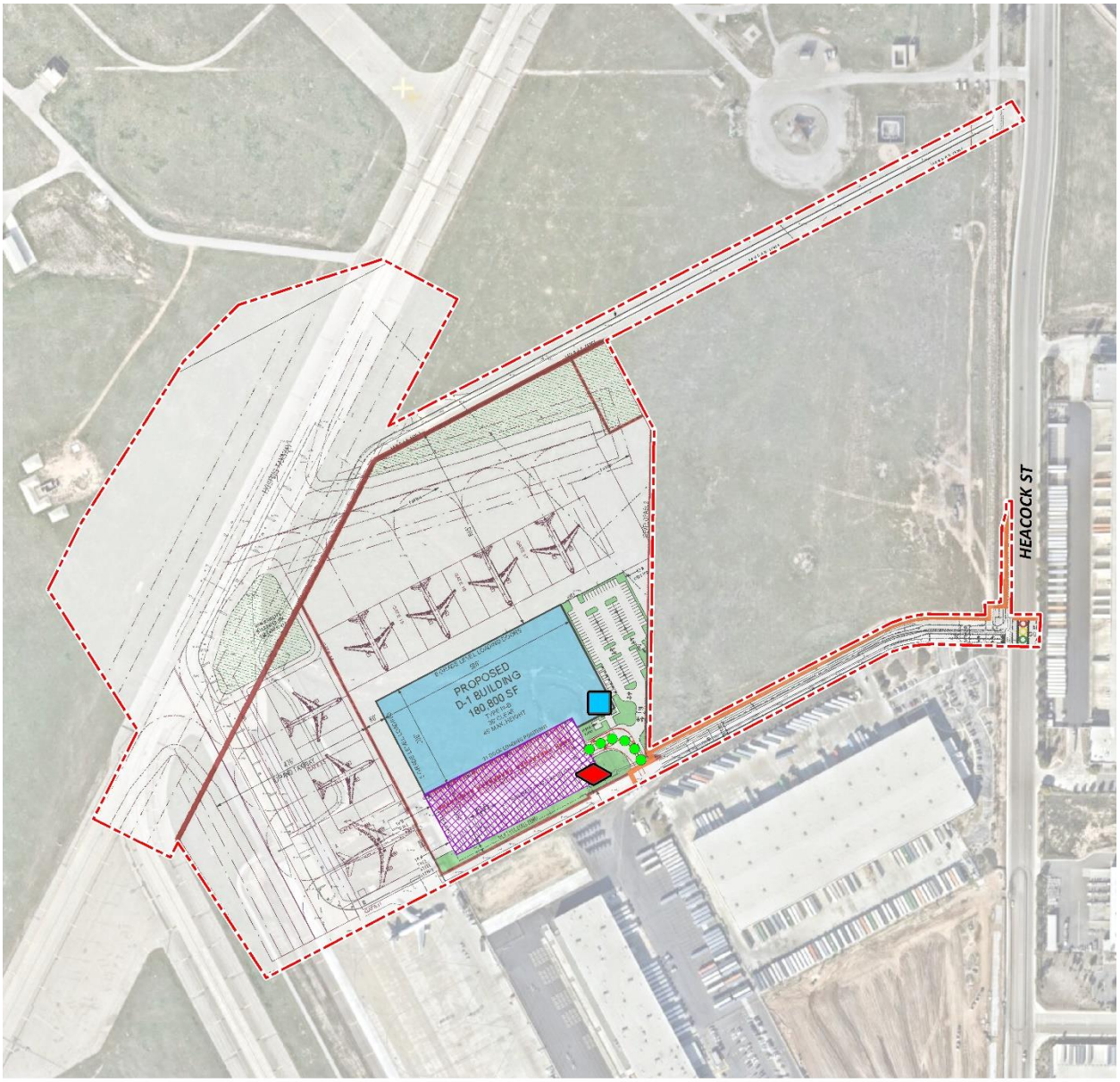


TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source[1]	Noise Source Height (Feet)	Min./Hour[2]		Reference Noise Level (dBA L_{eq}) @ 50 Feet	Sound Power Level (dBA)[3]
		Day	Night		
Loading Dock Activity	8'	60	60	65.7	111.5
Entry Gate & Truck Movements	8'	-[4]	-[4]	58.0	89.7
Roof-Top Air Conditioning Units	5'	39	28	57.2	88.9
Trash Enclosure Activity	5'	5	5	57.3	89.0

[1] As measured by Urban Crossroads, Inc.
[2] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 8:00 a.m. - 10:00 p.m.; "Nighttime" = 10:01 p.m. - 7:59 a.m.
[3] 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.
[4] Entry Gate & Truck Movements are calculate based on the number of events by time of day (See Table 9-2).

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (20)

9.2.2 LOADING DOCK ACTIVITY

To describe the loading dock activities, a reference noise level measurement was collected to represent the truck activities. The reference noise level measurement was taken in the center of the loading dock activity area and represents multiple concurrent noise sources resulting in a combined noise level of 65.7 dBA L_{eq} at a uniform distance of 50 feet. Specifically, the reference noise level measurement represents one truck located approximately 30 feet from the noise level meter with another truck passing by to park roughly 20 feet away, both with their engines idling. Throughout the reference noise level measurement, a separate docked and running reefer truck was located approximately 50 feet east of the measurement location. Additional background noise sources included truck pass-by noise, truck drivers talking to each other next to docked trucks, and air brake release noise when trucks parked.

9.2.3 ENTRY GATE & TRUCK MOVEMENTS

An entry gate and truck movements reference noise level measurement were taken over a 15-minute period and represents multiple noise sources producing a reference noise level of 58.0 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for the rattling and squeaking during normal opening and closing operations, the gate closure

equipment, truck engines idling outside the entry gate, truck movements through the entry gate, and background truck court activities and forklift backup alarm noise.

Consistent with the *Gateway Aviation Traffic Analysis*, the Project is expected to generate a total of approximately 1,276 trip-ends per day (actual vehicles) and includes 276 truck trip-ends per day. (24) This noise study relies on the actual Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of individual truck trips on the study area roadway network. Using the estimated number of truck trips in combination with time-of-day vehicle splits, the number of entry gate and truck movements by driveway location were calculated. As shown on Table 9-2, this information is then used to calculate the entry gate and truck movements operational noise source activity based on the number of events by time of day.

TABLE 9-2: ENTRY GATE & TRUCK MOVEMENTS BY LOCATION

Entry Gate & Truck Movement Location[1]	Total Project Truck Trips[2]	Trip Dist.[3]		Truck Trips by Location[4]	Time of Day Vehicle Splits[5]			Truck Movements[6]		
		In	Out		Day	Evening	Night	Day	Evening	Night
Driveway 1	276	100%	100%	276	86.50%	2.70%	10.80%	239	7	30

[1] Driveway location as shown on Exhibit 9-A.
[2] Total Project truck trips according to Table 4-3 of the Gateway Aviation Traffic Analysis.
[3] Project truck trip distribution according to Exhibit 4-1 of the Gateway Aviation Traffic Analysis.
[4] Calculated trip trucks per location represents the product of the total (inbound and outbound) project truck trips by and the trip distribution.
[5] Heavy truck time of day vehicle splits as shown on Table 6-3.
[6] Calculated time of day entry gate and truck movements by location.

9.2.4 ROOF-TOP AIR CONDITIONING UNITS

The noise level measurements describe a single mechanical roof-top air conditioning unit. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}. Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings.

9.2.5 TRASH ENCLOSURE ACTIVITY

The measured reference noise level at the uniform 50-foot reference distance is 57.3 dBA L_{eq} for the trash enclosure activity. The trash enclosure activity noise levels include two metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster, and background parking lot vehicle movements. Noise associated with trash enclosure activities is conservatively expected to occur for 10 minutes per hour.

9.3 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 as a result 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 0.0 was used in the CadnaA noise analysis to account for hard site conditions. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, entry gate and truck movements, roof-top air conditioning, and trash enclosure activity, Urban Crossroads, Inc. calculated the 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. Tables 9-3 shows the Project operational noise levels during the daytime hours of 8:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 25.0 to 36.9 dBA L_{eq}.

TABLE 9-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Loading Dock Activity	23.9	35.9	36.0	36.8
Entry Gate & Truck Movements	17.8	22.7	20.3	21.0
Roof-Top Air Conditioning Units	6.6	11.5	8.7	9.3
Trash Enclosure Activity	4.8	9.8	7.3	8.1
Total (All Noise Sources)	**25.0**	**36.1**	**36.1**	**36.9**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

Table 9-4 shows the Project operational noise levels during the nighttime hours of 10:01 p.m. to 7:59 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 24.1 to 36.8 dBA L_{eq}. The differences between the daytime and nighttime noise levels are largely related to the duration of noise activity (Table 9-1).

TABLE 9-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)			
	R1	R2	R3	R4
Loading Dock Activity	23.9	35.9	36.0	36.8
Entry Gate & Truck Movements	8.7	13.7	11.3	12.0
Roof-Top Air Conditioning Units	5.6	10.5	7.8	8.4
Trash Enclosure Activity	3.8	8.8	6.3	7.2
Total (All Noise Sources)	**24.1**	**35.9**	**36.0**	**36.8**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the March JPA and Moreno Valley exterior noise level standards at the nearest noise-sensitive receiver locations. Table 9-5 shows the operational noise levels associated with Meridian D-1 Gateway Aviation Center Project will satisfy the City of Moreno Valley 65 dBA L_{eq} daytime and 60 dBA L_{eq} nighttime exterior noise level standards at all the nearest receiver locations and will satisfy the March JPA 55 dBA L_{eq} daytime and nighttime exterior noise level standards at all the nearest receiver locations.

TABLE 9-5: 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	25.0	24.1	55	55	No	No
R2	36.1	35.9	55	55	No	No
R3	36.1	36.0	55	55	No	No
R4	36.9	36.8	55	55	No	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-3 and 9-4.
[3] March Joint Powers Authority, Development Code, Chapter 9.10 Performance Standards, Section 9.10.140 (Appendix 3.1).
[4] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 8:00 a.m. - 10:00 p.m.; "Nighttime" = 10:01 p.m. - 7:59 a.m.

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

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. As indicated on Tables 9-6 and 9-7, the Project is not expected to generate a measurable daytime and nighttime operational noise level increase dBA L_{eq} at the nearest receiver locations. Project-related operational noise level increases will not exceed the operational noise level increase significance criteria presented in Table 4-1. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 9-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	25.0	L1	65.6	65.6	0.0	1.5	No
R2	36.1	L2	60.9	60.9	0.0	3.0	No
R3	36.1	L2	60.9	60.9	0.0	3.0	No
R4	36.9	L3	58.5	58.5	0.0	5.0	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 9-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on 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.
[7] Significance increase criteria as shown on Table 4-1.

TABLE 9-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Increase Criteria[7]	Increase Criteria Exceeded?
R1	24.1	L1	62.6	62.6	0.0	3.0	No
R2	35.9	L2	58.7	58.7	0.0	5.0	No
R3	36.0	L2	58.7	58.7	0.0	5.0	No
R4	36.8	L3	53.9	54.0	0.1	5.0	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 9-4.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on 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.
[7] Significance increase criteria as shown on Table 4-1.

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10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8.

To prevent high levels of construction noise from impacting noise-sensitive land uses, the March JPA Development Code Chapter 9.10 Performance Standards, Section 9.10.040 limits construction to between 7:00 a.m. until 7:00 p.m. only, and the Moreno Valley Municipal Code Section 11.80.030(D)(7) limits general construction activities to between 7:00 a.m. and 8:00 p.m. In addition, Section 8.21.050(O) of the Moreno Valley Municipal Code limits grading operations to the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, excluding holidays, and 8:00 a.m. to 4:00 p.m. on Saturdays or as approved by the City Engineer.

10.1 CONSTRUCTION NOISE LEVELS

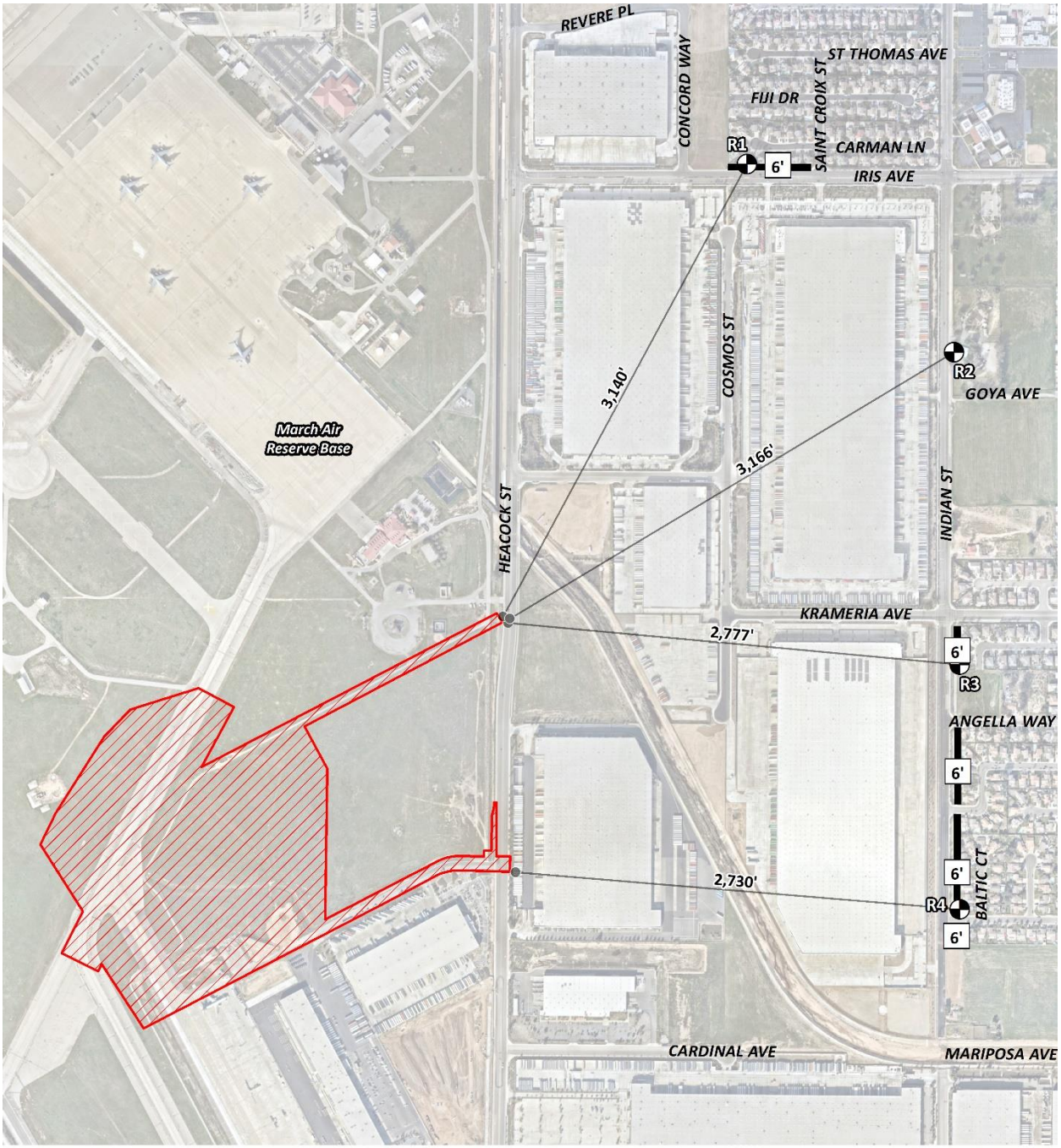
The FTA *Transit Noise and Vibration Impact Assessment Manual* recognizes that construction projects are accomplished in several different stages and outlines the procedures for assessing noise impacts during construction. Each stage has a specific equipment mix, depending on the work to be completed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

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

10.2 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. (25) 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 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS



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. Consistent with FTA guidance for general construction noise assessment, Table 10-1 presents the combined noise levels for the loudest construction equipment, assuming they operate at the same time. As shown on Table 10-2, the highest construction noise levels are expected to range from 32.0 to 42.4 dBA L_{eq} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity	Reference Noise Level @ 50 Feet (dBA L_{eq})[1]	Combined Noise Level (dBA L_{eq})[2]	Combined Sound Power Level (PWL)[3]
Site Preparation	Crawler Tractors	78	80	112
	Hauling Trucks	72		
	Rubber Tired Dozers	75		
Grading	Graders	81	83	115
	Excavators	77		
	Compactors	76		
Building Construction	Cranes	73	81	113
	Tractors	80		
	Welders	70		
Paving	Pavers	74	83	115
	Paving Equipment	82		
	Rollers	73		
Architectural Coating	Cranes	73	77	109
	Air Compressors	74		
	Generator Sets	70		

[1] FHWA Roadway Construction Noise Model (RCNM).

[2] Represents the combined noise level for all equipment assuming they operate at the same time consistent with FTA Transit Noise and Vibration Impact Assessment guidance.

[3] 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 calibrated using the CadnaA noise model at the reference distance to the noise source.

TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})					
	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	35.0	38.0	36.0	38.0	32.0	38.0
R2	39.4	42.4	40.4	42.4	36.4	42.4
R3	36.4	39.4	37.4	39.4	33.4	39.4
R4	36.6	39.6	37.6	39.6	33.6	39.6

[1] Noise receiver locations are shown on Exhibit 10-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 10.1.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the nearest receiver locations will satisfy the Moreno Valley daytime 65 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all receiver locations.

TABLE 10-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	38.0	65	No
R2	42.4	65	No
R3	39.4	65	No
R4	39.6	65	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 10-2.
[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?

10.5 NIGHTTIME CONCRETE POUR NOISE ANALYSIS

It is our understanding that nighttime concrete pouring activities will occur as a part of Project building construction activities. Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building area as shown on Exhibit 10-B. Since the nighttime concrete pours may take place outside the permitted March JPA Development Code Chapter 9.10 Performance Standards, Section 9.10.040, the Project Applicant would be required to obtain authorization for nighttime work from the March JPA.

EXHIBIT 10-B: NIGHTTIME CONCRETE POUR NOISE SOURCE AND RECEIVER LOCATIONS

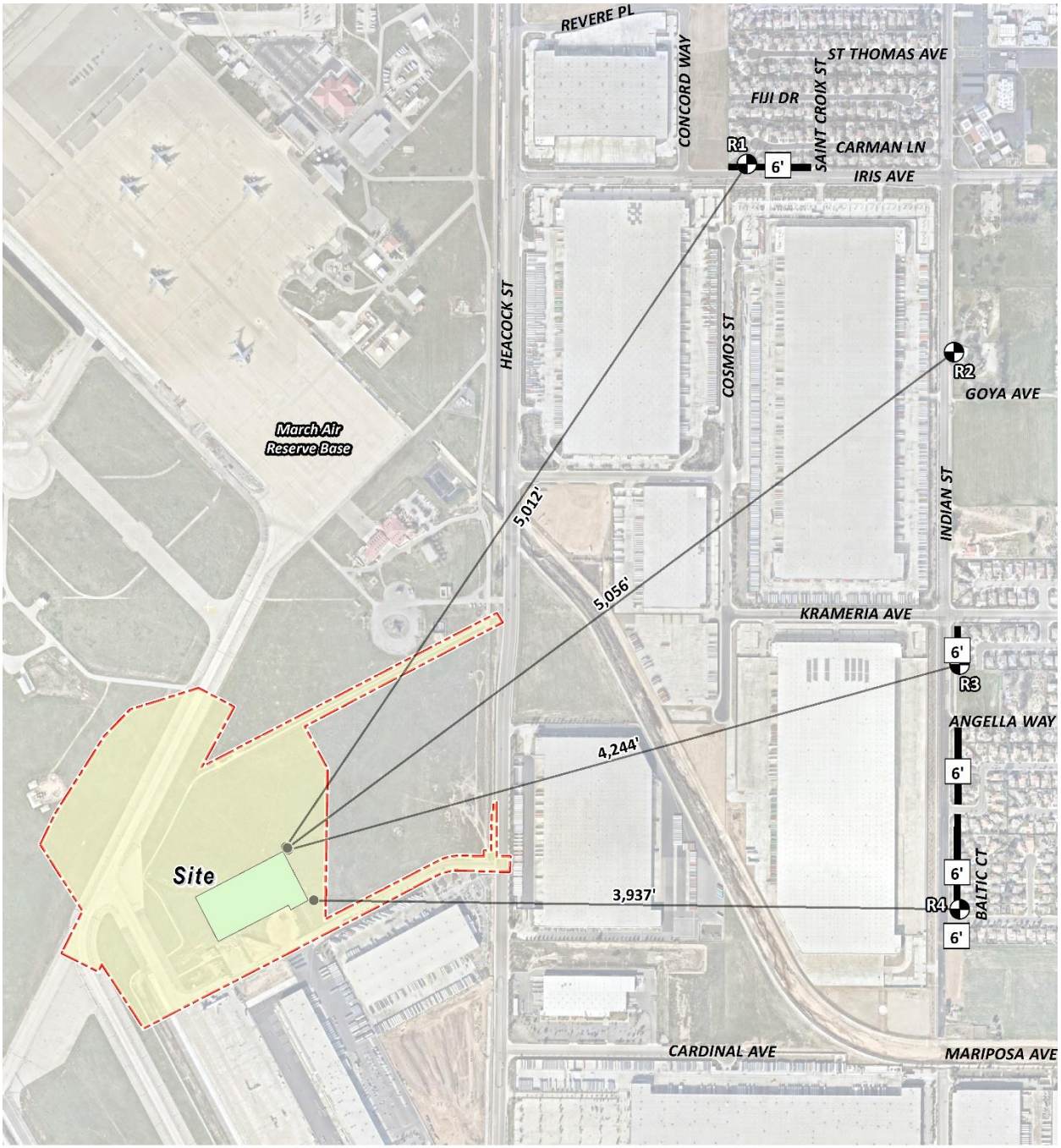


Table 10-4 shows the concrete pour activities (paving) noise will range from 37.6 to 42.4 dBA $L_{eq.}$ at the nearest sensitive receiver locations. Based on the results of this analysis, all nearest noise receiver locations will experience *less than significant* impacts due to the Project related nighttime concrete pour activities. Appendix 10.2 includes the CadnaA nighttime concrete pour noise model inputs.

TABLE 10-4: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Concrete Pour Activity[2]	Nighttime Threshold[3]	Threshold Exceeded?[4]
R1	37.6	60	No
R2	42.4	60	No
R3	39.6	60	No
R4	40.1	60	No

[1] Noise receiver locations are shown on Exhibit 10-B.
[2] Nighttime concrete pour construction noise level calculations based on distance from the building pad to nearby receiver locations.
[3] Exterior noise level standards as shown on Table 4-1.
[4] Do the estimated Project construction noise levels exceed the nighttime construction noise level threshold?

10.6 TYPICAL CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 10-5. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 10-5: 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

Table 10-6 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 2,730 to 3,166 feet from Project construction activities, construction vibration velocity levels are estimated at 0.000 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at all the noise sensitive receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site. Moreover, the vibration levels reported at the 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 perimeter.

TABLE 10-6: CONSTRUCTION VIBRATION LEVELS

Receiver[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	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
R1	3,140'	0.000	0.000	0.000	0.000	0.000	0.3	No
R2	3,166'	0.000	0.000	0.000	0.000	0.000	0.3	No
R3	2,777'	0.000	0.000	0.000	0.000	0.000	0.3	No
R4	2,730'	0.000	0.000	0.000	0.000	0.000	0.3	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Distance from receiver location to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 10-5).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

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11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **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.
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5. **U.S. Department of Transportation Federal Highway Administration.** *Highway Noise Barrier Design Handbook.* 2001.
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8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
9. **U.S. Government Publishing Office.** *Code of Federal Regulations, Title 40, Part 205, Subpart B.*
10. **Office of Planning and Research.** *State of California General Plan Guidelines.* 2018.
11. **State of California.** *2016 California Green Building Standards Code.* January 2017.
12. **March Joint Powers Authority.** *General Plan Noise/Air Quality Element.* 1999.
13. —. *General Plan Update 2030 Noise/Air Quality Element.* March 2010.
14. —. *Development Code, Chapter 9.10 Performance Standards.*
15. **City of Moreno Valley.** *Municipal Code, Chapter 11.80 Noise Regulation.*
16. **California Department of Transportation.** *Transportation and Construction Vibration Guidance Manual.* April 2020.
17. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
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19. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
20. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
21. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
22. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.

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

24. **Urban Crossroads, Inc.** *Meridian D-1 Gateway Aviation Center Traffic Analysis.* August 2022.

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

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Meridian D-1 Gateway Aviation Center 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 (949) 584-3148.

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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

MARCH JPA DEVELOPMENT CODE

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CHAPTER 9.10

PERFORMANCE STANDARDS

Sections:

9.10.010 Purpose and Intent

9.10.020 Applicability

9.10.030 Exemptions

9.10.040 Administration

9.10.050 Air Quality

9.10.060 Electrical or Electronic Interference

9.10.070 Fire and Explosive Hazards

9.10.080 Liquid and Solid Wastes

9.10.090 Radioactive Wastes

9.10.100 Heat and Cold

9.10.110 Light and Glare

9.10.120 Maintenance of Open Areas

9.10.130 Mechanical and Electrical Equipment

9.10.140 Noise and Sound

9.10.150 Odors

9.10.160 Outdoor Storage, Trash Areas, and Service Areas

9.10.170 Vibration

Section 9.10.010 Purpose and Intent

The purpose and intent of this Chapter is to explicitly describe the location, configuration, design, amenities, operation, and other standards for proposed development projects that may impact the surrounding neighborhood. The performance standards set maximum tolerance limits on certain adverse effects created by any use or development of land.

Section 9.10.020 Applicability

Applicability

These performance standards shall apply to all land uses, in all districts, unless specifically stated otherwise in this Title. All uses shall be subject to these performance standards, the General Development Standards of Chapter 9.08, the Specific Use Development Standards of Chapter 9.09, the requirements of the underlying district, and all other requirements of this Title.

Section 9.10.030 Exemptions

Exemptions

The following uses or activities are exempt from the provisions of this Chapter.

1. Emergency equipment, vehicles, devices, and activities.

2. Temporary construction, maintenance, or demolition activities between the hours of 7:00 a.m. and 7:00 p.m.

Section 9.10.040 Administration

The standards of this Chapter shall be enforced by the department or agency having enforcement authority over the subject matter. Upon discovery of any potential violation of these standards, the appropriate department or agency shall investigate and initiate corrective action as deemed necessary.

Section 9.10.050 Air Quality

No operation or activity otherwise permitted under this Title shall cause the emission of any smoke, fly ash, dust, fumes, vapors, gases or other forms of air pollution which exceeds the requirements of the South Coast Air Quality Management District or the requirements of any Air Quality Plan or General Plan Air Quality Element adopted by the March JPA.

Section 9.10.060 Electrical or Electronic Interference

No operation or activity otherwise permitted under this Title shall cause any source of electrical or electronic disturbance that adversely affects persons or the operation of equipment on other property and is not in conformance with the regulations of the Federal Communication Commission.

Section 9.10.070 Fire and Explosive Hazards

An operation or activity otherwise permitted under this Title involving the storage of flammable or explosive materials shall be provided with adequate safety devices against the hazard of fire and explosion and adequate fire-fighting and fire suppression equipment and devices in accordance with the requirements of the Uniform Fire Code. Open fire burning of waste material is prohibited. Closed system incineration of waste material, where such activity is otherwise permitted under this Title and is required for research, medical or similar uses, may be permitted subject to the requirements of the California Department of Health and South Coast Air Quality Management District or other requirements of any Air Quality Plan or General Plan Air Quality Element adopted by the March JPA.

Section 9.10.080 Liquid and Solid Wastes

No operation or action otherwise permitted under this Title shall discharge at any point into any public street, public sewer, private sewage disposal system, stream, body of water or into the ground, any materials which can contaminate any water supply, interfere with bacterial processes in sewage treatment, or otherwise cause the emission of dangerous or offensive elements, except in accordance with standards approved by the California Department of Public Health or other governmental agency having jurisdiction over liquid and solid waste.

Section 9.10.090 Radioactive Wastes

No operation or activities otherwise permitted under this Title shall be permitted which result at any time in the release or emission of any fissionable or radioactive materials into the atmosphere, the ground, groundwater or sewage systems except as provided by and in accordance with State law. Any such operation or activity which handles, tests, transports, stores or in any way uses fissionable or radioactive material shall prepare a study addressing the probability of the release of such material and implement all recommendations identified by the study.

Section 9.10.100 Heat and Cold

No operation or activity otherwise permitted under this Title shall emit heat or cold which would cause a temperature increase or decrease on any adjacent property in excess of 10 degrees Fahrenheit, whether the change is in the air, on the ground, or in any structure, or in any body of water.

Section 9.10.110 Light and Glare

No operation, activity, sign, or lighting fixture shall create illumination which exceeds 0.5 foot-candles minimum maintained on any adjacent property, whether the illumination is direct or indirect light from the source. All lighting shall be designed to project downward and shall not create glare on adjacent properties.

Section 9.10.120 Maintenance of Open Areas

Except as otherwise provided in this Title, all open areas shall be landscaped, surfaced, or treated and maintained permanently in a dust-free, weed-free condition.

Section 9.10.130 Mechanical and Electrical Equipment

All mechanical and electrical equipment, including air conditioners, antennas, pumps, transformers, and heating and ventilating equipment shall be located, operated and screened in a manner that does not disturb adjacent uses and activities. In addition, all central building electrical controlling equipment and switching facilities shall be located within the building for all commercial, industrial and business facilities.

Section 9.10.140 Noise and Sound

Unless otherwise specified in Chapter 9.08, General Development Standards, or Chapter 9.09, Specific Use Development Standards, all commercial and industrial uses shall be operated so that noise created by any loudspeaker, bells, gongs, buzzers, or other noise attention or attracting devices shall not exceed 55 dBA at any one time beyond the boundaries of the property. Sounds emitting from any of the aforementioned devices, including or live or recorded music, shall cease between the hours of 10:00 p.m. and 7:00 a.m. if the sound therefrom creates a noise disturbance across the property line of a residential use.

Additionally, outdoor construction and grading activities, including the operation of any tools or equipment associated with construction, drilling, repair, alteration, grading/grubbing or demolition work within 500 feet of the property line of a residential use, shall be prohibited between the hours of 7:00 p.m. and 7:00 a.m. Monday through Friday and between 5:00 p.m. and 8:00 a.m. on Saturdays or at any time on Sunday or a Federal Holiday.

The following activities are exempt from the provisions of this Section:

1. Emergency Work. This Section does not apply to the emission of sound for the purpose of alerting persons to the existence of an emergency or in the performance of emergency work if the work is necessary to address immediate public health and safety related issues as deemed necessary by the March JPA Building Official or Engineer.

2. Federal or State Highway/Freeway Projects or preempted activities. This Section does not apply to roadwork on federal or state highways or any other activity the noise level of which is regulated by state or federal law.

3. Right-of-way construction. This Section does not prohibit work performed within the rights-of-way when it is deemed by the March JPA Engineer that such work will create traffic congestion and/or

hazardous or unsafe conditions.

4. Public health, welfare and safety activities. This Section does not apply to construction maintenance and repair operations conducted by public agencies and/or utility companies or their contractors which are deemed necessary to serve the best interests of the public and to protect the public health, welfare and safety, including but not limited to, trash collection, street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers or storm drains, vacuuming catch basins, repairing of damaged poles, removal of abandoned vehicles, repairing of water hydrants and mains, gas lines, oil lines, sewers, storm drains, roads, sidewalks, etc.

Section 9.10.150 Odors

No operation or activity shall be permitted which emits odorous gases or other odorous matter in such quantities as to be dangerous, injurious, noxious, or otherwise objectionable to a level that is detectable with or without the aid of instruments at or beyond the lot line of the property containing said operation or activity.

Section 9.10.160 Outdoor Storage, Trash Areas, and Service Areas

All storage areas for storage of maintenance equipment or vehicles or refuse, and all collection areas and service areas, shall be enclosed or effectively screened from public view with a fence, wall, landscaping, berming or a combination thereof. Doors to trash enclosures shall be closed at all times except when the enclosure is being accessed for refuse disposal or pick-up. The screening requirements of Section 9.08.150 are also referenced and not intended to be superseded hereby.

Section 9.10.170 Vibration

No vibration shall be permitted which can be felt at or beyond the property line.

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APPENDIX 3.2:

CITY OF MORENO VALLEY MUNICIPAL CODE

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Chapter 11.80 NOISE REGULATION

11.80.010 Legislative findings.

It is found and declared that:

A. Excessive sound within the limits of the city is a condition which has existed for some time, and the amount and intensity of such sound is increasing.

B. Such excessive sound is a detriment to the public health, safety, and welfare and quality of life of the residents of the city.

C. The necessity in the public interest for the provisions and prohibitions hereinafter contained and enacted is declared as a matter of legislative determination and public policy, and it is further declared that the provisions and prohibitions hereinafter contained and enacted are in pursuance of and for the purpose of securing and promoting the public health, safety, welfare and quality of life of the city and its inhabitants. (Ord. 740 § 1.2, 2007)

11.80.020 Definitions.

For purposes of this chapter, certain words and phrases used herein are defined as follows:

"A-weighted sound level" means the sound pressure level in decibels as measured with a sound level meter using the A-weighting network. The unit of measurement is the dB(A).

"Commercial" means all uses of land not otherwise classified as residential, as defined in this section.

"Construction" means any site preparation, and/or any assembly, erection, repair, or alteration, excluding demolition, of any structure, or improvements to real property.

"Continuous airborne sound" means sound that is measured by the slow-response setting of a meter manufactured to the specifications of ANSI Section 1.4-1983 (R2006) "Specification for Sound Level Meters," or its successor.

"Daytime" means eight a.m. to ten p.m. the same day.

"Decibel" (dB) means a unit for measuring the amplitude of sound, equal to twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound measured to the reference pressure, which is twenty (20) microPascals (twenty (20) microNewtons per square meter.)

"Demolition" means any dismantling, intentional destruction or removal of structures or other improvements to real property.

"Disturb" means to interrupt, interfere with, or hinder the enjoyment of peace or quiet or the normal listening activities or the sleep, rest or mental concentration of the hearer.

"Emergency" means any occurrence or set of circumstances involving actual or imminent physical trauma or significant property damage which necessitates immediate action. Economic loss alone shall not constitute an emergency. It shall be the burden of an alleged violator to prove an "emergency."

"Emergency work" means any work made necessary to restore property to a safe condition following an emergency, or to protect persons or property threatened by an imminent emergency, to the extent such work is, in fact, necessary to protect persons or property from exposure to imminent danger or damage.

"Frequency" means the number of complete oscillation cycles per unit of time.

"Impulsive sound" means sound of short duration, usually less than one second, with an abrupt onset and rapid decay. Examples of sources of impulsive sound include explosions, drop forge impacts, and discharge of firearms.

"Nighttime" means 10:01 p.m. to 7:59 a.m. the following day.

"Noise disturbance" means any sound which:

1. Disturbs a reasonable person of normal sensitivities;

2. Exceeds the sound level limits set forth in this chapter; or

3. Is plainly audible as defined in this section. Where no specific distance is set forth for the determination of audibility, references to noise disturbance shall be deemed to mean plainly audible at a distance of two hundred (200) feet from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property.

"Person" means any person, person's firm, association, copartnership, joint venture, corporation, or any entity public or private in nature.

"Plainly audible" means that the sound or noise produced or reproduced by any particular source, can be clearly distinguished from ambient noise by a person using his/her normal hearing faculties.

"Public right-of-way" means any street, avenue, boulevard, sidewalk, bike path or alley, or similar place normally accessible to the public which is owned or controlled by a governmental entity.

"Public space" means any park, recreational or community facility, or lot which contains at least one building that is open to the general public during its hours of operation.

"Residential" means all uses of land primarily for dwelling units, as well as hospitals, schools, colleges and universities, and places of religious assembly.

"Sound" means an oscillation in pressure, particle displacement, particle velocity or other physical parameter, in a medium with internal forces that causes compression and rarefaction of that medium capable of producing an auditory impression. The description of sound may include any characteristic of such sound, including duration, intensity and frequency.

"Sound level" means the weighted sound pressure level as measured in dB(A) by a sound level meter and as specified in American National Standards Institute (ANSI) specifications for sound-level meters (ANSI Section 1.4-1971 (R1976)). If the frequency weighting employed is not indicated, the A-weighting shall apply.

"Sound level meter" means an instrument, demonstrably capable of accurately measuring sound levels as defined above.

All technical definitions not defined above shall be in accordance with applicable publications and standards of the American National Standards Institute (ANSI). (Ord. 740 § 1.2, 2007)

11.80.030 Prohibited acts.

A. General Prohibition. It is unlawful and a violation of this chapter to maintain, make, cause, or allow the making of any sound that causes a noise disturbance, as defined in Section 11.80.020.

B. Sound causing permanent hearing loss.

1. Sound level limits. Based on statistics from the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health, Table 1 and Table 1-A specify sound level limits which, if exceeded, will have a high probability of producing permanent hearing loss in anyone in the area where the sound levels are being exceeded. No sound shall be permitted within the city which exceeds the parameters set forth in Tables 11.80.030-1 and 11.80.030-1-A of this chapter:

Table 11.80.030-1

MAXIMUM CONTINUOUS SOUND LEVELS*

Duration per Day Continuous Hours	**Sound level [db(A)]**
8	90
6	92
4	95
3	97

2	100
1.5	102
1	105
0.5	110
0.25	115

* When the daily sound exposure is composed of two or more periods of sound exposure at different levels, the combined effect of all such periods shall constitute a violation of this section if the sum of the percent of allowed period of sound exposure at each level exceeds 100 percent

Table 11.80.030-1A

MAXIMUM IMPULSIVE SOUND LEVELS

Number of Repetitions per 24-Hour Period	Sound level [dB(A)]
1	145
10	135
100	125

2. Exemptions. No violation shall exist if the only persons exposed to sound levels in excess of those listed in Tables 11.80.030-1 and 11.80.030-1A are exposed as a result of:

a. Trespass;

b. Invitation upon private property by the person causing or permitting the sound; or

c. Employment by the person or a contractor of the person causing or permitting the sound.

C. Nonimpulsive Sound Decibel Limits. No person shall maintain, create, operate or cause to be operated on private property any source of sound in such a manner as to create any nonimplusive sound which exceeds the limits set forth for the source land use category (as defined in Section 11.80.020) in Table 11.80.030-2 when measured at a distance of two hundred (200) feet or more from the real property line of the source of the sound, if the sound occurs on privately owned property, or from the source of the sound, if the sound occurs on public right-of-way, public space or other publicly owned property. Any source of sound in violation of this subsection shall be deemed prima facie to be a noise disturbance.

Table 11.80.030-2

MAXIMUM SOUND LEVELS (IN dB(A)) FOR SOURCE LAND USES

Residential		Commercial	
Daytime	**Nighttime**	**Daytime**	**Nighttime**
60	55	65	60

D. Specific Prohibitions. In addition to the general prohibitions set out in subsection A of this section, and unless otherwise exempted by this chapter, the following specific acts, or the causing or permitting thereof, are regulated as follows:

1. Motor Vehicles. No person shall operate or cause to be operated a public or private motor vehicle, or combination of vehicles towed by a motor vehicle, that creates a sound exceeding the sound level limits in Table 11.80.030-2 when the vehicle(s) are not otherwise subject to noise regulations provided for by the California Vehicle Code.

2. Radios, Televisions, Electronic Audio Equipment, Musical Instruments or Similar Devices from a Stationary Source. No person shall operate, play or permit the operation or playing of any radio, tape player, television, electronic audio equipment, musical instrument, sound amplifier or other mechanical or electronic sound making device that produces, reproduces or amplifies sound in such a manner as to create a noise disturbance. However, this subsection shall not apply to any use or activity exempted in subsection E of this section and any use or activity for which a special permit has been issued pursuant to Section 11.80.040.

3. Radios, Electronic Audio Equipment, or Similar Devices from a Mobile Source Such as a Motor Vehicle. Sound amplification or reproduction equipment on or in a motor vehicle is subject to regulation in accordance with the California Vehicle Code when upon the public right-of-way. When upon public space or publicly owned property other than the public right-of-way or upon private property open to the public, sound amplification or reproduction equipment shall not be operated in such a manner that it is plainly audible at a distance of fifty (50) feet in any direction from the vehicle.

4. Portable, Hand-Held Music or Sound Amplification or Reproduction Equipment. Such equipment shall not be operated on a public right-of-way, public space or other publicly owned property in such a manner as to be plainly audible at a distance of fifty (50) feet in any direction from the operator.

5. Loudspeakers and Public Address Systems.

a. Except as permitted by Section 11.80.040, no person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any commercial purpose:

1. Which produces, reproduces or amplifies sound in such a manner as to create a noise disturbance; or

2. During nighttime hours on a public right-of-way, public space or other publicly owned property.

b. No person shall operate, or permit the operation of, any loudspeaker, public address system or similar device, for any noncommercial purpose, during nighttime hours in such a manner as to create a noise disturbance.

6. Animals. No person shall own, possess or harbor an animal or bird that howls, barks, meows, squawks, or makes other sounds that:

a. Create a noise disturbance;

b. Are of frequent or continued duration for ten (10) or more consecutive minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound; or

c. Are intermittent for a period of thirty (30) or more minutes and are plainly audible at a distance of fifty (50) feet from the real property line of the source of the sound.

7. Construction and Demolition. No person shall operate or cause the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of eight p.m. and seven a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the city manager or designee. This section shall not apply to the use of power tools as provided in subsection (D)(9) of this section.

8. Emergency Signaling Devices. No person shall intentionally sound or permit the sounding outdoors of any fire, burglar or civil defense alarm, siren or whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing as follows:

a. Testing of a stationary emergency signaling device shall not occur between seven p.m. and seven a.m. the following day;

b. Testing of a stationary emergency signaling device shall use only the minimum cycle test time, in no case to exceed sixty (60) seconds;

c. Testing of a complete emergency signaling system, including the functioning of the signaling device and the personnel response to the signaling device, shall not occur more than once in each calendar month. Such testing shall only occur only on weekdays between seven a.m. and seven p.m. and shall be exempt from the time limit specified in subsection (D)(8)(2) of this section.

9. Power Tools. No person shall operate or permit the operation of any mechanically, electrically or gasoline motor-driven tool during nighttime hours so as to cause a noise disturbance across a residential real property boundary.

10. Pumps, Air Conditioners, Air-Handling Equipment and Other Continuously Operating Equipment. Notwithstanding the general prohibitions of subsection a of this section, no person shall operate or permit the operation of any pump, air

conditioning, air-handling or other continuously operating motorized equipment in a state of disrepair or in a manner which otherwise creates a noise disturbance distinguishable from normal operating sounds.

E. Exemptions. The following uses and activities shall be exempt from the sound level regulations except the maximum sound levels provided in Tables 11.80.030-1 and 11.80.030-1A:

1. Sounds resulting from any authorized emergency vehicle when responding to an emergency call or acting in time of an emergency.

2. Sounds resulting from emergency work as defined in Section 11.80.020

3. Any aircraft operated in conformity with, or pursuant to, federal law, federal air regulations and air traffic control instruction used pursuant to and within the duly adopted federal air regulations; and any aircraft operating under technical difficulties in any kind of distress, under emergency orders of air traffic control, or being operated pursuant to and subsequent to the declaration of an emergency under federal air regulations.

4. All sounds coming from the normal operations of interstate motor and rail carriers, to the extent that local regulation of sound levels of such vehicles has been preempted by the Noise Control Act of 1972 (42 U.S.C. § 4901 et seq.) or other applicable federal laws or regulations

5. Sounds from the operation of motor vehicles, to the extent they are regulated by the California Vehicle Code.

6. Any constitutionally protected noncommercial speech or expression conducted within or upon a any public right-of-way, public space or other publicly owned property constituting an open or a designated public forum in compliance with any applicable reasonable time, place and manner restrictions on such speech or expression or otherwise pursuant to legal authority.

7. Sounds produced at otherwise lawful and permitted city-sponsored events, organized sporting events, school assemblies, school playground activities, by permitted fireworks, and by permitted parades on public right-of-way, public space or other publicly owned property.

8. An event for which a temporary use permit or special event permit has been issued under other provisions of this code, where the provisions of Section 11.80.040 are met, the permit granted expressly grants an exemption from specific standards contained in this chapter, and the permittee and all persons under the permittee's reasonable control actually comply with all conditions of such permit. Violation of any condition of such a permit related to sound or sound equipment shall be a violation of this chapter and punishable as such.

F. Nothing in this chapter shall be construed to limit, modify or repeal any other regulation elsewhere in this code relating to the regulation of noise sources, nor shall any such other regulation be read to permit the emission of noise in violation of any provision of this chapter. (Ord. 740 § 1.2, 2007)

11.80.040 Special provisions for temporary use and special event permits.

The exemption by permit set forth in Section 11.80.030(E)(8) shall be subject to the following requirements and conditions:

A. The permit application shall include the name, address and telephone number of the permit applicant; the date, hours and location for which the permit is requested; and the nature of the event or activity. It shall also specify the types of sounds and/or sound equipment to be permitted, the proposed duration of such sound, the specific standards from which the sound is to be exempted, and the reasons for each requested exemption.

B. The permit shall be issued provided the proposed activity meets the requirements of this section and the issuing official determines that the sound to be emitted at the event as proposed would not be detrimental to the public health, safety or welfare, that the event cannot reasonably achieve its legitimate aims and purposes without the exemption and that the sound levels proposed will not unreasonably damage the peace and quiet enjoyment of the lawful users of surrounding properties, nor constitute a public nuisance.

C. The official issuing the permit may prescribe any reasonable conditions or requirements he/she deems necessary to minimize noise disturbances upon the community or the surrounding neighborhood, and/or to protect the health, safety or welfare of the public, including participants in the permitted event, including use of mufflers, screens or other sound-attenuating devices.

D. Any permit granted must be in writing and shall contain all conditions upon which the permit shall be effective.

E. No more than six events requiring a sound limit exemption may be held at any particular location upon privately owned or controlled property per calendar year, provided further that the number of events shall not exceed the number permitted under the regulations for the type of permit issued. For purposes of this subsection, "location" means a legal parcel of real property or a complete shopping or commercial center or mall sharing common parking and access even if comprised of multiple legal parcels.

F. The exemption from sound limits under such permit shall not exceed maximum period of four hours in one twenty-four (24) hour day.

G. The permit will only be granted for hours between nine a.m. and ten p.m. on all days other than Friday and Saturday; and, on Friday and Saturday, between the hours of nine a.m. and one a.m. of the following day, except in the following circumstances:

1. A permit may be granted for hours between nine a.m. on New Year's Eve and one a.m. the following day (New Year's Day).

2. A permit may be granted for hours between nine a.m. and two a.m. the following day if there are no residences, hospitals, or nursing homes within a 0.5 mile radius of the property where the function is taking place.

H. Functions for which the permits are issued shall be limited to a continuous airborne sound level not to exceed seventy (70) dB(A), as measured two hundred (200) feet from the real property boundary of the source property if on private property, or from the source if on public right-of-way, public space or other publicly owned property. (Ord. 740 § 1.2, 2007)

11.80.050 Measurement or assessment of sound.

A. Measurement With Sound Meter.

1. The measurement of sound shall be made with a sound level meter meeting the standards prescribed by ANSI Section 1.4-1983 (R2006). The instruments shall be maintained in calibration and good working order. A calibration check shall be made of the system at the time of any sound level measurement. Measurements recorded shall be taken so as to provide a proper representation of the source of the sound. The microphone during measurement shall be positioned so as not to create any unnatural enhancement or diminution of the measured sound. A windscreen for the microphone shall be used at all times. However, a violation of this chapter may occur without the occasion of the measurements being made as otherwise provided.

2. The slow meter response of the sound level meter shall be used in order to best determine the average amplitude.

3. The measurement shall be made at any point on the property into which the sound is being transmitted and shall be made at least three feet away from any ground, wall, floor, ceiling, roof and other plane surface.

4. In case of multiple occupancy of a property, the measurement may be made at any point inside the premises to which any complainant has right of legal private occupancy; provided that the measurement shall not be made within three feet of any ground, wall, floor, ceiling, roof or other plane surface.

5. All measurements of sound provided for in this chapter will be made by qualified officials of the city who are designated by the city manager or designee to operate the apparatus used to make the measurements.

B. Assessment Without Sound Level Meter. Any police officer, code enforcement officer, or other official designated by the city manager or designee who hears a noise or sound that is plainly audible, as defined in Section 11.80.020, in violation of this chapter, may enforce this chapter and shall assess the noise or sound according to the following standards:

1. The primary means of detection shall be by means of the official's normal hearing faculties, not artificially enhanced.

2. The official shall first attempt to have a direct line of sight and hearing to the vehicle or real property from which the sound or noise emanates so that the official can readily identify the offending source of the sound or noise and the distance involved. If the official is unable to have a direct line of sight and hearing to the vehicle or real property from which the sound or noise emanates, then the official shall confirm the source of the sound or noise by approaching the suspected vehicle or real property until the official is able to obtain a direct line of sight and hearing, and confirm the source of the sound or noise that was heard at the place of the original assessment of the sound or noise.

8.21.050 Grading permit requirements.

A. Application for Permit.

1. The application for a grading permit shall be made on a form as provided by the city engineer. All required discretionary approvals under the zoning ordinance and municipal code must be obtained prior to issuance of a grading permit.

2. No grading permit for a development project subject to approval by the planning commission, city council or administrative approval process shall be issued until such commission, council or administrative process has approved the grading concept as part of the discretionary approval process. Any application for a grading permit which effects environmentally sensitive areas shall contain information showing that the proposed grading will be accomplished without significant harm to the environment or appropriate environmental mitigation measures that have been identified within an environmental impact report for the proposed site have been complied with.

B. Responsibility of Land Owners.

1. It is unlawful for any persons owning, leasing, occupying or having charge of any real property in the city to stockpile, deposit, or allow the placement, construction or deposition of earth material on any real property in excess of fifty (50) cubic yards without first obtaining a grading permit as hereinafter described (unless exempt as noted in Section 8.21.020(A)(1) through (11), exceptions). Processing of said earth material must result in a relative compaction of at least ninety (90) percent of the maximum density compaction of the surrounding material, unless otherwise provided for as part of an approved grading plan.

2. Clearing, brushing and grubbing of vegetation done in preparation of land development shall not be undertaken until all discretionary approvals for the land development project have been issued and a grading permit for the project has been obtained. For the purposes of this section, land development shall be defined as any use of real property for which discretionary approval is required as further defined in the this code.

3. A grading permit issued by the city engineer is required prior to any grading or clearing and grubbing operations on:

a. Previously undisturbed land; or

b. Land covered by native vegetation; or

c. Land which has not been used for agricultural purposes for three years immediately prior to the initiation of a grading operation for the purpose of conducting agricultural activities.

A grading permit may be issued by the city engineer, prior to discretionary approval, if the city engineer, in cooperation with the planning official, determines that the grading and/or agricultural operation will not cause significant damage to any environmentally sensitive areas nor cause the elimination of any significant wildlife habitat for riparian area.

4. This section shall not regulate routine landscape maintenance, the removal of dead or diseased trees or shrubs or the removal of vegetation upon the order of the fire marshal for the elimination of a potential fire hazard.

C. Types of Grading Permits.

1. Either a mass grading permit, borrow site permit, rough grading permit, preliminary grading permit, precise grading permit or a stockpile permit all as defined in Section 8.21.040 of this chapter may be issued for grading work upon completion of a proper application and approval by the city engineer.

2. Building permits may be issued for a site graded under an approved grading plan and valid grading permit upon completion and approval of rough grade and geotechnical inspection as specified in Section 8.21.170 of this chapter. Building permits for construction of model homes may be issued for the model home sites only, prior to completion of rough grading for the site, provided that rough grading has been completed and approved as noted for the model home sites.

3. Building permits shall not be issued for a site graded under a preliminary grading permit until a new precise grading plan has been approved and a permit has been issued and the provisions as noted above have been satisfied.

D. Stockpile Permits.

1. A temporary stockpile permit is subject to conditions which may include, but are not limited to, the following items: a stockpile plan prepared by a registered civil engineer, an erosion control plan prepared by a registered civil engineer, fencing, hydroseeding or other maintenance requirements. Other conditions may be established, even after the permit has been issued, in the interest of public health, safety or welfare, and shall be as determined by the city engineer.

2. An indeterminate stockpile permit may be issued for soil that is to be used for the future development of the stockpile site where there is no current project, or for storage of soil for current or future sale, or for some other purpose as stated by the property owner. Requests for indeterminate stockpile permits will be reviewed on a case-by-case basis. Such requests may be considered to be the establishment of a business and may require review by other city department or divisions and shall be subject to all of the conditions of approval for such projects. An indeterminate stockpile permit is subject to all of the same requirements as a temporary stockpile permit.

E. Grading Permit Application. A grading permit application shall consist of the following items and forms completed and signed by the applicant or his/her representative, unless otherwise specified by the city engineer:

1. Application form;

2. Four sets of grading plans;

3. Two copies of a preliminary soils report (see subsection (M)(1) of this section);

4. Two copies of a preliminary geology report if applicable (see subsection (M)(2) of this section);

5. Two sets of erosion control plans;

6. Payment of the grading plan check and inspection fees.

The city engineer will inspect the project site as necessary and determine whether additional reports or other data are required prior to issuance of a grading permit. The city engineer will notify the applicant of his or her determination.

F. Grading Plan Clearances. The city engineer shall notify the applicant when clearance is required for the project from other departments or divisions within the city as well as clearance required from other agencies. All required clearances from other departments, divisions or outside agencies shall be the responsibility of and obtained by the applicant prior to issuance of the grading permit. The city engineer will not notify the applicant for South Coast Air Quality District (SCAQMD) required clearances and permits.

G. Data to Accompany Application.

1. A grading plan, approved and signed by a California registered civil engineer, soils engineer and engineering geologist shall accompany each application for a grading permit, unless waived by the city engineer. The grading plans shall be prepared on twenty-four (24) inch by thirty-six (36) inch Mylar film with a standard city title block, and shall be drawn in ink. The plans shall show the original and designed finish contours, spot elevations, building pads, public improvements, slope ratios, proposed drainage facilities, protective fencing, retaining walls and any structures or buildings on adjacent properties within fifteen (15) feet of the common property lines.

2. Unless waived by the city engineer, each application for a grading permit shall be accompanied by supporting data consisting of a soils engineering report, engineering geology report, and the grading plans and specifications. All such plans shall be drawn to engineering scales as approved by the city engineer. The title sheet of the plan set shall contain the names, addresses and phone numbers of the site owner, the civil engineer responsible for the plans preparation, the project soil engineer and engineering geologist, including registration numbers. The title sheet shall also contain a locality sketch of the project site.

3. A statement of quantities shall be furnished, giving the estimated cubic yards of excavation, embankment, fill, and shrinkage or swell factor. Also, types of ditches and down drains, lineal feet and sizes of various types of pipe, the amount of rock to be used for rip-rap or slope protection, the lineal feet of fencing and any other pertinent information useful in determining the extent of the proposed work.

4. The grading plans shall show scaled sections of all stabilization fills, buttress fills, keyways and benching for fill placement.

H. Grading Plan Check. All grading plans submitted to the city will be checked for conformance with the provisions of this chapter, conditions of approval, the city of Moreno Valley Municipal Code, applicable specific plans, other city ordinances, rules and regulations, all applicable federal and state requirements, 2010 California Code of Regulations Title 24, Chapter 11 accessibility requirements, city technical requirements and plan requirements, and any other applicable requirements for the development.

I. Mass Grading Plans, Rough Grading Plans, Stockpile Plans, Borrow Site Plans and Preliminary Grading Plans. The plans shall include, but not be limited to, the following information.

1. Vicinity map of the site;

2. Property limits clearly labeled or otherwise identified, accurate contours of existing ground and details of terrain, and area of drainage a minimum of fifteen (15) feet beyond the property limits (spot elevations may be used on flatland sites);

3. Prominent existing or natural terrain features;

4. Limiting dimensions, elevations of finish contours to be achieved by the grading, proposed drainage devices, and related construction;

5. Details (plan and section) of all surface and subsurface drainage devices, walls, cribbing, dams, and other protective devices to be constructed with, or as part of the proposed work, together with a map showing the drainage area and estimated runoff from the area served by the drains;

6. Location of any buildings or structures on the property where the work is to be performed and the location of any buildings of structures on land of adjacent owners which may be affected by the proposed grading operations;

7. If the grading project includes the movement of earth material to or from the site in an amount considered substantial by the city engineer, the permittee shall submit a haul route for review and approval by the public works department, land development division. The city engineer may prescribe as a condition of the grading permit and submitted haul route, alternate routes or special requirement in consideration on the possible impact on the adjacent community environment or effect on the public right-of-way itself;

8. Additional plans, drawings, calculations, environmental impact information, or other reports and information required by the city engineer.

J. Precise Grading Plans. The plans shall include of the information required in subsection I of this section plus the footprint or allowable building area of all proposed structures (including appurtenances), setback distances between structures and top or toe of slopes, setback distances between structures and property lines, detailed finish grade and finish floor elevations, flow lines for lot drainage including spot elevations for the drainage swales, details for building footings and side yard swale relationship (including extra height of or deepened footings), and all proposed PCC flatwork and PCC/AC driveways.

K. Grading Plan Correction Sheet. A grading plan standards and correction sheet which is used as the basis for plan checking, is available from the Public Works Department, Land Development Division which identifies the items typically required on grading plans depending on site conditions.

L. Geotechnical Reports. A soil engineering and engineering geology report shall be required for all grading projects unless otherwise waived by the city engineer. The reports shall include information useful to the site and any additional information required by the city engineer. Recommendations included in the reports and approved by the city engineer, shall be incorporated into the grading plans and specifications. The building official may require a soil report of additional information related to the building structure in accordance with the California Code of Regulations Title 24 (IBC).

M. Geotechnical Report Standards. Two copies of each geotechnical report required in subsection L of this section, shall be submitted as part of the application for a grading permit. Each report shall contain information applicable to the project as shall be prepared in accordance with generally accepted geotechnical engineering practice. Recommendations contained in the approved reports shall be incorporated into the grading plans and specifications and shall become conditions of the grading permit.

1. Preliminary Soil Report. Soil engineering reports shall be required for all residential subdivisions, commercial or industrial development projects, multi-residential projects, and similar developments for which a grading permit is required. Soil reports shall also be required for grading or building permits on single lot projects when specified by the city engineer or building official. The preliminary (initial) soil engineering report shall include information and data regarding the nature, distribution, and physical and chemical properties of existing soils, conclusions as to the adequacy

of the site for the proposed grading, recommendations for general and corrective grading procedures, foundation and pavement design criteria, and shall provide other recommendations, as necessary, for the project grading and development.

2. Preliminary Engineering Geology Report. Engineering geologic reports shall be required for all developments on hillside sites where geologic conditions are considered to have a substantial effect on existing and/or future site stability. This requirement may be extended to other sites as required by the city engineer. The preliminary (initial) engineering geology report shall include a comprehensive description of the site topography and geology including, where necessary, a geologic map; and opinion as to the adequacy of the proposed development from an engineering geologic standpoint; and opinion as to the extent that known or as reasonably should be known instability on adjacent properties may adversely effect the project; a description of the field investigation and findings; conclusions regarding the effect of geologic conditions on the proposed project; and specific recommendations for plan modification, corrective grading and/or special techniques and systems to facilitate a safe and stable development; and shall provide other recommendations as necessary for the project grading and development. The preliminary engineering geology report may be combined with the soil engineering report.

3. Seismicity Report. A seismicity report as determined by the city engineer, may be required as a condition for issuance of a grading permit and/or building permit for all residential subdivisions, and for commercial or industrial developments, and shall be required as a condition of development for all essential facilities (as defined in the California Building Code) or as determined by the city engineer, building official or planning official. Additionally, sites containing earthquake-sensitive earth materials and/or sites that are located on or near potentially active or active faults are required to submit a seismicity report as a condition for issuance of a grading permit. The report shall be prepared by an engineering geologist, geophysicist, or a civil engineer with expertise in earthquake technology and its application to buildings or other civil engineering works. The scope of the report shall be commensurate with the proposed development and shall reflect the latest available and accepted technological recommendations related to seismicity. The seismicity report may be combined with the soil and engineering geology reports.

N. Import and Export of Earth Material. Where an excess of five thousand (5,000) cubic yards of earth material for a project site is moved on public roadways to or from the project site as part of the grading operations, all of the following requirements shall apply:

1. Either water of dust preventative spray material (or both) shall be consistently applied for prevention of dust resulting from the loading or transportation of earth to or from the project site on public roadways. The permittee shall be responsible for maintaining public rights-of-way, used for transporting materials, in a condition free of dust, earth, or debris attributed to the grading operations.

2. Loading and transporting of earth materials to or from the site must be accomplished within the limitations established in subsection O of this section.

3. Access roads to the site shall be only at points designated on the approved grading plans.

4. At a minimum, the first fifty (50) feet of access road adjacent to the intersection with the public roadway shall have a grade not to exceed five percent. There must be a three hundred (300) foot clear, unobstructed sight distance to the intersection from both the public roadway and the access road. If the five percent grade or three hundred (300) foot sight distance requirements can not be obtained due to site constraints, then flagman shall be posted at the access road and shall remain for the entire duration of material transportation operations.

5. A stop sign conforming to the requirements of the California Vehicle Code shall be posted at the exit of the access road to the public roadway.

6. Advanced warning signs along with traffic control and safety devices shall be reviewed and approved by the city engineer and shall be posted on the public roadway in the vicinity of the access intersection as required by the current State of California Department of Transportation "Manual of Traffic Control—Warning Signs, Lights and Devices for Use in Performance of Work Upon Highways." The size, shape, color, number, spacing, and other details of all such signs and devices shall conform to the standards contained therein and in the current state of California Department of Transportation "Traffic Manual." The advanced warning signs and other devices shall be covered or removed when the access intersection is not in use.

O. Time of Grading Operations. Grading and equipment operations shall only be completed between the hours of seven a.m. to seven p.m. Monday through Friday, excluding holidays and from eight a.m. to four p.m. on Saturday. The city engineer may, however, permit grading or equipment operations before or after the allowable hours of operation if he

or she determines that such operations are not detrimental to the health, safety, or welfare of residents or the general public. Permitted hours of operations may be shortened by the city engineer's finding of a previously unforeseen effect on the health, safety, or welfare of the surrounding community.

P. Responsibility of Permittee. It shall be the responsibility of the permittee to be knowledgeable of the conditions and/or restrictions of the grading permit as outlined in applicable sections of this chapter, and as contained on the approved grading plans and in the approved geotechnical report(s). It shall also be the responsibility of the permittee to be knowledgeable with the obvious and accessible location on the site, and with a copy of the grading plans bearing the stamp or signature of approval by the city engineer. The applicant will be responsible for obtaining all clearances and permits, if any, directly from the South Coast Air Quality Management District (SCAQMD) prior to beginning grading.

Q. Haul Routes. Where excavation of embankment material is imported or exported

from one grading site to another, over public streets, whether or not either site is otherwise subject to grading permit requirements, the city engineer may specify the route to be used in transportation of the materials on public streets.

1. Deviation from the designated haul route shall constitute a violation of the condition of the permit issued under this chapter. When the city engineer does specify a route, he or she shall do so in writing on the permit document, and shall immediately notify the traffic division of the public works department as well as the traffic division of the city police department, that said haul route has been specified and approved.

2. The city engineer may further specify load limits where, in his or her opinion, the standard load capacity of vehicles used in such hauling would cause excessive damage to streets on the designated route. Any grading or hauling contractor or project site owner/permittee, moving earth materials in violation of the chapter, shall be financially responsible for any damage to the public streets caused by the hauling vehicles, and shall pay to the city of Moreno Valley the cost, as determined by the city engineer, of repairing such damage, or shall repair the damage in question to the satisfaction of the city engineer.

3. At least twenty-four (24) hours before hauling is to commence, the applicant shall be required to notify the city of Moreno Valley public works department, traffic division, and land development division as well as the city police department, traffic division. The permit may specify other necessary conditions or restrictions, where the use of public streets would disrupt the normal traffic activities or cause a public inconvenience.

R. Debris on Public Streets. Vehicle Code Section 23112(b) forbids the placing, dumping or depositing of dirt and rocks on public streets or any portion of the public right-of-way. All vehicles engaged in hauling materials under the provisions of this chapter, shall refrain from depositing dirt or debris on public streets by any means, including but not limited to, spillage from the bed of a truck or other vehicle and debris collected on the wheels of the haul vehicle. The city engineer may require a cash deposit to insure the clean-up of public streets.

S. Clean-Up. The permittee conducting any earth-moving operation under this chapter which requires vehicles to haul earth materials, including but not limited to, earth, mud, rock or other materials, on any public streets shall be responsible for the complete removal of such materials if spilled, dumped or deposited on a public street within twenty-four (24) hours of noted spill, dumping or deposition. If the permittee fails to remove such spillage, dumping or deposited material within the noted time frame, and it is necessary for the city to complete the removal, the permittee and/or property owner from where the material was removed from or deposited to, shall be liable to pay the city the full cost of such removal work. A cash deposit may be required to insure cleanup of public streets.

T. Dust Control. The contractor or permittee conducting any earth-moving or grading operation under this chapter shall be responsible for controlling dust at all times. The owner, contractor and permittee shall be responsible for implementing any and all Best Management Practices (BMPs) for all grading and earth-moving operations in accordance with the National Pollutant Discharge Elimination System (NPDES) and as required by South Coast Air Quality Management District (SCAQMD).

U. Protection of Adjoining Property. Each adjacent owner is entitled to the lateral and subjacent support which his/her land receives from the adjoining land, subject to the right of the owner of the adjoining land to make proper and usual excavations on the same for purposes of construction or improvement, under the following conditions:

1. Any owner of land or lessee intending to permit or to make an excavation greater than ten (10) feet in depth within fifty (50) feet of his or her property line(s) shall give reasonable notice to the owner or owners of land abutting the property line(s) affected by such excavation, stating the depth for which such excavation is intended to be made and when the excavation will begin.

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:13447 Study Area Photos

L1_E
33, 53' 18.270000", 117, 14' 15.180000"

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33, 53' 18.000000", 117, 14' 13.060000"

L1_S
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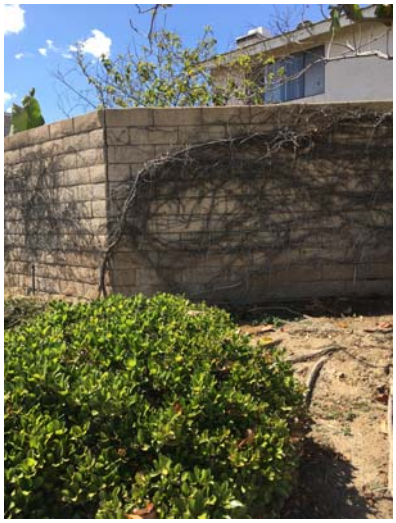

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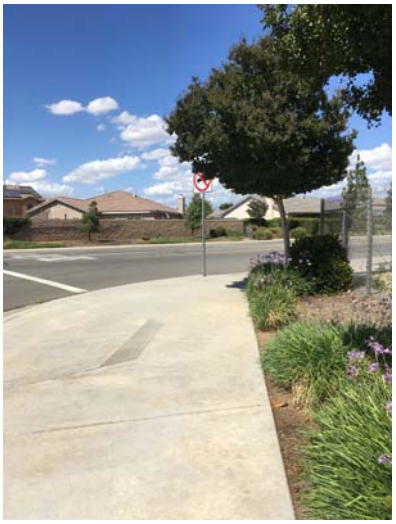

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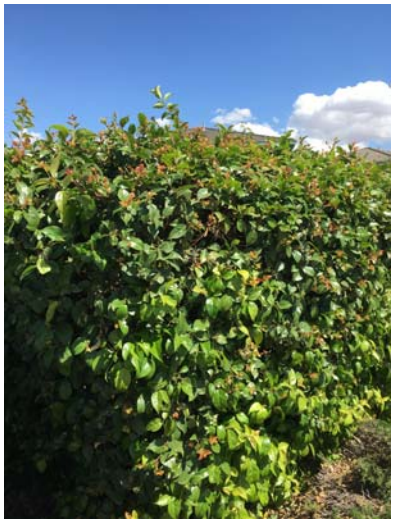
JN:13447 Study Area Photos



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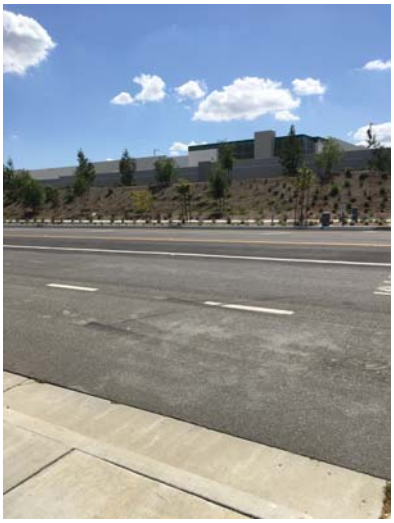

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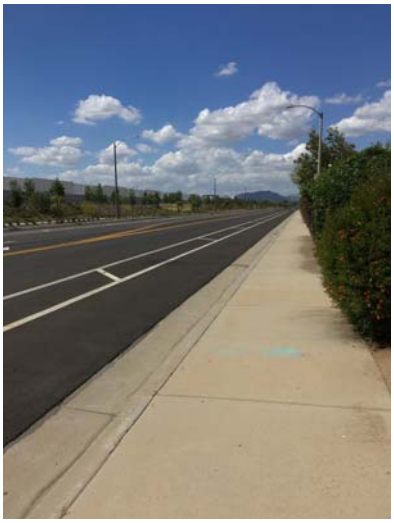

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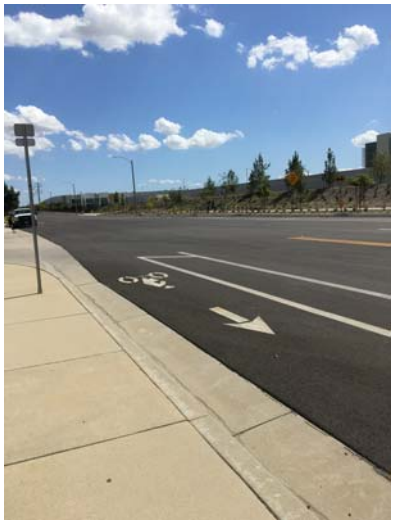

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JN:13447 Study Area Photos

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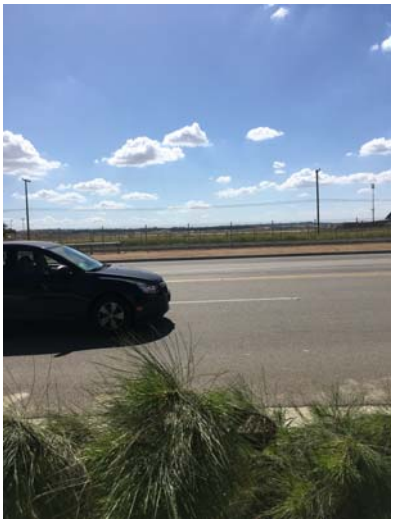

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33, 53' 0.820000", 117, 14' 36.300000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

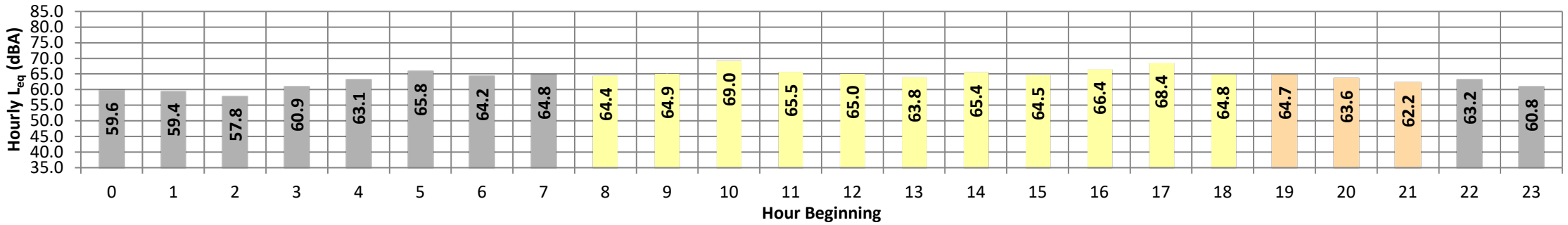
Date: Wednesday, May 20, 2020
Project: Meridian Park D-1

Location: L1 - Located north of the Project site on Iris Avenue near existing single-family residential homes at 24307 Carman Lane.

Meter: Piccolo II

JN: 13447
Analyst: P. Mara

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	59.6	71.6	51.4	71.1	70.2	66.8	63.7	56.7	53.9	52.1	51.9	51.6	59.6	10.0	69.6
	1	59.4	71.1	52.0	70.5	69.6	66.1	63.5	57.5	54.3	52.5	52.4	52.1	59.4	10.0	69.4
	2	57.8	69.7	49.2	69.2	68.2	65.0	62.6	55.1	51.7	49.8	49.6	49.3	57.8	10.0	67.8
	3	60.9	72.4	49.7	71.9	71.0	67.9	66.1	59.4	53.9	50.6	50.3	49.9	60.9	10.0	70.9
	4	63.1	74.4	48.2	73.9	73.0	70.5	68.7	61.6	54.7	49.3	48.8	48.3	63.1	10.0	73.1
	5	65.8	77.0	49.9	76.4	75.5	73.3	71.5	64.5	58.4	51.4	50.6	50.1	65.8	10.0	75.8
	6	64.2	74.9	47.4	74.5	73.6	71.2	69.7	63.8	58.0	49.1	48.3	47.6	64.2	10.0	74.2
	7	64.8	75.3	45.1	74.8	74.0	71.9	70.4	64.4	57.9	47.0	46.0	45.3	64.8	10.0	74.8
Day	8	64.4	74.6	46.1	74.2	73.5	71.7	70.2	63.9	56.5	47.9	46.8	46.2	64.4	0.0	64.4
	9	64.9	75.8	47.4	75.3	74.4	72.3	70.6	64.2	57.5	49.2	48.4	47.6	64.9	0.0	64.9
	10	69.0	82.1	48.7	81.8	80.9	76.8	72.7	64.8	58.9	51.2	50.0	48.9	69.0	0.0	69.0
	11	65.5	77.5	47.8	76.9	75.9	72.8	70.5	63.9	57.7	49.5	48.7	48.1	65.5	0.0	65.5
	12	65.0	77.7	46.5	76.9	75.6	71.9	69.9	62.5	56.6	49.9	47.7	46.7	65.0	0.0	65.0
	13	63.8	74.1	47.2	73.7	72.9	70.7	69.4	63.5	58.2	50.0	48.3	47.4	63.8	0.0	63.8
	14	65.4	77.0	48.7	76.6	75.7	72.8	70.4	63.8	58.2	50.9	49.9	49.1	65.4	0.0	65.4
	15	64.5	76.6	48.5	76.1	75.1	71.6	69.0	63.2	57.6	50.4	49.5	48.7	64.5	0.0	64.5
	16	66.4	78.1	50.3	77.6	76.6	73.7	71.9	64.2	59.5	52.7	51.5	50.5	66.4	0.0	66.4
	17	68.4	81.8	50.1	81.2	80.0	75.3	71.7	65.2	60.1	52.7	51.4	50.3	68.4	0.0	68.4
	18	64.8	75.5	48.9	75.0	74.2	72.0	70.1	64.3	58.7	51.5	50.3	49.1	64.8	0.0	64.8
Evening	19	64.7	76.7	48.1	76.0	74.9	71.9	70.0	63.3	57.4	50.2	49.2	48.3	64.7	5.0	69.7
	20	63.6	76.4	50.4	75.9	74.4	70.3	67.7	61.4	56.4	51.6	51.1	50.6	63.6	5.0	68.6
	21	62.2	73.6	50.1	73.2	72.3	69.6	67.5	60.3	55.4	51.2	50.8	50.3	62.2	5.0	67.2
Night	22	63.2	75.7	49.8	75.1	74.0	70.6	68.0	60.2	54.2	50.9	50.4	50.0	63.2	10.0	73.2
	23	60.8	73.5	50.5	73.0	71.9	68.3	65.0	57.3	53.6	51.1	50.9	50.7	60.8	10.0	70.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.8	74.1	46.1	73.7	72.9	70.7	69.0	62.5	56.5	47.9	46.8	46.2
	Max	69.0	82.1	50.3	81.8	80.9	76.8	72.7	65.2	60.1	52.7	51.5	50.5
Energy Average		66.0	Average:		76.8	75.9	72.9	70.6	64.0	58.1	50.5	49.3	48.4
Evening	Min	62.2	73.6	48.1	73.2	72.3	69.6	67.5	60.3	55.4	50.2	49.2	48.3
	Max	64.7	76.7	50.4	76.0	74.9	71.9	70.0	63.3	57.4	51.6	51.1	50.6
Energy Average		63.6	Average:		75.0	73.8	70.6	68.4	61.7	56.4	51.0	50.3	49.7
Night	Min	57.8	69.7	47.4	69.2	68.2	65.0	62.6	55.1	51.7	49.1	48.3	47.6
	Max	65.8	77.0	52.0	76.4	75.5	73.3	71.5	64.5	58.4	52.5	52.4	52.1
Energy Average		62.6	Average:		73.1	72.1	69.2	66.9	60.0	55.1	50.4	49.9	49.5

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
64.6	65.6	62.6

24-Hour CNEL (dBA)
69.7

24-Hour Noise Level Measurement Summary

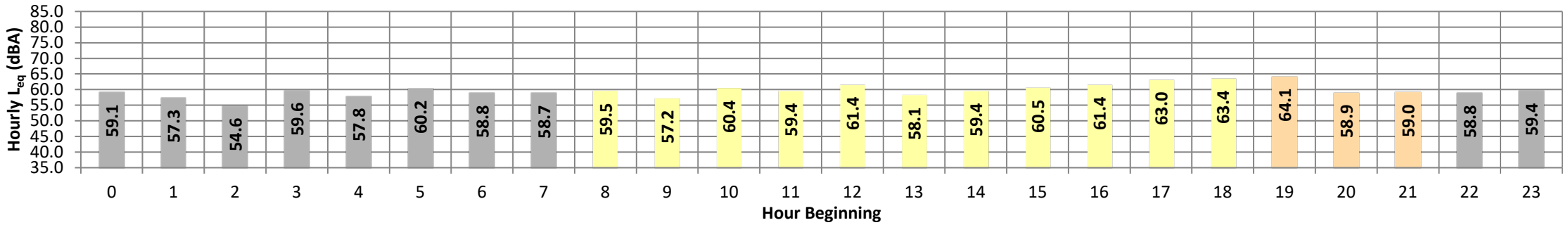
Date: Wednesday, May 20, 2020
Project: Meridian Park D-1

L2 - Located east of the Project site on Indian Street near existing single-family residential home at 16537 Libra Lane.

Meter: Piccolo II

JN: 13447
Analyst: P. Mara

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	59.1	66.2	56.5	65.9	65.3	63.6	61.3	58.6	58.1	57.2	57.1	56.7	59.1	10.0	69.1
	1	57.3	66.2	52.8	65.9	65.3	63.3	61.5	55.8	55.0	53.6	53.5	53.4	57.3	10.0	67.3
	2	54.6	65.4	41.9	64.8	64.4	62.6	61.0	50.8	45.8	42.5	42.2	42.0	54.6	10.0	64.6
	3	59.6	71.9	45.5	71.6	70.9	67.9	65.5	53.7	49.9	46.3	45.9	45.6	59.6	10.0	69.6
	4	57.8	67.5	47.3	67.1	66.5	64.6	63.0	57.4	54.0	48.5	47.9	47.4	57.8	10.0	67.8
	5	60.2	70.0	48.3	69.8	69.4	68.1	65.7	59.4	54.3	49.8	49.1	48.4	60.2	10.0	70.2
	6	58.8	69.2	47.3	68.9	68.3	66.2	63.8	57.8	53.9	48.5	47.9	47.4	58.8	10.0	68.8
	7	58.7	70.1	44.4	69.7	68.9	66.5	64.5	57.0	51.2	46.1	45.2	44.6	58.7	10.0	68.7
Day	8	59.5	71.1	45.3	70.6	70.1	67.5	64.6	57.1	51.9	46.8	46.1	45.4	59.5	0.0	59.5
	9	57.2	68.1	45.1	67.5	66.9	64.7	62.6	55.6	50.9	46.4	45.8	45.3	57.2	0.0	57.2
	10	60.4	71.2	47.3	70.7	69.9	67.6	65.9	59.1	54.8	49.4	48.5	47.6	60.4	0.0	60.4
	11	59.4	70.1	47.1	69.4	68.9	67.0	65.1	57.7	54.1	48.9	48.0	47.3	59.4	0.0	59.4
	12	61.4	71.0	46.5	70.5	70.0	68.4	67.1	62.1	55.1	48.0	47.3	46.6	61.4	0.0	61.4
	13	58.1	69.4	45.9	68.9	68.2	66.0	63.2	56.4	52.0	47.2	46.6	46.0	58.1	0.0	58.1
	14	59.4	69.8	46.7	69.4	68.8	66.7	64.8	58.4	54.6	48.5	47.8	46.9	59.4	0.0	59.4
	15	60.5	71.6	48.2	71.1	70.5	67.9	66.3	57.9	54.0	49.6	49.0	48.4	60.5	0.0	60.5
	16	61.4	73.1	48.9	72.6	72.0	69.0	66.1	59.1	55.3	50.9	49.8	49.1	61.4	0.0	61.4
	17	63.0	74.9	50.6	74.5	73.4	70.6	68.0	60.1	56.6	52.2	51.4	50.8	63.0	0.0	63.0
	18	63.4	74.8	50.2	74.4	73.7	71.5	69.6	60.2	55.9	51.7	51.1	50.4	63.4	0.0	63.4
Evening	19	64.1	76.9	51.3	76.3	75.3	71.6	68.4	60.2	56.9	52.9	52.3	51.5	64.1	5.0	69.1
	20	58.9	67.3	49.8	66.9	66.6	65.6	64.1	59.0	55.5	51.3	50.7	50.1	58.9	5.0	63.9
	21	59.0	70.4	47.9	69.9	69.3	66.7	64.3	56.5	52.6	49.1	48.6	48.1	59.0	5.0	64.0
Night	22	58.8	69.9	46.0	69.5	69.1	67.3	64.8	53.7	50.4	46.9	46.5	46.2	58.8	10.0	68.8
	23	59.4	72.3	42.6	71.7	71.4	67.5	65.0	52.0	46.2	43.3	43.0	42.7	59.4	10.0	69.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	57.2	68.1	45.1	67.5	66.9	64.7	62.6	55.6	50.9	46.4	45.8	45.3
	Max	63.4	74.9	50.6	74.5	73.7	71.5	69.6	62.1	56.6	52.2	51.4	50.8
Energy Average		60.7	Average:		70.9	70.2	67.9	65.7	58.5	54.1	49.1	48.3	47.6
Evening	Min	58.9	67.3	47.9	66.9	66.6	65.6	64.1	56.5	52.6	49.1	48.6	48.1
	Max	64.1	76.9	51.3	76.3	75.3	71.6	68.4	60.2	56.9	52.9	52.3	51.5
Energy Average		61.4	Average:		71.0	70.4	68.0	65.6	58.6	55.0	51.1	50.5	49.9
Night	Min	54.6	65.4	41.9	64.8	64.4	62.6	61.0	50.8	45.8	42.5	42.2	42.0
	Max	60.2	72.3	56.5	71.7	71.4	68.1	65.7	59.4	58.1	57.2	57.1	56.7
Energy Average		58.7	Average:		68.5	67.9	65.8	63.6	55.6	51.9	48.3	47.8	47.4

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
60.1	60.9	58.7

24-Hour CNEL (dBA)

65.9

24-Hour Noise Level Measurement Summary

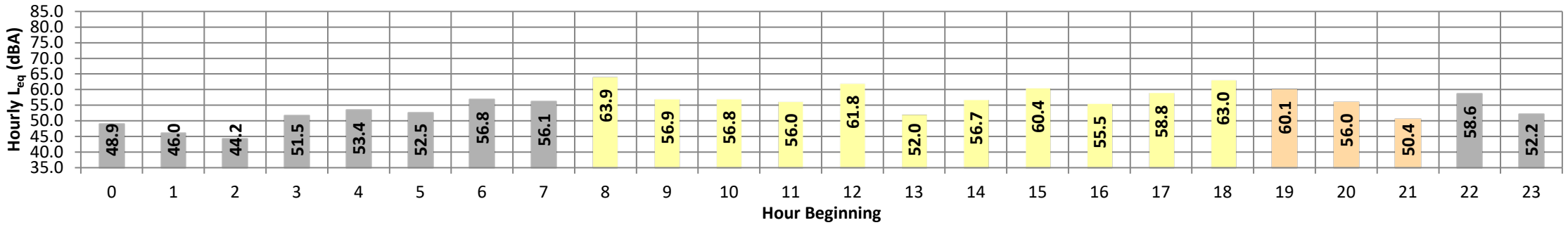
Date: Wednesday, May 20, 2020
Project: Meridian Park D-1

L3 - Located east of the Project site on Indian Street near existing single-family residential home at 16855 Baltic Court.

Meter: Piccolo II

JN: 13447
Analyst: P. Mara

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	48.9	57.6	42.6	57.3	56.8	55.0	53.3	49.0	45.3	43.2	43.0	42.8	48.9	10.0	58.9
	1	46.0	55.4	42.3	55.1	54.5	51.3	48.7	44.8	43.7	42.7	42.6	42.4	46.0	10.0	56.0
	2	44.2	50.0	42.2	49.6	48.9	47.2	46.1	44.2	43.4	42.6	42.5	42.3	44.2	10.0	54.2
	3	51.5	61.9	44.2	61.7	61.1	58.1	56.3	49.8	46.7	44.7	44.6	44.3	51.5	10.0	61.5
	4	53.4	63.8	45.6	63.4	62.9	60.6	58.4	51.3	47.6	46.1	46.0	45.7	53.4	10.0	63.4
	5	52.5	63.2	45.9	62.9	62.3	59.8	57.2	49.7	47.8	46.4	46.2	46.0	52.5	10.0	62.5
	6	56.8	69.8	44.6	69.5	68.9	64.7	61.0	49.2	46.6	45.2	45.0	44.7	56.8	10.0	66.8
	7	56.1	68.9	42.2	68.7	67.9	64.5	60.8	49.5	44.4	42.7	42.5	42.3	56.1	10.0	66.1
Day	8	63.9	77.7	42.5	77.0	76.1	73.0	67.8	49.5	44.7	43.1	42.8	42.6	63.9	0.0	63.9
	9	56.9	69.1	43.4	68.6	68.0	66.1	62.3	51.0	46.7	44.0	43.8	43.5	56.9	0.0	56.9
	10	56.8	66.7	45.3	66.4	65.8	63.6	61.4	57.1	52.4	47.0	46.2	45.5	56.8	0.0	56.8
	11	56.0	66.8	44.6	66.3	65.4	62.3	60.3	56.1	51.8	46.1	45.5	44.8	56.0	0.0	56.0
	12	61.8	70.5	44.7	70.1	69.3	67.2	66.2	62.7	58.9	49.0	46.0	44.9	61.8	0.0	61.8
	13	52.0	62.5	44.0	62.1	61.6	58.8	56.5	50.6	47.9	44.7	44.5	44.1	52.0	0.0	52.0
	14	56.7	68.8	45.2	68.1	67.1	63.7	61.3	54.6	50.7	46.7	46.2	45.4	56.7	0.0	56.7
	15	60.4	73.6	45.8	73.0	72.0	68.2	65.3	54.4	50.9	47.0	46.6	46.1	60.4	0.0	60.4
	16	55.5	66.5	46.5	65.7	64.7	61.7	59.5	55.1	51.7	47.5	47.0	46.6	55.5	0.0	55.5
	17	58.8	71.2	48.1	70.6	69.6	66.0	63.1	56.0	52.6	49.3	48.8	48.2	58.8	0.0	58.8
	18	63.0	74.9	48.4	74.7	74.3	71.7	69.0	56.0	51.7	49.3	49.0	48.6	63.0	0.0	63.0
Evening	19	60.1	71.0	50.1	70.3	69.4	66.5	64.9	59.8	54.6	51.2	50.7	50.2	60.1	5.0	65.1
	20	56.0	65.2	48.9	64.5	63.9	61.9	60.1	56.1	53.0	50.1	49.6	49.1	56.0	5.0	61.0
	21	50.4	58.8	45.8	58.6	58.3	56.6	55.0	49.8	47.7	46.2	46.1	45.9	50.4	5.0	55.4
Night	22	58.6	71.8	45.2	71.2	70.6	66.7	63.3	50.5	47.3	45.6	45.4	45.3	58.6	10.0	68.6
	23	52.2	64.2	42.8	63.8	63.1	59.7	56.9	49.0	44.8	43.3	43.1	43.0	52.2	10.0	62.2

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	52.0	62.5	42.5	62.1	61.6	58.8	56.5	49.5	44.7	43.1	42.8	42.6
	Max	63.9	77.7	48.4	77.0	76.1	73.0	69.0	62.7	58.9	49.3	49.0	48.6
Energy Average		59.6	Average:		69.3	68.5	65.7	63.0	54.8	50.9	46.7	46.0	45.5
Evening	Min	50.4	58.8	45.8	58.6	58.3	56.6	55.0	49.8	47.7	46.2	46.1	45.9
	Max	60.1	71.0	50.1	70.3	69.4	66.5	64.9	59.8	54.6	51.2	50.7	50.2
Energy Average		57.1	Average:		64.5	63.8	61.7	60.0	55.2	51.8	49.2	48.8	48.4
Night	Min	44.2	50.0	42.2	49.6	48.9	47.2	46.1	44.2	43.4	42.6	42.5	42.3
	Max	58.6	71.8	45.9	71.2	70.6	66.7	63.3	51.3	47.8	46.4	46.2	46.0
Energy Average		53.9	Average:		62.3	61.7	58.8	56.2	48.7	45.8	44.3	44.1	43.9

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
57.7	58.5	53.9

24-Hour CNEL (dBA)
61.7

24-Hour Noise Level Measurement Summary

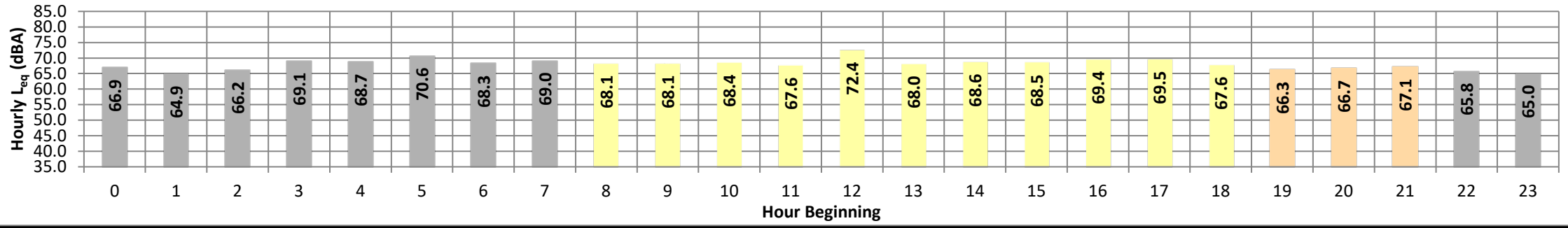
Date: Wednesday, May 20, 2020
Project: Meridian Park D-1

L4 - Located east of the Project site on Heacock Street near F&D Distribution Center.

Meter: Piccolo II

JN: 13447
Analyst: P. Mara

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	66.9	78.8	50.2	78.1	77.4	74.7	72.2	64.8	58.5	52.2	51.2	50.4	66.9	10.0	76.9
	1	64.9	76.6	47.8	76.1	75.1	72.3	70.3	63.1	56.0	48.9	48.4	47.9	64.9	10.0	74.9
	2	66.2	77.6	52.3	77.3	76.5	73.5	71.3	64.7	58.9	52.9	52.6	52.4	66.2	10.0	76.2
	3	69.1	80.7	51.3	80.1	79.2	76.3	74.2	67.7	62.4	53.3	52.1	51.5	69.1	10.0	79.1
	4	68.7	78.6	54.2	78.1	77.3	75.0	73.6	69.4	63.9	56.6	55.3	54.4	68.7	10.0	78.7
	5	70.6	80.8	56.4	80.3	79.4	77.2	75.5	70.8	66.2	58.9	57.7	56.6	70.6	10.0	80.6
	6	68.3	78.3	53.6	77.8	77.0	74.8	73.3	68.4	63.9	55.9	54.9	53.9	68.3	10.0	78.3
	7	69.0	78.5	54.4	78.1	77.3	75.3	74.2	69.4	64.5	57.1	55.8	54.6	69.0	10.0	79.0
Day	8	68.1	78.7	52.2	78.1	77.3	75.1	73.6	67.8	62.6	54.9	53.5	52.4	68.1	0.0	68.1
	9	68.1	78.4	52.8	77.9	77.2	74.8	73.1	68.0	63.1	55.6	54.4	53.1	68.1	0.0	68.1
	10	68.4	80.1	53.8	79.5	78.3	74.9	72.8	67.8	63.3	56.0	54.9	54.0	68.4	0.0	68.4
	11	67.6	78.2	54.2	77.8	77.0	74.4	72.4	67.2	62.6	56.2	55.3	54.5	67.6	0.0	67.6
	12	72.4	83.6	52.8	83.3	82.5	80.4	78.2	70.3	65.5	56.2	54.5	53.4	72.4	0.0	72.4
	13	68.0	78.7	52.0	78.2	77.3	74.7	73.0	67.5	63.1	55.5	53.4	52.2	68.0	0.0	68.0
	14	68.6	78.8	53.8	78.3	77.5	75.0	73.4	68.8	64.4	56.2	54.9	54.0	68.6	0.0	68.6
	15	68.5	79.2	53.1	78.8	78.0	75.4	73.2	68.3	63.7	55.7	54.5	53.4	68.5	0.0	68.5
	16	69.4	79.5	55.1	78.9	78.1	75.8	74.2	69.7	65.4	57.6	56.4	55.3	69.4	0.0	69.4
	17	69.5	81.4	54.8	80.7	79.6	76.3	74.2	68.3	64.0	57.1	56.1	55.1	69.5	0.0	69.5
	18	67.6	77.8	54.2	77.3	76.4	73.9	72.4	67.9	63.3	56.1	55.2	54.4	67.6	0.0	67.6
Evening	19	66.3	77.0	52.2	76.5	75.7	72.7	71.0	66.1	61.5	54.2	53.2	52.4	66.3	5.0	71.3
	20	66.7	78.3	51.9	77.8	76.9	74.1	71.6	65.1	60.0	53.7	52.8	52.1	66.7	5.0	71.7
	21	67.1	78.9	51.5	78.4	77.5	74.5	72.2	65.2	59.8	52.9	52.1	51.6	67.1	5.0	72.1
Night	22	65.8	76.8	51.6	76.3	75.5	72.4	70.6	65.3	60.1	53.2	52.5	51.7	65.8	10.0	75.8
	23	65.0	76.8	48.5	76.3	75.5	72.5	70.3	62.7	57.7	50.0	49.2	48.7	65.0	10.0	75.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	67.6	77.8	52.0	77.3	76.4	73.9	72.4	67.2	62.6	54.9	53.4	52.2
	Max	72.4	83.6	55.1	83.3	82.5	80.4	78.2	70.3	65.5	57.6	56.4	55.3
Energy Average		69.0	Average:		79.0	78.1	75.5	73.7	68.3	63.7	56.1	54.8	53.8
Evening	Min	66.3	77.0	51.5	76.5	75.7	72.7	71.0	65.1	59.8	52.9	52.1	51.6
	Max	67.1	78.9	52.2	78.4	77.5	74.5	72.2	66.1	61.5	54.2	53.2	52.4
Energy Average		66.7	Average:		77.6	76.7	73.8	71.6	65.5	60.5	53.6	52.7	52.0
Night	Min	64.9	76.6	47.8	76.1	75.1	72.3	70.3	62.7	56.0	48.9	48.4	47.9
	Max	70.6	80.8	56.4	80.3	79.4	77.2	75.5	70.8	66.2	58.9	57.7	56.6
Energy Average		67.8	Average:		77.9	77.0	74.4	72.5	66.6	61.2	53.9	53.0	52.2

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
68.3	**68.6**	**67.8**

24-Hour CNEL (dBA)

74.4

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Heacock St.
Road Segment: n/o Gentian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,451	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,895	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.16	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.26	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.07	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	68.6	66.8	60.8	69.4	70.0
Medium Trucks:	65.3	64.7	58.3	56.8	65.2	65.5
Heavy Trucks:	75.8	75.4	66.3	67.6	75.9	76.0
Vehicle Noise:	77.1	76.5	69.9	68.7	77.1	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	148	320	688	1,483
CNEL:	153	330	712	1,534

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Heacock St.
Road Segment: s/o Cardinal Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,260	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,233	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.03	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.13	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-10.93	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	66.7	64.9	58.9	67.5	68.1
Medium Trucks:	63.4	62.8	56.5	54.9	63.4	63.6
Heavy Trucks:	74.0	73.5	64.4	65.7	74.1	74.2
Vehicle Noise:	75.2	74.6	68.0	66.8	75.2	75.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	240	517	1,114
CNEL:	115	248	535	1,152

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Heacock St.
Road Segment: s/o Iris Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,212	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,148	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.34	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.44	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-11.24	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	66.4	64.6	58.6	67.2	67.8
Medium Trucks:	63.1	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	73.7	73.2	64.1	65.4	73.7	73.9
Vehicle Noise:	74.9	74.3	67.7	66.5	74.9	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	106	229	493	1,062
CNEL:	110	237	510	1,099

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Heacock St.
Road Segment: s/o Nandina Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	0	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-43.86	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	25.8	24.9	23.1	17.1	25.7	26.3
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	33.4	32.8	26.2	25.0	33.4	33.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	1	2
CNEL:	0	0	1	2

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Indian Av.
Road Segment: s/o Nandina Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,148 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	820 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.34	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-18.44	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-12.25	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	64.2	62.5	56.4	65.0	65.6
Medium Trucks:	61.1	60.5	54.2	52.6	61.1	61.3
Heavy Trucks:	72.1	71.6	62.6	63.8	72.2	72.3
Vehicle Noise:	73.2	72.6	65.8	64.8	73.2	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	72	156	335	722
CNEL:	75	161	346	745

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Cactus Av.
Road Segment: e/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,388 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	1,890 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.79	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-14.30	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-8.11	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.0	67.1	65.3	59.3	67.9	68.5
Medium Trucks:	64.2	63.6	57.2	55.7	64.2	64.4
Heavy Trucks:	75.7	75.2	66.1	67.4	75.7	75.9
Vehicle Noise:	76.6	76.0	69.0	68.3	76.6	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	566	1,220
CNEL:	126	271	584	1,258

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Cactus Av.
Road Segment: w/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,888 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	3,142 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.03	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-13.06	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-6.87	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.2	71.2	69.4	63.4	72.0	72.6
Medium Trucks:	67.9	67.3	60.9	59.4	67.9	68.1
Heavy Trucks:	78.5	78.0	68.9	70.2	78.5	78.7
Vehicle Noise:	79.7	79.1	72.5	71.3	79.7	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	244	525	1,131	2,436
CNEL:	252	543	1,169	2,519

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Harley Knox Bl.
Road Segment: e/o Patterson Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,290 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	1,397 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.03	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.13	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-9.93	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.1	65.1	63.4	57.3	65.9	66.5
Medium Trucks:	62.0	61.4	55.1	53.5	62.0	62.2
Heavy Trucks:	73.0	72.5	63.5	64.7	73.1	73.2
Vehicle Noise:	74.1	73.5	66.7	65.7	74.1	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	121	260	559	1,205
CNEL:	124	268	578	1,244

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing Without Project
Road Name: Harley Knox Bl.
Road Segment: e/o Indian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,896 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	719 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.91	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-19.01	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-12.82	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.2	62.2	60.5	54.4	63.0	63.6
Medium Trucks:	59.1	58.5	52.2	50.6	59.1	59.3
Heavy Trucks:	70.1	69.6	60.6	61.8	70.2	70.3
Vehicle Noise:	71.2	70.6	63.9	62.8	71.2	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	167	359	774
CNEL:	80	172	371	799

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak)
Road Name: Heacock St.
Road Segment: s/o Iris Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,712 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	1,189 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.70%
Medium Trucks:	84.8%	4.9%	10.3%	2.58%
Heavy Trucks:	86.5%	2.7%	10.8%	10.72%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.16	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.44	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-11.24	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	66.6	64.8	58.8	67.4	68.0
Medium Trucks:	63.1	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	73.7	73.2	64.1	65.4	73.7	73.9
Vehicle Noise:	74.9	74.3	67.8	66.5	74.9	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	107	230	495	1,067
CNEL:	110	238	512	1,104

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak)
Road Name: Heacock St.
Road Segment: n/o Gentian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,851 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	1,927 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.46%
Medium Trucks:	84.8%	4.9%	10.3%	2.62%
Heavy Trucks:	86.5%	2.7%	10.8%	10.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.08	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-15.26	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.07	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	68.7	66.9	60.8	69.5	70.1
Medium Trucks:	65.3	64.7	58.3	56.8	65.2	65.5
Heavy Trucks:	75.8	75.4	66.3	67.6	75.9	76.0
Vehicle Noise:	77.1	76.5	69.9	68.7	77.1	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	149	320	690	1,487
CNEL:	154	331	714	1,538

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak)
Road Name: Heacock St.
Road Segment: s/o Cardinal Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,986 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	1,292 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.13%
Medium Trucks:	84.8%	4.9%	10.3%	2.72%
Heavy Trucks:	86.5%	2.7%	10.8%	12.15%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.88	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.84	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-10.34	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	66.9	65.1	59.0	67.7	68.3
Medium Trucks:	63.7	63.1	56.8	55.2	63.7	63.9
Heavy Trucks:	74.6	74.1	65.0	66.3	74.6	74.8
Vehicle Noise:	75.7	75.1	68.4	67.3	75.7	75.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	558	1,203
CNEL:	124	268	577	1,243

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	0	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-43.86	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	25.8	24.9	23.1	17.1	25.7	26.3
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	33.4	32.8	26.2	25.0	33.4	33.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	1	2
CNEL:	0	0	1	2

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: w/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,088	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	3,158	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	55.0	feet
Centerline Dist. to Observer:	55.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.30%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.06	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-13.06	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-6.87	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.2	71.2	69.4	63.4	72.0	72.6
Medium Trucks:	67.9	67.3	60.9	59.4	67.9	68.1
Heavy Trucks:	78.5	78.0	68.9	70.2	78.5	78.7
Vehicle Noise:	79.7	79.1	72.5	71.3	79.7	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	244	525	1,131	2,438
CNEL:	252	543	1,170	2,521

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak) | Project Name: Gateway Aviation
Road Name: Indian Av. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,774	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	871	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	84.47%
Medium Trucks:	84.8%	4.9%	10.3%	2.77%
Heavy Trucks:	86.5%	2.7%	10.8%	12.76%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.17	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-18.01	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-11.38	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	64.4	62.6	56.6	65.2	65.8
Medium Trucks:	61.5	61.0	54.6	53.1	61.5	61.8
Heavy Trucks:	73.0	72.5	63.4	64.7	73.1	73.2
Vehicle Noise:	73.9	73.4	66.4	65.6	74.0	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	81	174	375	809
CNEL:	83	180	387	834

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: e/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,518	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,900	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.31%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.82	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-14.30	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-8.11	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	67.1	65.3	59.3	67.9	68.5
Medium Trucks:	64.2	63.6	57.2	55.7	64.2	64.4
Heavy Trucks:	75.7	75.2	66.1	67.4	75.7	75.9
Vehicle Noise:	76.6	76.1	69.1	68.3	76.6	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	567	1,221
CNEL:	126	271	584	1,259

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak)
Road Name: Harley Knox Bl.
Road Segment: e/o Patterson Av.

Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,866	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,444	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	85.13%
Medium Trucks:	84.8%	4.9%	10.3%	2.74%
Heavy Trucks:	86.5%	2.7%	10.8%	12.13%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-0.94	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-15.87	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-9.40	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.2	65.2	63.4	57.4	66.0	66.6
Medium Trucks:	62.3	61.7	55.3	53.8	62.2	62.5
Heavy Trucks:	73.5	73.0	64.0	65.3	73.6	73.7
Vehicle Noise:	74.5	74.0	67.0	66.2	74.6	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	129	278	599	1,291
CNEL:	133	287	618	1,332

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak)
Road Name: Heacock St.
Road Segment: n/o Gentian Av.

Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,040	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,942	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	86.57%
Medium Trucks:	84.8%	4.9%	10.3%	2.60%
Heavy Trucks:	86.5%	2.7%	10.8%	10.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-0.04	0.71	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-15.26	0.74	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-9.07	0.73	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	68.7	66.9	60.9	69.5	70.1
Medium Trucks:	65.3	64.7	58.3	56.8	65.2	65.5
Heavy Trucks:	75.8	75.4	66.3	67.6	75.9	76.0
Vehicle Noise:	77.1	76.5	70.0	68.7	77.1	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	149	321	691	1,488
CNEL:	154	332	715	1,539

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Non-Peak)
Road Name: Harley Knox Bl.
Road Segment: e/o Indian Av.

Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,896	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	719	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-3.91	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-19.01	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-12.82	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.2	62.2	60.5	54.4	63.0	63.6
Medium Trucks:	59.1	58.5	52.2	50.6	59.1	59.3
Heavy Trucks:	70.1	69.6	60.6	61.8	70.2	70.3
Vehicle Noise:	71.2	70.6	63.9	62.8	71.2	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	77	167	359	774
CNEL:	80	172	371	799

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak)
Road Name: Heacock St.
Road Segment: s/o Iris Av.

Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,948	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,208	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	86.91%
Medium Trucks:	84.8%	4.9%	10.3%	2.53%
Heavy Trucks:	86.5%	2.7%	10.8%	10.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-2.08	0.71	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-17.44	0.74	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-11.24	0.73	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.6	66.7	64.9	58.8	67.5	68.1
Medium Trucks:	63.1	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	73.7	73.2	64.1	65.4	73.7	73.9
Vehicle Noise:	74.9	74.3	67.8	66.5	75.0	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	107	230	496	1,069
CNEL:	111	238	514	1,107

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Cardinal Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,330	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,319	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	84.64%
Medium Trucks:	84.8%	4.9%	10.3%	2.75%
Heavy Trucks:	86.5%	2.7%	10.8%	12.61%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.82	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-16.70	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-10.08	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	66.9	65.2	59.1	67.7	68.3
Medium Trucks:	63.8	63.3	56.9	55.3	63.8	64.0
Heavy Trucks:	74.8	74.3	65.3	66.5	74.9	75.0
Vehicle Noise:	75.9	75.3	68.5	67.5	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	124	268	577	1,244
CNEL:	128	277	596	1,285

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak) | Project Name: Gateway Aviation
Road Name: Indian Av. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,071	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	895	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	83.70%
Medium Trucks:	84.8%	4.9%	10.3%	2.82%
Heavy Trucks:	86.5%	2.7%	10.8%	13.48%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.09	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-17.81	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-11.02	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	64.5	62.7	56.6	65.3	65.9
Medium Trucks:	61.7	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	73.3	72.8	63.8	65.1	73.4	73.5
Vehicle Noise:	74.2	73.7	66.6	65.9	74.3	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	183	394	848
CNEL:	87	188	406	874

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	0	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-43.86	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	25.8	24.9	23.1	17.1	25.7	26.3
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	33.4	32.8	26.2	25.0	33.4	33.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	1	2
CNEL:	0	0	1	2

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: w/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,182	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	3,166	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	55.0	feet
Centerline Dist. to Observer:	55.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.34%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.02%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.07	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-13.06	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-6.87	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.2	71.2	69.5	63.4	72.0	72.6
Medium Trucks:	67.9	67.3	60.9	59.4	67.9	68.1
Heavy Trucks:	78.5	78.0	68.9	70.2	78.5	78.7
Vehicle Noise:	79.7	79.1	72.5	71.3	79.7	79.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	244	525	1,132	2,438
CNEL:	252	543	1,171	2,522

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak)
Road Name: Cactus Av.
Road Segment: e/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,580	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,905	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.34%
Medium Trucks:	84.8%	4.9%	10.3%	2.64%
Heavy Trucks:	86.5%	2.7%	10.8%	11.01%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	0.84	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-14.30	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-8.11	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	67.1	65.3	59.3	67.9	68.5
Medium Trucks:	64.2	63.6	57.2	55.7	64.2	64.4
Heavy Trucks:	75.7	75.2	66.1	67.4	75.7	75.9
Vehicle Noise:	76.6	76.1	69.1	68.3	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	567	1,221
CNEL:	126	271	585	1,260

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak)
Road Name: Harley Knox Bl.
Road Segment: e/o Indian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,896	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	719	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-3.91	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-19.01	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-12.82	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.2	62.2	60.5	54.4	63.0	63.6
Medium Trucks:	59.1	58.5	52.2	50.6	59.1	59.3
Heavy Trucks:	70.1	69.6	60.6	61.8	70.2	70.3
Vehicle Noise:	71.2	70.6	63.9	62.8	71.2	71.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	77	167	359	774
CNEL:	80	172	371	799

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P (Peak)
Road Name: Harley Knox Bl.
Road Segment: e/o Patterson Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,140	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,466	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	84.63%
Medium Trucks:	84.8%	4.9%	10.3%	2.77%
Heavy Trucks:	86.5%	2.7%	10.8%	12.60%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-0.90	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-15.75	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-9.17	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	65.3	63.5	57.4	66.1	66.7
Medium Trucks:	62.4	61.8	55.5	53.9	62.4	62.6
Heavy Trucks:	73.8	73.3	64.2	65.5	73.8	74.0
Vehicle Noise:	74.7	74.2	67.2	66.4	74.8	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	133	287	618	1,331
CNEL:	137	296	637	1,372

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Heacock St.
Road Segment: n/o Gentian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,020	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,426	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.91	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.19	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.99	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	69.6	67.9	61.8	70.4	71.1
Medium Trucks:	66.3	65.8	59.4	57.9	66.3	66.6
Heavy Trucks:	76.9	76.4	67.4	68.6	77.0	77.1
Vehicle Noise:	78.1	77.6	71.0	69.8	78.2	78.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	175	377	812	1,749
CNEL:	181	390	839	1,808

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Heacock St.
Road Segment: s/o Iris Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,902 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,254 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.59	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.51	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.31	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	69.3	67.6	61.5	70.1	70.7
Medium Trucks:	66.0	65.4	59.1	57.5	66.0	66.2
Heavy Trucks:	76.6	76.1	67.1	68.3	76.7	76.8
Vehicle Noise:	77.8	77.2	70.6	69.4	77.8	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	167	359	773	1,666
CNEL:	172	371	799	1,722

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Heacock St.
Road Segment: s/o Nandina Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	0 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-43.86	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	25.8	24.9	23.1	17.1	25.7	26.3
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	33.4	32.8	26.2	25.0	33.4	33.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	1	2
CNEL:	0	0	1	2

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Heacock St.
Road Segment: s/o Cardinal Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,894 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,335 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.74	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.35	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.16	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	66.2	65.6	59.2	57.7	66.2	66.4
Heavy Trucks:	76.8	76.3	67.2	68.5	76.8	77.0
Vehicle Noise:	78.0	77.4	70.8	69.6	78.0	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	170	367	791	1,705
CNEL:	176	380	818	1,763

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Indian Av.
Road Segment: s/o Nandina Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,980 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,422 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.36	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.74	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-7.54	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	68.9	67.2	61.1	69.7	70.3
Medium Trucks:	65.8	65.2	58.9	57.3	65.8	66.0
Heavy Trucks:	76.8	76.3	67.3	68.5	76.9	77.0
Vehicle Noise:	77.9	77.3	70.5	69.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	149	320	690	1,486
CNEL:	153	331	712	1,535

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Cactus Av.
Road Segment: w/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	53,522	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	4,325	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	55.0	feet
Centerline Dist. to Observer:	55.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.42	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-11.68	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-5.48	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.5	72.6	70.8	64.8	73.4	74.0
Medium Trucks:	69.3	68.7	62.3	60.8	69.2	69.5
Heavy Trucks:	79.8	79.3	70.3	71.6	79.9	80.0
Vehicle Noise:	81.1	80.5	73.9	72.7	81.1	81.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	301	649	1,399	3,014
CNEL:	312	672	1,447	3,117

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Harley Knox Bl.
Road Segment: e/o Patterson Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,042	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,508	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.51	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.59	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-7.39	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	67.7	65.9	59.8	68.5	69.1
Medium Trucks:	64.6	64.0	57.6	56.1	64.5	64.8
Heavy Trucks:	75.6	75.1	66.0	67.3	75.6	75.8
Vehicle Noise:	76.6	76.1	69.3	68.3	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	178	384	826	1,780
CNEL:	184	396	853	1,838

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Cactus Av.
Road Segment: e/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,334	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,936	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.71	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-12.39	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-6.19	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	77.6	77.1	68.0	69.3	77.6	77.8
Vehicle Noise:	78.5	78.0	71.0	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	353	760	1,637
CNEL:	169	364	783	1,688

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC
Road Name: Harley Knox Bl.
Road Segment: e/o Indian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,842	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,199	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.69	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.79	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-10.59	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	64.5	62.7	56.6	65.3	65.9
Medium Trucks:	61.4	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	72.3	71.9	62.8	64.1	72.4	72.5
Vehicle Noise:	73.4	72.9	66.1	65.1	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	109	235	505	1,088
CNEL:	112	242	522	1,124

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: n/o Gentian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,420	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,458	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.41%
Medium Trucks:	84.8%	4.9%	10.3%	2.63%
Heavy Trucks:	86.5%	2.7%	10.8%	10.96%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.98	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.19	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.99	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	69.7	67.9	61.9	70.5	71.1
Medium Trucks:	66.3	65.8	59.4	57.9	66.3	66.6
Heavy Trucks:	76.9	76.4	67.4	68.6	77.0	77.1
Vehicle Noise:	78.1	77.6	71.0	69.8	78.2	78.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	175	377	813	1,752
CNEL:	181	390	841	1,812

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Cardinal Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,620	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,393	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.64%
Medium Trucks:	84.8%	4.9%	10.3%	2.70%
Heavy Trucks:	86.5%	2.7%	10.8%	11.67%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.82	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.20	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.84	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	69.6	67.8	61.7	70.4	71.0
Medium Trucks:	66.3	65.8	59.4	57.9	66.3	66.5
Heavy Trucks:	77.1	76.6	67.5	68.8	77.1	77.3
Vehicle Noise:	78.2	77.7	71.0	69.9	78.3	78.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	178	383	825	1,777
CNEL:	184	396	853	1,837

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Iris Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,402	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,295	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.47%
Medium Trucks:	84.8%	4.9%	10.3%	2.62%
Heavy Trucks:	86.5%	2.7%	10.8%	10.91%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.68	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.51	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.31	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.4	67.7	61.6	70.2	70.8
Medium Trucks:	66.0	65.4	59.1	57.5	66.0	66.2
Heavy Trucks:	76.6	76.1	67.1	68.3	76.7	76.8
Vehicle Noise:	77.8	77.2	70.7	69.4	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	167	360	775	1,669
CNEL:	173	372	801	1,727

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	0	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-43.86	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	25.8	24.9	23.1	17.1	25.7	26.3
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	33.4	32.8	26.2	25.0	33.4	33.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	1	2
CNEL:	0	0	1	2

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Indian Av. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,606	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,473	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.61%
Medium Trucks:	84.8%	4.9%	10.3%	2.70%
Heavy Trucks:	86.5%	2.7%	10.8%	11.68%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.42	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.59	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-7.23	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	66.0	65.4	59.0	57.5	65.9	66.2
Heavy Trucks:	77.1	76.6	67.6	68.8	77.2	77.3
Vehicle Noise:	78.2	77.6	70.7	69.8	78.2	78.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	155	333	718	1,548
CNEL:	160	344	741	1,597

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: e/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,464	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,946	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.28%
Medium Trucks:	84.8%	4.9%	10.3%	2.66%
Heavy Trucks:	86.5%	2.7%	10.8%	11.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.73	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-12.39	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-6.19	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	77.6	77.1	68.0	69.3	77.6	77.8
Vehicle Noise:	78.5	78.0	71.0	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	353	760	1,638
CNEL:	169	364	784	1,689

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: w/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	53,722	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	4,341	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	55.0	feet
Centerline Dist. to Observer:	55.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.28%
Medium Trucks:	84.8%	4.9%	10.3%	2.66%
Heavy Trucks:	86.5%	2.7%	10.8%	11.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.44	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-11.68	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-5.48	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	72.6	70.8	64.8	73.4	74.0
Medium Trucks:	69.3	68.7	62.3	60.8	69.2	69.5
Heavy Trucks:	79.8	79.3	70.3	71.6	79.9	80.0
Vehicle Noise:	81.1	80.5	73.9	72.7	81.1	81.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	302	650	1,400	3,016
CNEL:	312	672	1,448	3,119

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Harley Knox Bl. | Job Number: 13445
Road Segment: e/o Patterson Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,618	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,555	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.61%
Medium Trucks:	84.8%	4.9%	10.3%	2.71%
Heavy Trucks:	86.5%	2.7%	10.8%	11.68%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.56	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.44	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-7.09	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	67.7	66.0	59.9	68.5	69.1
Medium Trucks:	64.7	64.1	57.8	56.2	64.7	64.9
Heavy Trucks:	75.9	75.4	66.3	67.6	75.9	76.1
Vehicle Noise:	76.9	76.3	69.5	68.5	76.9	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	185	399	859	1,851
CNEL:	191	412	887	1,911

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (Non-Peak) | Project Name: Gateway Aviation
Road Name: Harley Knox Bl. | Job Number: 13445
Road Segment: e/o Indian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,842 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	1,199 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.69	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.79	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-10.59	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	64.5	62.7	56.6	65.3	65.9
Medium Trucks:	61.4	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	72.3	71.9	62.8	64.1	72.4	72.5
Vehicle Noise:	73.4	72.9	66.1	65.1	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	109	235	505	1,088
CNEL:	112	242	522	1,124

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Iris Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,638 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,314 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.59%
Medium Trucks:	84.8%	4.9%	10.3%	2.60%
Heavy Trucks:	86.5%	2.7%	10.8%	10.82%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.72	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.51	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.31	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.5	67.7	61.6	70.3	70.9
Medium Trucks:	66.0	65.4	59.1	57.5	66.0	66.2
Heavy Trucks:	76.6	76.1	67.1	68.3	76.7	76.8
Vehicle Noise:	77.8	77.3	70.7	69.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	167	360	776	1,671
CNEL:	173	372	802	1,729

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: n/o Gentian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,609 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,473 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.50%
Medium Trucks:	84.8%	4.9%	10.3%	2.61%
Heavy Trucks:	86.5%	2.7%	10.8%	10.89%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.01	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.19	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.99	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	69.7	68.0	61.9	70.5	71.2
Medium Trucks:	66.3	65.8	59.4	57.9	66.3	66.6
Heavy Trucks:	76.9	76.4	67.4	68.6	77.0	77.1
Vehicle Noise:	78.2	77.6	71.0	69.8	78.2	78.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	175	378	814	1,753
CNEL:	181	391	842	1,814

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Cardinal Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,965 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,421 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.36%
Medium Trucks:	84.8%	4.9%	10.3%	2.71%
Heavy Trucks:	86.5%	2.7%	10.8%	11.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.86	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.12	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.69	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	69.6	67.8	61.8	70.4	71.0
Medium Trucks:	66.4	65.8	59.5	57.9	66.4	66.6
Heavy Trucks:	77.2	76.7	67.7	68.9	77.3	77.4
Vehicle Noise:	78.4	77.8	71.1	70.0	78.4	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	181	390	841	1,811
CNEL:	187	403	869	1,872

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	0 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-43.86	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	25.8	24.9	23.1	17.1	25.7	26.3
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	33.4	32.8	26.2	25.0	33.4	33.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	1	2
CNEL:	0	0	1	2

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: w/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	53,816 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	4,348 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.31%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.45	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-11.68	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-5.48	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	72.6	70.8	64.8	73.4	74.0
Medium Trucks:	69.3	68.7	62.3	60.8	69.2	69.5
Heavy Trucks:	79.8	79.3	70.3	71.6	79.9	80.0
Vehicle Noise:	81.1	80.5	73.9	72.7	81.1	81.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	302	650	1,400	3,016
CNEL:	312	672	1,448	3,119

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | Project Name: Gateway Aviation
Road Name: Indian Av. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,903 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,497 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.32%
Medium Trucks:	84.8%	4.9%	10.3%	2.72%
Heavy Trucks:	86.5%	2.7%	10.8%	11.95%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.45	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.51	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-7.09	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	66.0	65.5	59.1	57.6	66.0	66.3
Heavy Trucks:	77.3	76.8	67.7	69.0	77.3	77.5
Vehicle Noise:	78.3	77.7	70.8	69.9	78.3	78.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	158	340	732	1,577
CNEL:	163	350	755	1,627

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: e/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,526 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,951 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.30%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	2.73	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-12.39	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-6.19	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	69.0	67.2	61.2	69.8	70.4
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	77.6	77.1	68.0	69.3	77.6	77.8
Vehicle Noise:	78.5	78.0	71.0	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	353	760	1,638
CNEL:	169	364	784	1,689

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | *Project Name:* Gateway Aviation
Road Name: Harley Knox Bl. | *Job Number:* 13445
Road Segment: e/o Patterson Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,891	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,577	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	85.32%
Medium Trucks:	84.8%	4.9%	10.3%	2.73%
Heavy Trucks:	86.5%	2.7%	10.8%	11.95%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.58	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-13.37	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-6.95	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.7	67.7	66.0	59.9	68.5	69.1
Medium Trucks:	64.8	64.2	57.8	56.3	64.7	65.0
Heavy Trucks:	76.0	75.5	66.5	67.7	76.1	76.2
Vehicle Noise:	77.0	76.4	69.5	68.6	77.0	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	188	406	875	1,885
CNEL:	194	419	903	1,944

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext. | *Project Name:* Gateway Aviation
Road Name: Heacock St. | *Job Number:* 13445
Road Segment: n/o Gentian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,022	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,668	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.32	0.71	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-13.77	0.74	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-7.58	0.73	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.0	70.1	68.3	62.2	70.9	71.5
Medium Trucks:	66.8	66.2	59.8	58.3	66.7	67.0
Heavy Trucks:	77.3	76.8	67.8	69.1	77.4	77.5
Vehicle Noise:	78.5	78.0	71.4	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	186	401	865	1,863
CNEL:	193	415	894	1,927

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (Peak) | *Project Name:* Gateway Aviation
Road Name: Harley Knox Bl. | *Job Number:* 13445
Road Segment: e/o Indian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,842	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,199	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-1.69	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-16.79	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-10.59	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.4	64.5	62.7	56.6	65.3	65.9
Medium Trucks:	61.4	60.8	54.4	52.9	61.3	61.6
Heavy Trucks:	72.3	71.9	62.8	64.1	72.4	72.5
Vehicle Noise:	73.4	72.9	66.1	65.1	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	109	235	505	1,088
CNEL:	112	242	522	1,124

Tuesday, December 8, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext. | *Project Name:* Gateway Aviation
Road Name: Heacock St. | *Job Number:* 13445
Road Segment: s/o Iris Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,473	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,301	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.68	0.71	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-14.42	0.74	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-8.22	0.73	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.4	69.4	67.7	61.6	70.2	70.8
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	76.7	76.2	67.2	68.4	76.8	76.9
Vehicle Noise:	77.9	77.3	70.7	69.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	169	364	784	1,688
CNEL:	175	376	810	1,746

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext.
Road Name: Heacock St.
Road Segment: s/o Cardinal Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,784	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,568	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.16	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.94	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.75	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	69.9	68.1	62.1	70.7	71.3
Medium Trucks:	66.6	66.0	59.7	58.1	66.6	66.8
Heavy Trucks:	77.2	76.7	67.6	68.9	77.2	77.4
Vehicle Noise:	78.4	77.8	71.2	70.0	78.4	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	182	391	843	1,817
CNEL:	188	405	872	1,879

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext.
Road Name: Indian Av.
Road Segment: s/o Nandina Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,978	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,665	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.78	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.32	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-7.13	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	69.3	67.6	61.5	70.1	70.7
Medium Trucks:	66.2	65.7	59.3	57.7	66.2	66.4
Heavy Trucks:	77.2	76.7	67.7	69.0	77.3	77.4
Vehicle Noise:	78.3	77.7	71.0	69.9	78.3	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	158	341	735	1,584
CNEL:	164	352	759	1,635

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext.
Road Name: Heacock St.
Road Segment: s/o Nandina Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	0	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-43.86	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	25.8	24.9	23.1	17.1	25.7	26.3
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	33.4	32.8	26.2	25.0	33.4	33.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	0	0	1	2
CNEL:	0	0	1	2

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext.
Road Name: Cactus Av.
Road Segment: w/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	58,874	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	4,757	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.83	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-11.26	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-5.07	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.0	73.0	71.2	65.2	73.8	74.4
Medium Trucks:	69.7	69.1	62.7	61.2	69.7	69.9
Heavy Trucks:	80.3	79.8	70.7	72.0	80.3	80.5
Vehicle Noise:	81.5	80.9	74.3	73.1	81.5	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	321	692	1,491	3,212
CNEL:	332	716	1,542	3,321

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext. | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: e/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,968	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	3,229	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.12	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-11.98	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-5.78	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	66.5	65.9	59.6	58.0	66.5	66.7
Heavy Trucks:	78.0	77.5	68.5	69.7	78.1	78.2
Vehicle Noise:	78.9	78.4	71.4	70.6	79.0	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	174	376	810	1,744
CNEL:	180	388	835	1,799

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext. | Project Name: Gateway Aviation
Road Name: Harley Knox Bl. | Job Number: 13445
Road Segment: e/o Indian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,326	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,319	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.28	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.38	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-10.18	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	64.9	63.1	57.1	65.7	66.3
Medium Trucks:	61.8	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	72.8	72.3	63.2	64.5	72.8	73.0
Vehicle Noise:	73.8	73.3	66.5	65.5	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	116	250	538	1,160
CNEL:	120	258	556	1,198

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/o ext. | Project Name: Gateway Aviation
Road Name: Harley Knox Bl. | Job Number: 13445
Road Segment: e/o Patterson Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,146	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,759	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.93	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.17	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-6.98	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	65.0	64.4	58.0	56.5	64.9	65.2
Heavy Trucks:	76.0	75.5	66.4	67.7	76.0	76.2
Vehicle Noise:	77.0	76.5	69.7	68.7	77.1	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	190	409	880	1,897
CNEL:	196	422	909	1,959

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: n/o Gentian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,372	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,696	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.38%
Medium Trucks:	84.8%	4.9%	10.3%	2.64%
Heavy Trucks:	86.5%	2.7%	10.8%	10.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.38	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.77	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.58	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	70.1	68.3	62.3	70.9	71.5
Medium Trucks:	66.8	66.2	59.8	58.3	66.7	67.0
Heavy Trucks:	77.3	76.8	67.8	69.1	77.4	77.5
Vehicle Noise:	78.6	78.0	71.4	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	187	402	866	1,866
CNEL:	193	416	896	1,930

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Iris Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,923 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,337 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.45%
Medium Trucks:	84.8%	4.9%	10.3%	2.62%
Heavy Trucks:	86.5%	2.7%	10.8%	10.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.76	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.42	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.22	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	76.7	76.2	67.2	68.4	76.8	76.9
Vehicle Noise:	77.9	77.3	70.8	69.5	77.9	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	169	364	785	1,692
CNEL:	175	377	812	1,750

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	451 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	36 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	99.97%
Medium Trucks:	84.8%	4.9%	10.3%	0.01%
Heavy Trucks:	86.5%	2.7%	10.8%	0.02%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-16.68	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.0	52.1	50.3	44.2	52.9	53.5
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	53.1	52.1	50.3	44.3	52.9	53.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	8	17	36
CNEL:	4	9	18	40

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Cardinal Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,560 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,631 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.71%
Medium Trucks:	84.8%	4.9%	10.3%	2.69%
Heavy Trucks:	86.5%	2.7%	10.8%	11.60%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.24	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.80	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.45	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	70.0	68.2	62.2	70.8	71.4
Medium Trucks:	66.7	66.2	59.8	58.3	66.7	66.9
Heavy Trucks:	77.5	77.0	67.9	69.2	77.5	77.7
Vehicle Noise:	78.6	78.0	71.4	70.2	78.7	78.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	189	407	876	1,887
CNEL:	195	420	905	1,951

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Indian Av. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,304 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,691 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	36 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.54%
Medium Trucks:	84.8%	4.9%	10.3%	2.72%
Heavy Trucks:	86.5%	2.7%	10.8%	11.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.78	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.19	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-6.84	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	69.3	67.6	61.5	70.1	70.8
Medium Trucks:	66.4	65.8	59.4	57.9	66.3	66.6
Heavy Trucks:	77.5	77.0	68.0	69.2	77.6	77.7
Vehicle Noise:	78.5	78.0	71.1	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	354	762	1,642
CNEL:	169	365	786	1,694

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: w/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,024 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	4,769 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	73 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.27%
Medium Trucks:	84.8%	4.9%	10.3%	2.66%
Heavy Trucks:	86.5%	2.7%	10.8%	11.07%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.85	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-11.26	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-5.07	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.0	73.0	71.2	65.2	73.8	74.4
Medium Trucks:	69.7	69.1	62.7	61.2	69.7	69.9
Heavy Trucks:	80.3	79.8	70.7	72.0	80.3	80.5
Vehicle Noise:	81.5	80.9	74.3	73.1	81.5	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	321	692	1,491	3,213
CNEL:	332	716	1,542	3,323

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Harley Knox Bl. | Job Number: 13445
Road Segment: e/o Patterson Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,772 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,810 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.69%
Medium Trucks:	84.8%	4.9%	10.3%	2.70%
Heavy Trucks:	86.5%	2.7%	10.8%	11.61%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.98	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.04	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-6.70	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	68.1	66.4	60.3	68.9	69.5
Medium Trucks:	65.1	64.5	58.2	56.6	65.1	65.3
Heavy Trucks:	76.2	75.7	66.7	68.0	76.3	76.4
Vehicle Noise:	77.3	76.7	69.9	68.9	77.3	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	197	424	913	1,966
CNEL:	203	437	942	2,029

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: e/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,098 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	3,240 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.28%
Medium Trucks:	84.8%	4.9%	10.3%	2.66%
Heavy Trucks:	86.5%	2.7%	10.8%	11.07%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.14	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-11.98	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-5.78	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	66.5	65.9	59.6	58.0	66.5	66.7
Heavy Trucks:	78.0	77.5	68.5	69.7	78.1	78.2
Vehicle Noise:	78.9	78.4	71.4	70.6	79.0	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	175	376	810	1,745
CNEL:	180	388	835	1,799

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Harley Knox Bl. | Job Number: 13445
Road Segment: e/o Indian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,426 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	1,327 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.32%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.03%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.25	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.38	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-10.18	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	64.9	63.1	57.1	65.7	66.3
Medium Trucks:	61.8	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	72.8	72.3	63.2	64.5	72.8	73.0
Vehicle Noise:	73.8	73.3	66.5	65.5	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	116	250	539	1,161
CNEL:	120	258	556	1,199

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Heacock St.
Road Segment: n/o Gentian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,537 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,710 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.44%
Medium Trucks:	84.8%	4.9%	10.3%	2.63%
Heavy Trucks:	86.5%	2.7%	10.8%	10.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.40	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.77	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.58	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	70.1	68.4	62.3	70.9	71.5
Medium Trucks:	66.8	66.2	59.8	58.3	66.7	67.0
Heavy Trucks:	77.3	76.8	67.8	69.1	77.4	77.5
Vehicle Noise:	78.6	78.0	71.4	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	187	402	867	1,867
CNEL:	193	416	896	1,931

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Heacock St.
Road Segment: s/o Cardinal Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,928 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,661 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.47%
Medium Trucks:	84.8%	4.9%	10.3%	2.70%
Heavy Trucks:	86.5%	2.7%	10.8%	11.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.27	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.73	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.32	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	70.0	68.2	62.2	70.8	71.4
Medium Trucks:	66.8	66.2	59.9	58.3	66.8	67.0
Heavy Trucks:	77.6	77.1	68.1	69.3	77.7	77.8
Vehicle Noise:	78.7	78.2	71.5	70.4	78.8	79.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	192	414	891	1,921
CNEL:	198	428	921	1,985

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Heacock St.
Road Segment: s/o Iris Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,135 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,354 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.55%
Medium Trucks:	84.8%	4.9%	10.3%	2.61%
Heavy Trucks:	86.5%	2.7%	10.8%	10.85%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.80	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.42	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.22	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	69.5	67.8	61.7	70.3	70.9
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	76.7	76.2	67.2	68.4	76.8	76.9
Vehicle Noise:	77.9	77.3	70.8	69.5	77.9	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	169	365	786	1,693
CNEL:	175	377	813	1,752

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Heacock St.
Road Segment: s/o Nandina Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	663 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	54 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	99.98%
Medium Trucks:	84.8%	4.9%	10.3%	0.00%
Heavy Trucks:	86.5%	2.7%	10.8%	0.02%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-15.00	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-58.96	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-52.77	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.7	53.7	52.0	45.9	54.5	55.1
Medium Trucks:	21.6	21.0	14.6	13.1	21.5	21.8
Heavy Trucks:	32.1	31.6	22.6	23.9	32.2	32.3
Vehicle Noise:	54.7	53.8	52.0	45.9	54.6	55.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	5	10	22	47
CNEL:	5	11	24	51

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Indian Av.
Road Segment: s/o Nandina Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,460	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,704	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	85.21%
Medium Trucks:	84.8%	4.9%	10.3%	2.75%
Heavy Trucks:	86.5%	2.7%	10.8%	12.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	1.79	1.28	-1.20	*-4.61*	0.000	0.000
Medium Trucks:	79.45	-13.12	1.31	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	84.25	-6.71	1.31	-1.20	*-5.50*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	69.4	67.6	61.5	70.2	70.8
Medium Trucks:	66.4	65.9	59.5	58.0	66.4	66.6
Heavy Trucks:	77.6	77.2	68.1	69.4	77.7	77.8
Vehicle Noise:	78.7	78.1	71.2	70.3	78.7	78.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	167	360	775	1,669
CNEL:	172	371	799	1,722

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Cactus Av.
Road Segment: e/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,159	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	3,245	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	86.30%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.05%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	3.15	1.94	-1.20	*-4.61*	0.000	0.000
Medium Trucks:	77.72	-11.98	1.98	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	82.99	-5.78	1.98	-1.20	*-5.50*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.4	69.4	67.7	61.6	70.2	70.8
Medium Trucks:	66.5	65.9	59.6	58.0	66.5	66.7
Heavy Trucks:	78.0	77.5	68.5	69.7	78.1	78.2
Vehicle Noise:	78.9	78.4	71.4	70.6	79.0	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	175	376	810	1,745
CNEL:	180	388	835	1,800

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Cactus Av.
Road Segment: w/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,095	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	4,775	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	55.0	feet
Centerline Dist. to Observer:	55.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	86.28%
Medium Trucks:	84.8%	4.9%	10.3%	2.66%
Heavy Trucks:	86.5%	2.7%	10.8%	11.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	3.85	1.12	-1.20	*-4.67*	0.000	0.000
Medium Trucks:	81.00	-11.26	1.15	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-5.07	1.15	-1.20	*-5.38*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	74.0	73.0	71.2	65.2	73.8	74.4
Medium Trucks:	69.7	69.1	62.7	61.2	69.7	69.9
Heavy Trucks:	80.3	79.8	70.7	72.0	80.3	80.5
Vehicle Noise:	81.5	80.9	74.3	73.1	81.5	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	321	692	1,492	3,213
CNEL:	332	716	1,543	3,323

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Harley Knox Bl.
Road Segment: e/o Patterson Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,069	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,834	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	85.43%
Medium Trucks:	84.8%	4.9%	10.3%	2.72%
Heavy Trucks:	86.5%	2.7%	10.8%	11.85%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	2.00	-0.13	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	79.45	-12.98	-0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	84.25	-6.58	-0.11	-1.20	*-5.31*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.1	68.2	66.4	60.3	69.0	69.6
Medium Trucks:	65.2	64.6	58.2	56.7	65.1	65.4
Heavy Trucks:	76.4	75.9	66.8	68.1	76.4	76.6
Vehicle Noise:	77.4	76.8	69.9	69.0	77.4	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	200	431	928	1,999
CNEL:	206	444	957	2,062

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/o ext. (Peak)
Road Name: Harley Knox Bl.
Road Segment: e/o Indian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,473	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,331	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.36%
Medium Trucks:	84.8%	4.9%	10.3%	2.64%
Heavy Trucks:	86.5%	2.7%	10.8%	11.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.23	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.38	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-10.18	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	64.9	63.2	57.1	65.7	66.3
Medium Trucks:	61.8	61.2	54.8	53.3	61.7	62.0
Heavy Trucks:	72.8	72.3	63.2	64.5	72.8	73.0
Vehicle Noise:	73.9	73.3	66.5	65.5	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	116	250	539	1,161
CNEL:	120	258	557	1,199

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext.
Road Name: Heacock St.
Road Segment: s/o Iris Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,473	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,301	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.68	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.42	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.22	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.4	67.7	61.6	70.2	70.8
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	76.7	76.2	67.2	68.4	76.8	76.9
Vehicle Noise:	77.9	77.3	70.7	69.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	169	364	784	1,688
CNEL:	175	376	810	1,746

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext.
Road Name: Heacock St.
Road Segment: n/o Gentian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,022	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,668	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.32	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.77	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.58	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	70.1	68.3	62.2	70.9	71.5
Medium Trucks:	66.8	66.2	59.8	58.3	66.7	67.0
Heavy Trucks:	77.3	76.8	67.8	69.1	77.4	77.5
Vehicle Noise:	78.5	78.0	71.4	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	186	401	865	1,863
CNEL:	193	415	894	1,927

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext.
Road Name: Heacock St.
Road Segment: s/o Cardinal Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,784	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,568	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.16	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.94	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.75	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	69.9	68.1	62.1	70.7	71.3
Medium Trucks:	66.6	66.0	59.7	58.1	66.6	66.8
Heavy Trucks:	77.2	76.7	67.6	68.9	77.2	77.4
Vehicle Noise:	78.4	77.8	71.2	70.0	78.4	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	182	391	843	1,817
CNEL:	188	405	872	1,879

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext. | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,626	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,182	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.21	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.31	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-11.12	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	66.5	64.8	58.7	67.3	67.9
Medium Trucks:	63.2	62.6	56.3	54.7	63.2	63.4
Heavy Trucks:	73.8	73.3	64.3	65.5	73.9	74.0
Vehicle Noise:	75.0	74.4	67.8	66.6	75.0	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	108	233	503	1,083
CNEL:	112	241	520	1,120

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext. | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: w/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	58,874	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	4,757	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.83	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-11.26	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-5.07	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.0	73.0	71.2	65.2	73.8	74.4
Medium Trucks:	69.7	69.1	62.7	61.2	69.7	69.9
Heavy Trucks:	80.3	79.8	70.7	72.0	80.3	80.5
Vehicle Noise:	81.5	80.9	74.3	73.1	81.5	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	321	692	1,491	3,212
CNEL:	332	716	1,542	3,321

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext. | Project Name: Gateway Aviation
Road Name: Indian Av. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,978	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,261	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.06	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-14.04	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-7.84	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	68.6	66.9	60.8	69.4	70.0
Medium Trucks:	65.5	64.9	58.6	57.0	65.5	65.7
Heavy Trucks:	76.5	76.0	67.0	68.2	76.6	76.7
Vehicle Noise:	77.6	77.0	70.2	69.2	77.6	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	142	306	659	1,419
CNEL:	147	316	680	1,466

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext. | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: e/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,968	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	3,229	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.12	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-11.98	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-5.78	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	66.5	65.9	59.6	58.0	66.5	66.7
Heavy Trucks:	78.0	77.5	68.5	69.7	78.1	78.2
Vehicle Noise:	78.9	78.4	71.4	70.6	79.0	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	174	376	810	1,744
CNEL:	180	388	835	1,799

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext.
Road Name: Harley Knox Bl.
Road Segment: e/o Patterson Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,146 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,759 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.93	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.17	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-6.98	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	68.1	66.3	60.3	68.9	69.5
Medium Trucks:	65.0	64.4	58.0	56.5	64.9	65.2
Heavy Trucks:	76.0	75.5	66.4	67.7	76.0	76.2
Vehicle Noise:	77.0	76.5	69.7	68.7	77.1	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	190	409	880	1,897
CNEL:	196	422	909	1,959

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak)
Road Name: Heacock St.
Road Segment: n/o Gentian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,372 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,696 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.38%
Medium Trucks:	84.8%	4.9%	10.3%	2.64%
Heavy Trucks:	86.5%	2.7%	10.8%	10.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.38	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.77	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.58	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	70.1	68.3	62.3	70.9	71.5
Medium Trucks:	66.8	66.2	59.8	58.3	66.7	67.0
Heavy Trucks:	77.3	76.8	67.8	69.1	77.4	77.5
Vehicle Noise:	78.6	78.0	71.4	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	187	402	866	1,866
CNEL:	193	416	896	1,930

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY 2040 w/ext.
Road Name: Harley Knox Bl.
Road Segment: e/o Indian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,647 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	1,345 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	80 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.23%
Medium Trucks:	84.8%	4.9%	10.3%	2.67%
Heavy Trucks:	86.5%	2.7%	10.8%	11.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.19	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.29	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-10.10	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.9	65.0	63.2	57.1	65.8	66.4
Medium Trucks:	61.9	61.3	54.9	53.4	61.8	62.1
Heavy Trucks:	72.8	72.4	63.3	64.6	72.9	73.0
Vehicle Noise:	73.9	73.4	66.6	65.6	74.0	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	253	545	1,175
CNEL:	121	261	563	1,213

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak)
Road Name: Heacock St.
Road Segment: s/o Iris Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,923 vehicles
Peak Hour Percentage:	8.08%
Peak Hour Volume:	2,337 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	48 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.45%
Medium Trucks:	84.8%	4.9%	10.3%	2.62%
Heavy Trucks:	86.5%	2.7%	10.8%	10.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.76	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.42	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.22	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	69.5	67.7	61.7	70.3	70.9
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	76.7	76.2	67.2	68.4	76.8	76.9
Vehicle Noise:	77.9	77.3	70.8	69.5	77.9	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	169	364	785	1,692
CNEL:	175	377	812	1,750

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Cardinal Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,560	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,631	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.71%
Medium Trucks:	84.8%	4.9%	10.3%	2.69%
Heavy Trucks:	86.5%	2.7%	10.8%	11.60%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.24	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.80	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.45	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	70.0	68.2	62.2	70.8	71.4
Medium Trucks:	66.7	66.2	59.8	58.3	66.7	66.9
Heavy Trucks:	77.5	77.0	67.9	69.2	77.5	77.7
Vehicle Noise:	78.6	78.0	71.4	70.2	78.7	78.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	189	407	876	1,887
CNEL:	195	420	905	1,951

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Indian Av. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,304	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,287	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.42%
Medium Trucks:	84.8%	4.9%	10.3%	2.73%
Heavy Trucks:	86.5%	2.7%	10.8%	11.85%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.07	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.88	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-7.51	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	68.6	66.9	60.8	69.4	70.0
Medium Trucks:	65.7	65.1	58.7	57.2	65.7	65.9
Heavy Trucks:	76.9	76.4	67.3	68.6	76.9	77.1
Vehicle Noise:	77.9	77.3	70.4	69.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	148	319	687	1,481
CNEL:	153	329	709	1,528

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,076	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,218	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.64%
Medium Trucks:	84.8%	4.9%	10.3%	2.59%
Heavy Trucks:	86.5%	2.7%	10.8%	10.77%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-2.06	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.31	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-11.12	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	66.7	64.9	58.9	67.5	68.1
Medium Trucks:	63.2	62.6	56.3	54.7	63.2	63.4
Heavy Trucks:	73.8	73.3	64.3	65.5	73.9	74.0
Vehicle Noise:	75.0	74.5	67.9	66.7	75.1	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	109	234	505	1,087
CNEL:	112	242	522	1,125

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak) | Project Name: Gateway Aviation
Road Name: Cactus Av. | Job Number: 13445
Road Segment: w/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,024	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	4,769	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	55.0 feet
Centerline Dist. to Observer:	55.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.27%
Medium Trucks:	84.8%	4.9%	10.3%	2.66%
Heavy Trucks:	86.5%	2.7%	10.8%	11.07%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.85	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-11.26	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-5.07	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.0	73.0	71.2	65.2	73.8	74.4
Medium Trucks:	69.7	69.1	62.7	61.2	69.7	69.9
Heavy Trucks:	80.3	79.8	70.7	72.0	80.3	80.5
Vehicle Noise:	81.5	80.9	74.3	73.1	81.5	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	321	692	1,491	3,213
CNEL:	332	716	1,542	3,323

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak) *Project Name:* Gateway Aviation
Road Name: Cactus Av. *Job Number:* 13445
Road Segment: e/o Heacock St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,098	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	3,240	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.28%
Medium Trucks:	84.8%	4.9%	10.3%	2.66%
Heavy Trucks:	86.5%	2.7%	10.8%	11.07%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.14	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-11.98	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-5.78	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.4	67.6	61.6	70.2	70.8
Medium Trucks:	66.5	65.9	59.6	58.0	66.5	66.7
Heavy Trucks:	78.0	77.5	68.5	69.7	78.1	78.2
Vehicle Noise:	78.9	78.4	71.4	70.6	79.0	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	175	376	810	1,745
CNEL:	180	388	835	1,799

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak) *Project Name:* Gateway Aviation
Road Name: Harley Knox Bl. *Job Number:* 13445
Road Segment: e/o Indian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,747	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,353	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.31%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.16	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.29	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-10.10	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	61.9	61.3	54.9	53.4	61.8	62.1
Heavy Trucks:	72.8	72.4	63.3	64.6	72.9	73.0
Vehicle Noise:	73.9	73.4	66.6	65.6	74.0	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	253	546	1,176
CNEL:	121	262	564	1,214

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Non-Peak) *Project Name:* Gateway Aviation
Road Name: Harley Knox Bl. *Job Number:* 13445
Road Segment: e/o Patterson Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,772	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,810	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.69%
Medium Trucks:	84.8%	4.9%	10.3%	2.70%
Heavy Trucks:	86.5%	2.7%	10.8%	11.61%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.98	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-13.04	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-6.70	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	68.1	66.4	60.3	68.9	69.5
Medium Trucks:	65.1	64.5	58.2	56.6	65.1	65.3
Heavy Trucks:	76.2	75.7	66.7	68.0	76.3	76.4
Vehicle Noise:	77.3	76.7	69.9	68.9	77.3	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	197	424	913	1,966
CNEL:	203	437	942	2,029

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak) *Project Name:* Gateway Aviation
Road Name: Heacock St. *Job Number:* 13445
Road Segment: n/o Gentian Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,537	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,710	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.44%
Medium Trucks:	84.8%	4.9%	10.3%	2.63%
Heavy Trucks:	86.5%	2.7%	10.8%	10.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.40	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.77	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.58	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	70.1	68.4	62.3	70.9	71.5
Medium Trucks:	66.8	66.2	59.8	58.3	66.7	67.0
Heavy Trucks:	77.3	76.8	67.8	69.1	77.4	77.5
Vehicle Noise:	78.6	78.0	71.4	70.2	78.6	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	187	402	867	1,867
CNEL:	193	416	896	1,931

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Iris Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,135	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,354	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.55%
Medium Trucks:	84.8%	4.9%	10.3%	2.61%
Heavy Trucks:	86.5%	2.7%	10.8%	10.85%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.80	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-14.42	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.22	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	69.5	67.8	61.7	70.3	70.9
Medium Trucks:	66.1	65.5	59.2	57.6	66.1	66.3
Heavy Trucks:	76.7	76.2	67.2	68.4	76.8	76.9
Vehicle Noise:	77.9	77.3	70.8	69.5	77.9	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	169	365	786	1,693
CNEL:	175	377	813	1,752

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,288	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,235	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.83%
Medium Trucks:	84.8%	4.9%	10.3%	2.55%
Heavy Trucks:	86.5%	2.7%	10.8%	10.62%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.99	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-17.31	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-11.12	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	66.7	65.0	58.9	67.5	68.2
Medium Trucks:	63.2	62.6	56.3	54.7	63.2	63.4
Heavy Trucks:	73.8	73.3	64.3	65.5	73.9	74.0
Vehicle Noise:	75.1	74.5	68.0	66.7	75.1	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	109	235	506	1,089
CNEL:	113	243	523	1,127

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak) | Project Name: Gateway Aviation
Road Name: Heacock St. | Job Number: 13445
Road Segment: s/o Cardinal Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,928	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,661	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	48	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.47%
Medium Trucks:	84.8%	4.9%	10.3%	2.70%
Heavy Trucks:	86.5%	2.7%	10.8%	11.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	44.147
Medium Trucks:	43.947
Heavy Trucks:	43.966

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.27	0.71	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-13.73	0.74	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-7.32	0.73	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	70.0	68.2	62.2	70.8	71.4
Medium Trucks:	66.8	66.2	59.9	58.3	66.8	67.0
Heavy Trucks:	77.6	77.1	68.1	69.3	77.7	77.8
Vehicle Noise:	78.7	78.2	71.5	70.4	78.8	79.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	192	414	891	1,921
CNEL:	198	428	921	1,985

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak) | Project Name: Gateway Aviation
Road Name: Indian Av. | Job Number: 13445
Road Segment: s/o Nandina Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,460	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,300	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	36	feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.03%
Medium Trucks:	84.8%	4.9%	10.3%	2.77%
Heavy Trucks:	86.5%	2.7%	10.8%	12.20%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	40.460
Medium Trucks:	40.241
Heavy Trucks:	40.262

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.07	1.28	-1.20	-4.61	0.000	0.000
Medium Trucks:	79.45	-13.80	1.31	-1.20	-4.87	0.000	0.000
Heavy Trucks:	84.25	-7.36	1.31	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	68.6	66.9	60.8	69.4	70.0
Medium Trucks:	65.8	65.2	58.8	57.3	65.7	66.0
Heavy Trucks:	77.0	76.5	67.5	68.7	77.1	77.2
Vehicle Noise:	78.0	77.4	70.5	69.6	78.0	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	151	325	701	1,509
CNEL:	156	335	723	1,557

Wednesday, December 9, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak)
Road Name: Cactus Av.
Road Segment: w/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,095	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	4,775	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	73	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	55.0	feet
Centerline Dist. to Observer:	55.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.28%
Medium Trucks:	84.8%	4.9%	10.3%	2.66%
Heavy Trucks:	86.5%	2.7%	10.8%	11.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.446
Medium Trucks:	41.232
Heavy Trucks:	41.253

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.85	1.12	-1.20	-4.67	0.000	0.000
Medium Trucks:	81.00	-11.26	1.15	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-5.07	1.15	-1.20	-5.38	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.0	73.0	71.2	65.2	73.8	74.4
Medium Trucks:	69.7	69.1	62.7	61.2	69.7	69.9
Heavy Trucks:	80.3	79.8	70.7	72.0	80.3	80.5
Vehicle Noise:	81.5	80.9	74.3	73.1	81.5	81.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	321	692	1,492	3,213
CNEL:	332	716	1,543	3,323

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak)
Road Name: Harley Knox Bl.
Road Segment: e/o Patterson Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,069	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	2,834	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	85.43%
Medium Trucks:	84.8%	4.9%	10.3%	2.72%
Heavy Trucks:	86.5%	2.7%	10.8%	11.85%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.00	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-12.98	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-6.58	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	68.2	66.4	60.3	69.0	69.6
Medium Trucks:	65.2	64.6	58.2	56.7	65.1	65.4
Heavy Trucks:	76.4	75.9	66.8	68.1	76.4	76.6
Vehicle Noise:	77.4	76.8	69.9	69.0	77.4	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	200	431	928	1,999
CNEL:	206	444	957	2,062

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak)
Road Name: Cactus Av.
Road Segment: e/o Heacock St.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,159	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	3,245	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	44.0	feet
Centerline Dist. to Observer:	44.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.30%
Medium Trucks:	84.8%	4.9%	10.3%	2.65%
Heavy Trucks:	86.5%	2.7%	10.8%	11.05%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	36.551
Medium Trucks:	36.308
Heavy Trucks:	36.332

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	3.15	1.94	-1.20	-4.61	0.000	0.000
Medium Trucks:	77.72	-11.98	1.98	-1.20	-4.87	0.000	0.000
Heavy Trucks:	82.99	-5.78	1.98	-1.20	-5.50	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	69.4	67.7	61.6	70.2	70.8
Medium Trucks:	66.5	65.9	59.6	58.0	66.5	66.7
Heavy Trucks:	78.0	77.5	68.5	69.7	78.1	78.2
Vehicle Noise:	78.9	78.4	71.4	70.6	79.0	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	175	376	810	1,745
CNEL:	180	388	835	1,800

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP 2040 w/ext. (Peak)
Road Name: Harley Knox Bl.
Road Segment: e/o Indian Av.
Project Name: Gateway Aviation
Job Number: 13445

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,794	vehicles
Peak Hour Percentage:	8.08%	
Peak Hour Volume:	1,357	vehicles
Vehicle Speed:	45	mph
Near/Far Lane Distance:	80	feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	86.35%
Medium Trucks:	84.8%	4.9%	10.3%	2.64%
Heavy Trucks:	86.5%	2.7%	10.8%	11.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.210
Medium Trucks:	50.033
Heavy Trucks:	50.050

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-1.15	-0.13	-1.20	-4.70	0.000	0.000
Medium Trucks:	79.45	-16.29	-0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-10.10	-0.11	-1.20	-5.31	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.0	65.0	63.2	57.2	65.8	66.4
Medium Trucks:	61.9	61.3	54.9	53.4	61.8	62.1
Heavy Trucks:	72.8	72.4	63.3	64.6	72.9	73.0
Vehicle Noise:	73.9	73.4	66.6	65.6	74.0	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	118	253	546	1,176
CNEL:	121	262	564	1,215

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APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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13445 - Meridian D-1 Gateway

CadnaA Noise Prediction Model: 13445-07.cna
Date: 06.06.22
Analyst: B. Lawson

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	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.00**
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)
RECEIVERS		R1	25.0	24.2	30.9	55.0	55.0	0.0				5.00	a	6261541.44	2268345.63	5.00
RECEIVERS		R2	36.1	35.9	42.6	55.0	55.0	0.0				5.00	a	6262793.15	2267209.01	5.00
RECEIVERS		R3	36.1	36.0	42.7	55.0	55.0	0.0				5.00	a	6262827.55	2265320.23	5.00
RECEIVERS		R4	36.9	36.8	43.5	55.0	55.0	0.0				5.00	a	6262827.12	2263841.06	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)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		252.00	0.00	152.00	5.00	g	6258848.64	2263909.32	50.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		150.00	0.00	90.00	5.00	a	6258831.46	2263704.30	5.00

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)	
LINESOURCE		DWY01	95.0	79.6	85.9	77.0	61.7	68.0	PWL-Pt	93.2					239.0	7.0	30.0	6.2	8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	8.00	a			6258816.62	2263774.88	8.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6258857.26	2263796.75	8.00	0.00
					6258867.70	2263801.81	8.00	0.00
					6258878.83	2263805.06	8.00	0.00
					6258890.35	2263806.40	8.00	0.00
					6258901.93	2263805.80	8.00	0.00
					6258913.25	2263803.27	8.00	0.00
					6258923.99	2263798.89	8.00	0.00
					6258933.84	2263792.77	8.00	0.00
					6258942.53	2263785.10	8.00	0.00
					6258949.82	2263776.07	8.00	0.00
					6258955.50	2263765.96	8.00	0.00
					6258975.56	2263727.57	8.00	0.00

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)		
AREASOURCE		DOCK01	111.5	111.5	111.5	72.2	72.2	72.2	Lw	111.5					8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	a			6258769.21	2263865.07	8.00	0.00
					6258784.81	2263839.07	8.00	0.00
					6258856.31	2263694.78	8.00	0.00
					6258439.02	2263473.79	8.00	0.00
					6258345.42	2263646.68	8.00	0.00

Barrier(s)

Name	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)
BARRIERS		BARRIERS00001						6.00	a		6262812.23	2265552.95	6.00	0.00
											6262810.93	2265287.33	6.00	0.00
BARRIERS		BARRIERS00002						6.00	a		6262814.73	2264941.01	6.00	0.00
											6262814.73	2264474.43	6.00	0.00
BARRIERS		BARRIERS00003						6.00	a		6262812.56	2264416.92	6.00	0.00
											6262809.66	2263810.58	6.00	0.00
BARRIERS		BARRIERS00004						6.00	a		6262807.49	2263720.52	6.00	0.00
											6262806.41	2263631.55	6.00	0.00
BARRIERS		BARRIERS00005						6.00	a		6261425.99	2268327.40	6.00	0.00
											6261928.31	2268324.65	6.00	0.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		45.00	a	6258206.33	2263914.47	45.00	0.00
								6258736.71	2264191.36	45.00	0.00
								6258890.10	2263896.27	45.00	0.00
								6258784.81	2263839.07	45.00	0.00
								6258769.21	2263865.07	45.00	0.00
								6258345.42	2263646.68	45.00	0.00

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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13445 - Meridian D-1 Gateway

CadnaA Noise Prediction Model: 13445-07_Construction.cna
Date: 06.06.22
Analyst: B. Lawson

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	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.00**
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)
RECEIVERS		R1	38.0	38.0	44.7	55.0	55.0	0.0				5.00	a	6261541.44	2268345.63	5.00
RECEIVERS		R2	42.4	42.4	49.1	55.0	55.0	0.0				5.00	a	6262793.15	2267209.01	5.00
RECEIVERS		R3	39.4	39.4	46.1	55.0	55.0	0.0				5.00	a	6262827.55	2265320.23	5.00
RECEIVERS		R4	39.6	39.6	46.3	55.0	55.0	0.0				5.00	a	6262827.12	2263841.06	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	115.0	115.0	115.0	61.1	61.1	61.1	Lw	115					8	a

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a		6257270.22	2264233.50	8.00	0.00
				6257363.82	2264422.98	8.00	0.00
				6257658.30	2264886.39	8.00	0.00
				6257815.82	2265048.48	8.00	0.00
				6258226.73	2265178.60	8.00	0.00
				6258441.32	2265064.46	8.00	0.00
				6258244.99	2264701.48	8.00	0.00
				6260027.78	2265630.70	8.00	0.00
				6260062.50	2265575.14	8.00	0.00

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
				6258867.62	2264947.28	8.00	0.00
				6259004.34	2264690.77	8.00	0.00
				6258991.97	2263780.61	8.00	0.00
				6259682.08	2264137.38	8.00	0.00
				6259707.29	2264146.87	8.00	0.00
				6259733.16	2264154.39	8.00	0.00
				6259759.53	2264159.92	8.00	0.00
				6259786.24	2264163.42	8.00	0.00
				6259952.04	2264160.60	8.00	0.00
				6259950.96	2264195.32	8.00	0.00
				6259996.53	2264197.49	8.00	0.00
				6259999.78	2264411.25	8.00	0.00
				6260009.55	2264447.06	8.00	0.00
				6260011.72	2264461.17	8.00	0.00
				6260012.81	2264486.12	8.00	0.00
				6260028.00	2264486.12	8.00	0.00
				6260026.91	2264161.69	8.00	0.00
				6260110.46	2264161.69	8.00	0.00
				6260106.12	2264068.37	8.00	0.00
				6259796.88	2264077.05	8.00	0.00
				6259767.51	2264074.99	8.00	0.00
				6259738.41	2264070.48	8.00	0.00
				6259709.80	2264063.55	8.00	0.00
				6259681.86	2264054.26	8.00	0.00
				6259363.93	2263884.99	8.00	0.00
				6257894.75	2263122.19	8.00	0.00
				6257641.93	2263509.56	8.00	0.00
				6257620.23	2263467.24	8.00	0.00
				6257399.96	2263576.83	8.00	0.00
				6257526.91	2263829.65	8.00	0.00

Barrier(s)

Name	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)
BARRIERS		BARRIERS00001						6.00	a		6262812.23	2265552.95	6.00	0.00
											6262810.93	2265287.33	6.00	0.00
BARRIERS		BARRIERS00002						6.00	a		6262814.73	2264941.01	6.00	0.00
											6262814.73	2264474.43	6.00	0.00
BARRIERS		BARRIERS00003						6.00	a		6262812.56	2264416.92	6.00	0.00
											6262809.66	2263810.58	6.00	0.00
BARRIERS		BARRIERS00004						6.00	a		6262807.49	2263720.52	6.00	0.00
											6262806.41	2263631.55	6.00	0.00
BARRIERS		BARRIERS00005						6.00	a		6261425.99	2268327.40	6.00	0.00
											6261928.31	2268324.65	6.00	0.00

APPENDIX 10.2:

CADNAA CONCRETE POUR NOISE MODEL INPUTS

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13445 - Meridian D-1 Gateway

CadnaA Noise Prediction Model: 13445-07_ConcretePour.cna
Date: 06.06.22
Analyst: B. Lawson

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	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.00**
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)
RECEIVERS		R1	37.6	37.6	44.3	55.0	55.0	0.0				5.00	a	6261541.44	2268345.63	5.00
RECEIVERS		R2	42.4	42.4	49.0	55.0	55.0	0.0				5.00	a	6262793.15	2267209.01	5.00
RECEIVERS		R3	39.6	39.6	46.2	55.0	55.0	0.0				5.00	a	6262827.55	2265320.23	5.00
RECEIVERS		R4	40.1	40.1	46.8	55.0	55.0	0.0				5.00	a	6262827.12	2263841.06	5.00

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)		
BUILDING		CONCRETEPOUR	115.0	115.0	115.0	72.6	72.6	72.6	Lw	115					8	a

Name	Height			Coordinates			
	Begin		End	x	y	z	Ground
	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BUILDING	8.00	a		6258206.33	2263914.47	8.00	0.00
				6258736.71	2264191.36	8.00	0.00
				6258890.10	2263896.27	8.00	0.00
				6258784.81	2263839.07	8.00	0.00
				6258769.21	2263865.07	8.00	0.00
				6258345.42	2263646.68	8.00	0.00

Barrier(s)

Name	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)
BARRIERS		BARRIERS00001						6.00	a		6262812.23	2265552.95	6.00	0.00
											6262810.93	2265287.33	6.00	0.00
BARRIERS		BARRIERS00002						6.00	a		6262814.73	2264941.01	6.00	0.00
											6262814.73	2264474.43	6.00	0.00
BARRIERS		BARRIERS00003						6.00	a		6262812.56	2264416.92	6.00	0.00
											6262809.66	2263810.58	6.00	0.00
BARRIERS		BARRIERS00004						6.00	a		6262807.49	2263720.52	6.00	0.00
											6262806.41	2263631.55	6.00	0.00
BARRIERS		BARRIERS00005						6.00	a		6261425.99	2268327.40	6.00	0.00
											6261928.31	2268324.65	6.00	0.00