Appendix 4.9

Noise

The Homestead

NOISE IMPACT ANALYSIS

CITY OF EASTVALE

PREPARED BY:

Bill Lawson, PE, INCE
blawson@urbanxroads.com
(949) 336-5979

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
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
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	The Homestead
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed The Homestead development ("Project"). The Project site is located west of Archibald Avenue and on either side of Limonite Avenue, in the City of Eastvale. The proposed Project consists of 541,756 square feet of warehousing use and 507,631 square feet of high-cube fulfillment center use. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown, and therefore, this noise study includes a conservative analysis of the proposed Project uses. This study has been prepared to satisfy applicable City of Eastvale, and adjacent City of Ontario, standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

OFF-SITE TRAFFIC NOISE ANALYSIS

Traffic generated by the operation of the Project will influence the traffic noise levels in surrounding off-site areas. To quantify the off-site traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 15 study-area roadway segments were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in *The Homestead Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing, Opening Year 2021, Interim Year 2023, and Horizon Year 2040 conditions.

The analysis shows that the unmitigated Project-related traffic noise level increases under all with Project traffic scenarios are considered *less than significant* impacts at land uses adjacent to the study area roadway segments.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the expected noise sources from The Homestead site, this analysis estimates the Project-related stationary-source noise levels at nearby sensitive receiver locations. The typical activities associated with the proposed The Homestead are anticipated to include idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements. The operational noise analysis shows that the Project-related stationary-source noise levels at the nearby receiver locations will satisfy the City of Eastvale and City of Ontario exterior noise level standards. The analysis includes the barrier attenuation provided by the existing 6-foot high noise barriers in the Project study area and the Project buildings themselves.

Further, this analysis demonstrates that the unmitigated Project operational noise levels will not contribute a long-term operational noise level impact to the existing ambient noise environment at any of the sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed 24-hour seven days per week Project activities, such as the idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods,

roof-top air conditioning units, and parking lot vehicle movements, are considered *less than significant*.

CONSTRUCTION NOISE ANALYSIS

Using sample reference noise levels to represent the planned construction activities of The Homestead site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. The Project-related short-term construction noise levels are expected to approach 54.2 dBA L_{eq}. Since the City of Eastvale and Ontario General Plans and Municipal Codes do not identify specific construction noise level thresholds, a threshold is identified based on the National Institute for Occupational Safety and Health (NIOSH) limits for construction noise. The results of the analysis show that the Project-related short-term construction noise levels will satisfy the 85 dBA L_{eq} threshold identified by NIOSH at all receiver locations.

Further, the Project construction noise levels were combined with the existing ambient noise levels measurements at the off-site receiver locations to assess the temporary noise level increases due to Project construction. A temporary noise level increase of 12 dBA L_{eq} is considered a potentially significant impact based on the Caltrans substantial noise level increase criteria which is used to assess the Project-construction noise level increases. (4) The analysis shows that the Project will contribute unmitigated, worst-case construction noise level increases ranging from 0.1 to 0.2 dBA L_{eq} at the nearby receiver locations during the daytime construction hours, and therefore, are considered a *less than significant* noise impact.

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

CONSTRUCTION VIBRATION ANALYSIS

At distances ranging from 258 to 1,442 feet from Project construction activity, construction vibration velocity levels are expected to approach 0.003 in/sec PPV. Based on the City of Eastvale Municipal Code vibration level standard of 0.0787 in/sec PPV, the proposed Project construction activities will satisfy the vibration standard at all receiver locations during Project construction. Therefore, the Project-related vibration impacts will be *less than significant* during the construction activities at the Project site.

Further, the Project-related construction vibration levels do not represent levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (4) The peak Project-construction vibration levels are shown to approach 0.003 in/sec PPV and will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Further, the impacts at the site of the closest sensitive receivers 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 ES-1: SUMMARY OF SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise Levels	7	*Less Than Significant*	*n/a*
Operational Noise Level Compliance	9	*Less Than Significant*	*n/a*
Operational Noise Level Increases (Permanent)		*Less Than Significant*	*n/a*
Construction Noise Level Compliance	10	*Less Than Significant*	*n/a*
Construction Noise Level Increases (Temporary)		*Less Than Significant*	*n/a*
Construction Vibration Levels		*Less Than Significant*	*n/a*

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed The Homestead ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for 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 The Homestead site is located west of Archibald Avenue and on either side of Limonite Avenue, in the City of Eastvale, as shown on Exhibit 1-A. Chino Airport is located less than one mile west of the Project site.

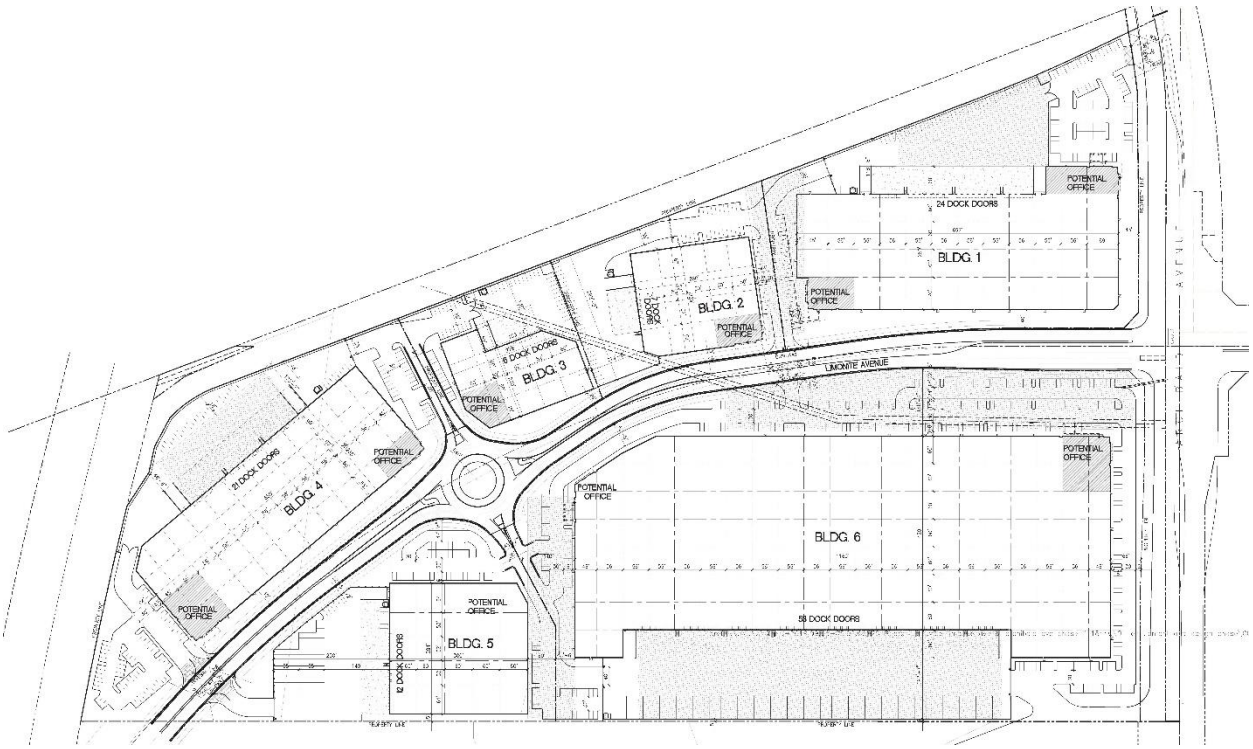
1.2 PROJECT DESCRIPTION

The proposed Project consists of 541,756 square feet of warehousing use and 507,631 square feet of high-cube fulfillment center use, as shown on Exhibit 1-B. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown. The on-site Project-related noise sources are expected to include: idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site. To present a conservative approach, this report assumes the Project will operate 24-hour seven days per week.

Per *The Homestead Traffic Impact Analysis* prepared by Urban Crossroads, Inc. the Project is expected to generate a total of approximately 2,102 trip-ends per day (actual vehicles) and includes 408 truck trip-ends per day. (2) 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.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

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

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
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. (4) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (5) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

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

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Eastvale 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. (4)

2.3.2 GROUND ABSORPTION

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

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (6)

2.3.3 ATMOSPHERIC EFFECTS

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (4)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby 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 FHWA does not consider the planting of vegetation to be a noise abatement measure. (6)

2.4 NOISE CONTROL

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

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (6)

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. (7)

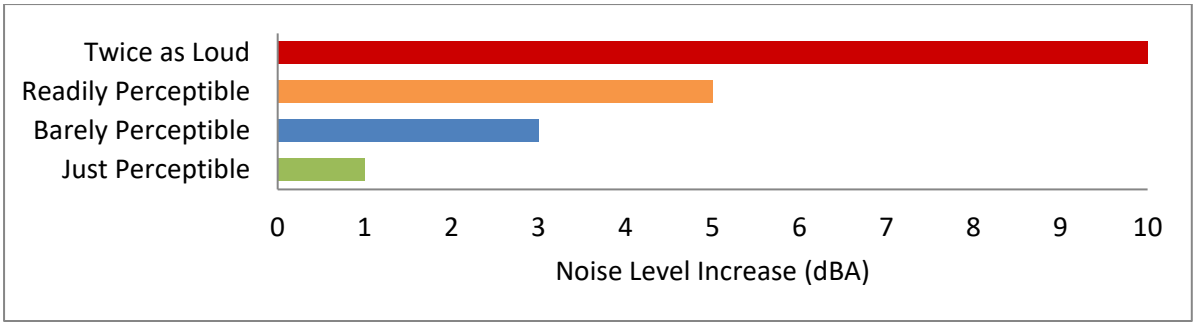
2.7 COMMUNITY RESPONSE TO NOISE

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

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (8) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (8) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (6)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (9)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area.

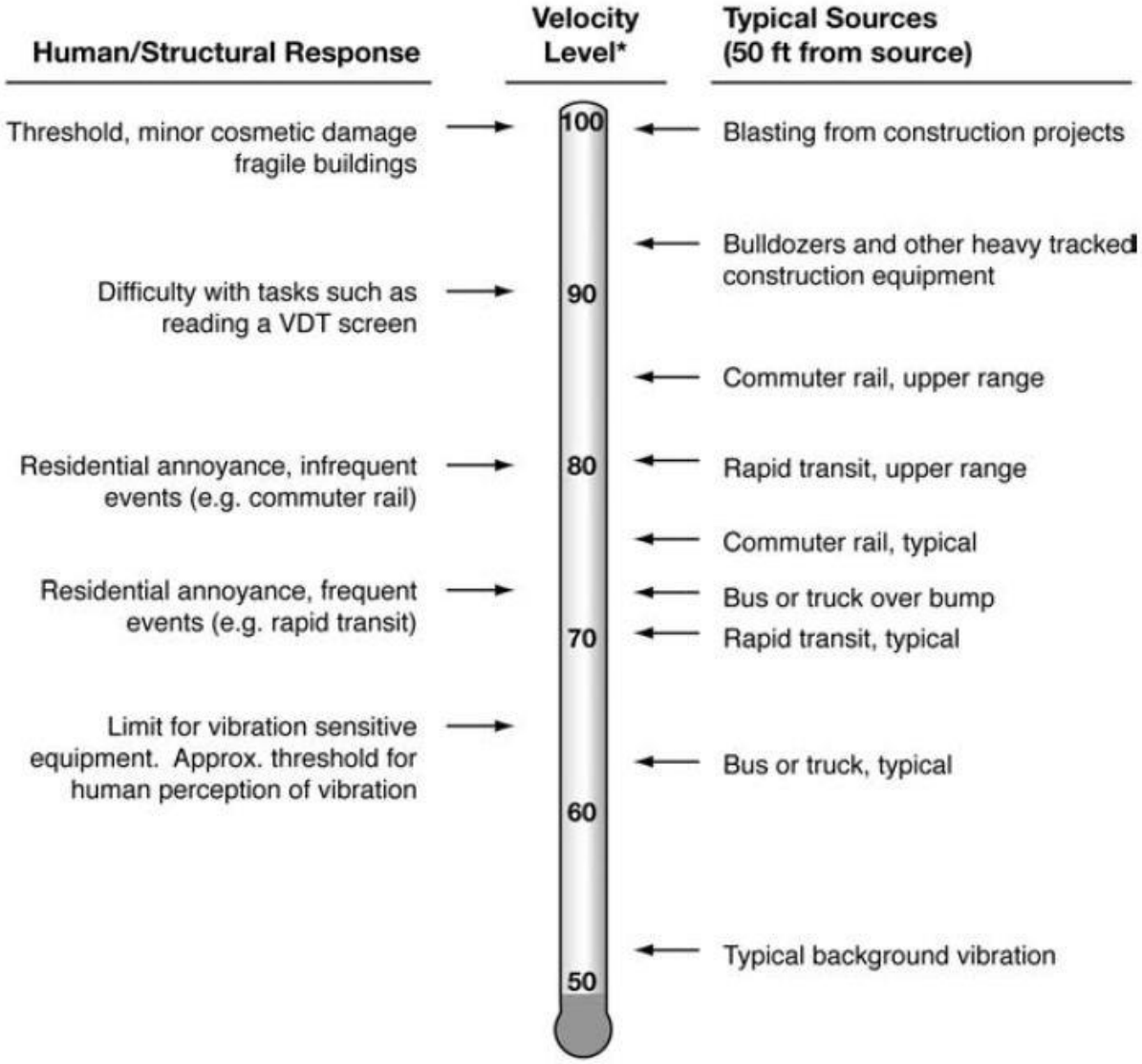
2.9 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (3), 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), vibration-sensitive equipment and/or activities.

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

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



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

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

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3 REGULATORY SETTING

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

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (12) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*.

3.2 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. (13) 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).

3.3 CITY OF EASTVALE GENERAL PLAN NOISE ELEMENT

The City of Eastvale has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of City of Eastvale from excessive exposure to noise. (15) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation and stationary noise sources. To protect the City of Eastvale residents from excessive noise, the Noise Element contains the following four goals:

N-1 *Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors and noise-sensitive uses of Eastvale.*

N-2 *Locate noise-tolerant land uses within areas irrevocably committed to land uses that are noise-producing, such as transportation corridors.*

N-3 *Ensure that noise sensitive uses do not encroach into areas needed by noise generating uses.*

N-4 *Locate noise sources away from existing noise sensitive land uses unless appropriate noise control measures are provided.*

3.3.1 TRANSPORTATION NOISE & LAND USE COMPATIBILITY

The noise criteria identified in the City of Eastvale Noise Element (Table N-3) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels

Table N-3 *Noise Compatibility by Land Use Designation* in the City of Eastvale General Plan provides guidelines to evaluate the acceptability of the transportation related noise level impacts. Residential land use in the Project study area, is considered *completely compatible* with exterior noise levels below 60 dBA CNEL and *tentatively compatible* with noise levels between 60 to 70 dBA CNEL. Non-residential, or non-noise-sensitive use, is considered *completely compatible* with exterior noise levels less than 70 dBA CNEL, and *tentatively compatible* with exterior noise levels approaching 75 dBA CNEL. (15)

EXHIBIT 3-A: NOISE COMPATIBILITY BY LAND USE DESIGNATION

Land Use Designations	Completely Compatible	Tentatively Compatible	Normally Incompatible	Completely Incompatible
All Residential (Single- and Multi-Family)	Less than 60 dBA	60-70 dBA	70-75 dBA	Greater than 75 dBA
All Non-Residential (Commercial, Industrial & Institutional)	Less than 70 dBA	70-75 dBA	Greater than 75 dBA	(2)
Public Parks (Lands on which public parks are located or planned)	Less than 65 dBA	65-70 dBA	70-75 dBA	Greater than 75 dBA

(1) All noise levels shown in this table are designated CNEL.
(2) To be determined as part of the project review process.

Source: City of Eastvale General Plan Noise Element, Table N-3.

The City of Eastvale residential exterior noise level criteria for transportation noise sources is generally consistent with the adjacent jurisdictional guidelines of the City of Ontario, as indicated in The Ontario Plan Safety Section on Noise Hazards (Table LU-7), which identifies exterior noise levels ranging from 60 to 70 dBA CNEL as acceptable for residential uses. However, the City of Chino General Plan Noise Element does not identify specific exterior transportation noise level standards. As such, this noise study relies on the City of Eastvale residential exterior noise level criteria for transportation noise sources when evaluating Project-related off-site traffic noise level increases at noise-sensitive land uses. (16) (16) In addition, the guidelines of the City of Ontario, as indicated in The Ontario Plan Safety Section on Noise Hazards (Table LU-7), also identify 70 dBA CNEL as *normally acceptable* for industrial or non-noise-sensitive uses.

3.3.2 STATIONARY-SOURCE NOISE LEVEL STANDARDS

The City of Eastvale General Plan Noise Element identifies exterior noise limits to control operational noise impacts associated with the development of the proposed The Homestead Project. Table N-4 of the Noise Element *provides the City's standards for maximum exterior non-transportation noise levels to which land designated for residential land uses may be exposed for any 30-minute period on any day.* (15) For the purposes of this analysis, the noise generated by the idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements of the proposed Project will be evaluated based on the City's stationary source standards at the nearby residential land uses.

Table N-4 of the Noise Element (shown on Exhibit 3-B below) requires an exterior noise level standard for the nearby noise-sensitive single-family residential land uses of 60 dBA L_{eq} between the daytime hours of 7:00 a.m. and 10:00 p.m., and 50 dBA L_{eq} between the nighttime hours of 10:00 p.m. to 7:00 a.m. (15)

EXHIBIT 3-B: EXTERIOR NOISE LEVEL STANDARDS FOR NON-TRANSPORTATION NOISE

Land Use Type	Time Period	Maximum Noise Level (dBA)
Single-Family Homes and Duplexes	10 p.m. to 7 a.m.	50
	7 a.m. to 10 p.m.	60
Multiple Residential 3 or More Units Per Building (Triplex +)	10 p.m. to 7 a.m.	55
	7 a.m. to 10 p.m.	60

Source: City of Eastvale General Plan Noise Element, Table N-4.

3.3.3 CITY OF ONTARIO OPERATIONAL NOISE STANDARDS

Although the Project site is located within the City of Eastvale, sensitive receivers are also located in the City of Ontario. Therefore, to accurately describe the potential operational noise levels, this analysis presents the appropriate operational noise standards for each of the noise-sensitive receivers located within the City of Ontario. The City of Ontario Municipal Code, Title 5, Chapter 29 noise standards are included in Appendix 3.2 for those sensitive receiver locations within the City of Ontario. Section 5-29.04(a) identifies the acceptable daytime and nighttime ambient exterior noise standards for each land use type. For residential land uses (Noise Zone I), exterior noise levels may not exceed 65 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and may not exceed 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). These standards shall apply for a cumulative period of 15 minutes in any hour, as well as plus 20 dBA for any period of time. The operational noise level limits at off-site land uses in the City of Ontario are identified on Table 3-1 and provided in Appendix 3.2.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

City	Land Use	Time Period	Exterior Noise Levels (dBA)[3]		
			L_{eq} (Energy Avg.)	L_{25} (15 mins)	L_{max} (Anytime)
Eastvale[1]	Residential	Daytime	60	-	-
		Nighttime	50	-	-
Ontario[2]	Residential	Daytime	65	65	85
		Nighttime	45	45	65

[1] Source: City of Eastvale General Plan Noise Element, Table N-4.
[2] Source: Section 5-29.04 of the City of Ontario Municipal Code (Appendix 3.2).
[3] L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The percent noise level is the level exceeded "n" percent of the time during the measurement period. L_{25} is the noise level exceeded 25% of the time.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "E. Avg." = logarithmic (energy) average

3.3.4 VIBRATION LEVEL STANDARDS

The City of Eastvale General Plan Noise Element, Policy N-3, identifies a vibration level standard for sensitive land uses of 0.0787 inches per second peak particle velocity (PPV). Since the City of Ontario does not identify specific vibration level standards, the City of Eastvale vibration standards are used to assess potential impacts from Project construction equipment. Therefore, for the purposes of this analysis, the vibration level shall not exceed 0.0787 in/sec PPV at the nearby sensitive receiver locations during Project construction activities capable of generating vibration levels. The construction vibration standards are provided on Table 3-2.

TABLE 3-2: VIBRATION LEVEL STANDARDS

City	Peak Particle Velocity (PPV) Standard (in/sec)
Eastvale[1]	0.0787
Ontario	n/a

[1] Source: City of Eastvale General Plan Noise Element, Policy N-3.
"n/a" = The City of Ontario does not identify specific vibration level standards.

3.4 CONSTRUCTION NOISE STANDARDS

The City of Eastvale has set restrictions to control noise impacts associated with the construction of the proposed Project. According to the City of Eastvale Municipal Code Section 8.52.020, construction activities are limited to the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May. (19) While the City of Eastvale establishes limits to the hours during which construction activity may take place, neither the City of Eastvale or adjacent City of Ontario General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*.

To evaluate whether the Project will generate potentially significant temporary construction noise levels at off-site sensitive receiver locations, a construction-related noise level threshold is adopted from the *Criteria for Recommended Standard: Occupational Noise Exposure* prepared by the National Institute for Occupational Safety and Health (NIOSH). (20) A division of the U.S. Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The construction related noise level threshold starts at 85 dBA for more than eight hours per day, and for every 3 dBA increase, the exposure time is cut in half. This results in noise level thresholds of 88 dBA for more than four hours per day, 92 dBA for more than one hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. (20) For the purposes of this analysis, the lowest, more conservative construction noise level threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby sensitive receiver locations. Since this construction-related noise level threshold represents the energy average of the noise source over a given time period, they are expressed as L_{eq} noise levels. Therefore, the noise level threshold of 85 dBA L_{eq} over a period of eight hours or more is used to evaluate the potential Project-related construction noise level impacts at the nearby sensitive receiver locations. The construction noise standards are shown on Table 3-3.

TABLE 3-3: CONSTRUCTION NOISE STANDARDS

City	Permitted Hours of Construction Activity	Construction Noise Level Threshold (dBA L_{eq})[2]
Eastvale[1]	6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May	85

[1] Source: Section 8.52.020 of the City of Eastvale Municipal Code (Appendix 3.1).
[2] Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.

3.5 CHINO AIRPORT OVERLAY ZONE

The City of Chino Municipal Code, Section 20.09.050, includes the *airport overlay district* noise compatibility standards for land uses located within the noise level contours of Chino Airport. Table 20.09-2 establishes the *Community Noise Compatibility Standards* for land uses depending on the exterior noise environment due to Chino Airport aircraft overflight noise levels. The Project is located outside of the 65 dBA CNEL noise level contour of Chino Airport which, according to Table 20.09-2 of the Municipal Code, is considered *normally acceptable* for the Project land uses. Per the Municipal Code land use compatibility standards, the *specified land use is satisfactory,* and no noise mitigation is required. (21)

This is consistent with the *Chino Airport Master Plan*, (22) prepared by the County of San Bernardino, identifies noise compatibility policies based on the *Chino Airport Comprehensive Land Use Plan* (ACLUP). (23) The ACLUP indicates that exterior noise levels below 65 dBA CNEL at commercial and industrial uses, such as the Project, are considered *normally acceptable.* (23)

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 City of Eastvale General Plan Guidelines 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 Guideline A. CEQA Appendix G Guideline C applies to nearby public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

Based on the Chino Airport noise level contours previously discussed in Section 3.5, the Project use represents *normally satisfactory* land use. The Project site is also not located in the vicinity of a private airstrip. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to Guideline C.

4.2 NOISE-SENSITIVE RECEIVERS

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.* (19)

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise

(FICON) (20) 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 on Gray v. County of Madera. (19) 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. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS

Without Project Noise Level	Potential Significant Impact
< 60 dBA	5 dBA or more
60 - 65 dBA	3 dBA or more
> 65 dBA	1.5 dBA or more

Federal Interagency Committee on Noise (FICON), 1992.

4.3 NON-NOISE-SENSITIVE RECEIVERS

The *completely compatible* exterior noise level for non-noise-sensitive land use, such as commercial and industrial uses, is 70 dBA CNEL, as previously described in Section 3.3.1. Noise levels greater than 70 dBA CNEL are considered *tentatively compatible* per the *Land Use Designation* criteria of the General Plan. (15)

This is consistent with the adjacent jurisdictional guidelines of the City of Ontario, as indicated in The Ontario Plan Safety Section on Noise Hazards (Table LU-7), which also identifies 70 dBA CNEL as *normally acceptable* for industrial uses. (16)

To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria are used. When the without Project noise levels at the non-noise-sensitive land uses are below the *normally acceptable* 70 dBA CNEL compatibility criteria, a *readily perceptible* 5 dBA or greater

noise level increase is considered a significant impact. 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 70 dBA CNEL exterior noise level criteria of the City of Eastvale General Plan Noise Element.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-2 shows the significance criteria summary matrix.

OFF-SITE TRAFFIC NOISE

- When the noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.):
    - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
    - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase; or
    - already exceed 65 dBA CNEL, and the Project creates a community noise level increase of greater than 1.5 dBA CNEL (FICON, 1992).
- When the noise levels at existing and future non-noise-sensitive land uses (e.g. industrial, etc.):
    - are less than the City of Eastvale General Plan Noise Element 70 dBA CNEL criteria and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project-related noise level increase; or
    - are greater than the City of Eastvale General Plan Noise Element 70 dBA CNEL criteria and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project-related noise level increase.

OPERATIONAL NOISE

- If Project-related operational (stationary-source) noise levels exceed the exterior daytime or nighttime noise level standards for sensitive residential land uses in either the City of Eastvale or Ontario as outlined on Table 3-1; or
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
    - are less than 60 dBA L_{eq} and the Project creates a *readily perceptible* 5 dBA L_{eq} or greater Project-related noise level increase; or
    - range from 60 to 65 dBA L_{eq} and the Project creates a *barely perceptible* 3 dBA L_{eq} or greater Project-related noise level increase; or
    - already exceed 65 dBA L_{eq}, and the Project creates a community noise level increase of greater than 1.5 dBA L_{eq} (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities:
  - generate noise levels which exceed the 85 dBA L_{eq} acceptable noise level threshold at the nearby sensitive receiver locations (NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure); or
  - generate temporary Project construction-related noise level increases which exceed the 12 dBA L_{eq} *substantial* noise level increase threshold at noise-sensitive receiver locations (Caltrans, Traffic Noise Analysis Protocol).
- If short-term Project generated construction vibration levels exceed the City of Eastvale acceptable vibration standard of 0.0787 in/sec PPV at sensitive receiver locations (City of Eastvale General Plan, Policy N-3).

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic Noise[1]	Noise-Sensitive	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]	if ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase	
		if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational Noise	Noise-Sensitive	Exterior Noise Level Standards[3]	See Table 3-1.	
		if ambient is < 60 dBA L_{eq}[1]	≥ 5 dBA L_{eq} Project increase	
		if ambient is 60 - 65 dBA L_{eq}[1]	≥ 3 dBA L_{eq} Project increase	
		if ambient is > 65 dBA L_{eq}[1]	≥ 1.5 dBA L_{eq} Project increase	
Construction Noise & Vibration		Noise Level Threshold[4]	85 dBA L_{eq}	n/a
		Noise Level Increase[5]	12 dBA L_{eq}	n/a
		Vibration Level Threshold[6]	0.0787 PPV	n/a

[1] Source: FICON, 1992.
[2] Sources: City of Eastvale and Ontario General Plan Noise Element land use compatibility criteria for non-noise-sensitive uses (e.g., commercial, industrial). The City of Chino does not identify specific land use compatibility criteria for the purpose of this analysis.
[3] Source: City of Eastvale General Plan Noise Element, Table N-4 and Section 5-29.04 of the City of Ontario Municipal Code.
[4] Source: NIOSH, Criteria for Recommended Standard: Occupational Noise Exposure, June 1998.
[5] Source: Caltrans Traffic Noise Analysis Protocol, May 2011.
[6] Source: City of Eastvale General Plan Noise Element, Policy N-3.
"Daytime" = 7:00 a.m. - 10:00 p.m.; "Nighttime" = 10:00 p.m. - 7:00 a.m.; "n/a" = No nighttime construction activity is permitted and therefore, no nighttime construction noise level threshold is identified; "PPV" = Peak particle velocity.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at six locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Tuesday, July 30, 2019. 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. (21)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent 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*. (4) 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*. (3)

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. (3) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

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

5.3 NOISE MEASUREMENT RESULTS

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

- Location L1 represents the noise levels northeast of the Project site on Remington Avenue near existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 72.6 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 67.4 dBA L_{eq} with an average nighttime noise level of 65.6 dBA L_{eq}.
- Location L2 represents the noise levels east of the Project site in a vacant lot on Limonite Avenue. The noise level measurements collected show an overall 24-hour exterior noise level of 69.0 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 64.5 dBA L_{eq} with an average nighttime noise level of 61.9 dBA L_{eq}.
- Location L3 represents the noise levels south of the Project site near existing residential homes. The 24-hour CNEL indicates that the overall exterior noise level is 69.2 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 62.8 dBA L_{eq} with an average nighttime noise level of 62.4 dBA L_{eq}.
- Location L4 represents the noise levels southwest of the Project site near existing industrial uses. The noise level measurements collected show an overall 24-hour exterior noise level of 59.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 57.6 dBA L_{eq} with an average nighttime noise level of 50.9 dBA L_{eq}.
- Location L5 represents the noise levels west of the Project site near existing industrial uses. The 24-hour CNEL indicates that the overall exterior noise level is 64.9 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 61.3 dBA L_{eq} with an average nighttime noise level of 57.7 dBA L_{eq}.
- Location L6 represents the noise levels north of the Project site near existing agricultural uses. The noise level measurements collected show an overall 24-hour exterior noise level of 64.2 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 57.2 dBA L_{eq} with an average nighttime noise level of 57.8 dBA L_{eq}.

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 the arterial roadway network and Chino Airport, in addition to background industrial land use activities. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 5-1.

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 northeast of the Project site on Remington Avenue near existing residential homes.	67.4	65.6	72.6
L2	Located east of the Project site in a vacant lot on Limonite Avenue.	64.5	61.9	69.0
L3	Located south of the Project site near existing residential homes.	62.8	62.4	69.2
L4	Located southwest of the Project site near existing industrial uses.	57.6	50.9	59.5
L5	Located west of the Project site near existing industrial uses.	61.3	57.7	64.9
L6	Located north of the Project site near existing agricultural uses.	57.2	57.8	64.2

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

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

LEGEND:

Noise Measurement Locations

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. (22) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (23) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. 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. (24)

This methodology is consistent with the County of Riverside Office of Industrial Hygiene *Requirements for Determining and Mitigating Traffic Noise Impacts to Residential Structures*, which specifically requires the FHWA RD-77-108 model to be used in analysis within the County's jurisdiction. (25)

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 15 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Eastvale General Plan Circulation Element, and the posted vehicle speeds. The ADT volumes used in this study are presented on Table 6-2 and were obtained from *The Homestead Traffic Impact Analysis*. (2)

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Adjacent Planned (Existing) Land Use[1]	Distance from Centerline to Nearest Adjacent Land Use (Feet)[2]	Posted Vehicle Speed (mph)
1	Archibald Av.	n/o Chino Av.	Residential	74'	55
2	Archibald Av.	s/o Chino Av.	Residential	74'	55
3	Archibald Av.	s/o Schaefer Av.	Residential	74'	55
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	74'	55
5	Archibald Av.	s/o Eucalyptus Av.	Residential	74'	55
6	Archibald Av.	s/o Merrill Av.	Residential	74'	55
7	Archibald Av.	s/o Limonite Av.	Residential	76'	50
8	Archibald Av.	s/o 65th St.	Residential	76'	50
9	Kimball Av.	w/o Hellman Av.	Residential	49'	50
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	76'	50
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	76'	50
12	Limonite Av.	e/o Harrison Av.	Residential	76'	50
13	Limonite Av.	e/o Sumner Av.	Residential	76'	50
14	Limonite Av.	e/o Scholar Wy.	Residential	76'	50
15	Limonite Av.	e/o Hamner Av.	Commercial	76'	45

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[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.

"Agr." = Agricultural use

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway Segment	Average Daily Traffic Volumes[1]							
		Existing		Opening Year 2021		Interim Year 2023		Horizon Year 2040	
		Without Project	With Project	Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Archibald Av. n/o Chino Av.	27,047	27,339	29,960	30,252	32,221	32,513	37,874	38,166
2	Archibald Av. s/o Chino Av.	24,341	24,650	27,248	27,557	29,473	29,782	35,133	35,442
3	Archibald Av. s/o Schaefer Av.	22,707	23,033	25,560	25,886	27,730	28,056	33,464	33,790
4	Archibald Av. s/o Ontario Ranch Rd.	25,905	26,349	28,619	29,063	30,734	31,178	40,669	41,113
5	Archibald Av. s/o Eucalyptus Av.	25,103	25,564	27,793	28,254	29,882	30,343	40,418	40,879
6	Archibald Av. s/o Merrill Av.	26,707	27,338	29,249	29,880	31,258	31,889	43,131	43,762
7	Archibald Av. s/o Limonite Av.	25,787	26,151	27,861	28,225	33,476	33,840	44,433	44,797
8	Archibald Av. s/o 65th St.	29,454	29,691	31,647	31,884	33,456	33,693	36,343	36,580
9	Kimball Av. w/o Hellman Av.	14,116	14,499	15,022	15,405	15,792	16,175	26,819	27,202
10	Limonite Av. e/o Hellman Av.	n/a	469	466	934	777	1,245	33,972	34,440
11	Limonite Av. e/o Archibald Av.	17,476	18,158	19,833	20,515	21,611	22,293	54,064	54,746
12	Limonite Av. e/o Harrison Av.	19,514	20,162	21,923	22,571	23,759	24,407	55,789	56,437
13	Limonite Av. e/o Sumner Av.	21,010	21,624	23,434	24,048	25,299	25,913	44,429	45,043
14	Limonite Av. e/o Scholar Wy.	24,015	24,578	26,756	27,319	28,867	29,430	43,258	43,821
15	Limonite Av. e/o Hamner Av.	26,762	27,223	29,589	30,050	31,789	32,250	65,190	65,651

[1] Source: The Homestead Traffic Impact Analysis, Urban Crossroads, Inc.
"n/a" = Roadway segment does not have an ADT volume because it does not exist under the given scenario.

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.

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 Impact 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 6-8 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	74.08%	10.30%	15.62%	100.00%
Medium Trucks	69.04%	7.12%	23.85%	100.00%
Heavy Trucks	82.11%	3.95%	13.95%	100.00%

[1] Based on existing 24-hour classification counts by vehicle type taken on 5/23/2019 at Archibald Avenue between Providence Way and Limonite Avenue (The Homestead Traffic Impact Analysis, Urban Crossroads, Inc.). Vehicle mix percentage values rounded to the nearest 100th.
"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: WITHOUT PROJECT CONDITIONS VEHICLE MIX

Classification	Total % Traffic Flow[1]			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	89.65%	7.02%	3.33%	100.00%

[1] Based on existing 24-hour classification counts by vehicle type taken on 5/23/2019 at Archibald Avenue between Providence Way and Limonite Avenue (The Homestead Traffic Impact Analysis, Urban Crossroads, Inc.). Vehicle mix percentage values rounded to the nearest 100th.
"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 6-5: EXISTING WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Archibald Av.	n/o Chino Av.	89.19%	7.12%	3.69%	100.00%
2	Archibald Av.	s/o Chino Av.	89.15%	7.13%	3.73%	100.00%
3	Archibald Av.	s/o Schaefer Av.	89.12%	7.13%	3.75%	100.00%
4	Archibald Av.	s/o Ontario Ranch Rd.	89.23%	7.08%	3.68%	100.00%
5	Archibald Av.	s/o Eucalyptus Av.	89.23%	7.08%	3.69%	100.00%
6	Archibald Av.	s/o Merrill Av.	89.32%	7.03%	3.65%	100.00%
7	Archibald Av.	s/o Limonite Av.	89.57%	6.99%	3.44%	100.00%
8	Archibald Av.	s/o 65th St.	89.73%	6.96%	3.30%	100.00%
9	Kimball Av.	w/o Hellman Av.	89.39%	7.00%	3.61%	100.00%
10	Limonite Av.	e/o Hellman Av.	83.35%	5.13%	11.52%	100.00%
11	Limonite Av.	e/o Archibald Av.	89.18%	7.02%	3.80%	100.00%
12	Limonite Av.	e/o Harrison Av.	89.21%	7.03%	3.76%	100.00%
13	Limonite Av.	e/o Sumner Av.	89.22%	7.04%	3.73%	100.00%
14	Limonite Av.	e/o Scholar Wy.	89.25%	7.05%	3.69%	100.00%
15	Limonite Av.	e/o Hamner Av.	89.25%	7.08%	3.67%	100.00%

[1] Source: The Homestead Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: OPENING YEAR WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Archibald Av.	n/o Chino Av.	89.23%	7.11%	3.65%	100.00%
2	Archibald Av.	s/o Chino Av.	89.20%	7.12%	3.68%	100.00%
3	Archibald Av.	s/o Schaefer Av.	89.18%	7.12%	3.71%	100.00%
4	Archibald Av.	s/o Ontario Ranch Rd.	89.27%	7.08%	3.65%	100.00%
5	Archibald Av.	s/o Eucalyptus Av.	89.27%	7.08%	3.66%	100.00%
6	Archibald Av.	s/o Merrill Av.	89.35%	7.03%	3.62%	100.00%
7	Archibald Av.	s/o Limonite Av.	89.57%	6.99%	3.43%	100.00%
8	Archibald Av.	s/o 65th St.	89.73%	6.97%	3.31%	100.00%
9	Kimball Av.	w/o Hellman Av.	89.40%	7.00%	3.60%	100.00%
10	Limonite Av.	e/o Hellman Av.	86.49%	6.07%	7.44%	100.00%
11	Limonite Av.	e/o Archibald Av.	89.23%	7.02%	3.75%	100.00%
12	Limonite Av.	e/o Harrison Av.	89.26%	7.03%	3.71%	100.00%
13	Limonite Av.	e/o Sumner Av.	89.27%	7.04%	3.69%	100.00%
14	Limonite Av.	e/o Scholar Wy.	89.29%	7.05%	3.66%	100.00%
15	Limonite Av.	e/o Hamner Av.	89.29%	7.07%	3.64%	100.00%

[1] Source: The Homestead Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-7: INTERIM YEAR WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Archibald Av.	n/o Chino Av.	89.26%	7.10%	3.63%	100.00%
2	Archibald Av.	s/o Chino Av.	89.23%	7.11%	3.66%	100.00%
3	Archibald Av.	s/o Schaefer Av.	89.21%	7.11%	3.68%	100.00%
4	Archibald Av.	s/o Ontario Ranch Rd.	89.30%	7.07%	3.63%	100.00%
5	Archibald Av.	s/o Eucalyptus Av.	89.29%	7.07%	3.64%	100.00%
6	Archibald Av.	s/o Merrill Av.	89.37%	7.03%	3.60%	100.00%
7	Archibald Av.	s/o Limonite Av.	89.59%	7.00%	3.42%	100.00%
8	Archibald Av.	s/o 65th St.	89.72%	6.97%	3.31%	100.00%
9	Kimball Av.	w/o Hellman Av.	89.41%	7.00%	3.58%	100.00%
10	Limonite Av.	e/o Hellman Av.	87.28%	6.31%	6.42%	100.00%
11	Limonite Av.	e/o Archibald Av.	89.27%	7.02%	3.71%	100.00%
12	Limonite Av.	e/o Harrison Av.	89.29%	7.03%	3.68%	100.00%
13	Limonite Av.	e/o Sumner Av.	89.29%	7.04%	3.67%	100.00%
14	Limonite Av.	e/o Scholar Wy.	89.32%	7.05%	3.63%	100.00%
15	Limonite Av.	e/o Hamner Av.	89.31%	7.07%	3.62%	100.00%

[1] Source: The Homestead Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-8: HORIZON YEAR WITH PROJECT CONDITIONS VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Archibald Av.	n/o Chino Av.	89.32%	7.09%	3.59%	100.00%
2	Archibald Av.	s/o Chino Av.	89.30%	7.09%	3.61%	100.00%
3	Archibald Av.	s/o Schaefer Av.	89.29%	7.09%	3.62%	100.00%
4	Archibald Av.	s/o Ontario Ranch Rd.	89.38%	7.06%	3.56%	100.00%
5	Archibald Av.	s/o Eucalyptus Av.	89.39%	7.06%	3.56%	100.00%
6	Archibald Av.	s/o Merrill Av.	89.44%	7.03%	3.53%	100.00%
7	Archibald Av.	s/o Limonite Av.	89.60%	7.00%	3.39%	100.00%
8	Archibald Av.	s/o 65th St.	89.72%	6.97%	3.31%	100.00%
9	Kimball Av.	w/o Hellman Av.	89.51%	7.01%	3.48%	100.00%
10	Limonite Av.	e/o Hellman Av.	89.56%	6.99%	3.44%	100.00%
11	Limonite Av.	e/o Archibald Av.	89.49%	7.02%	3.49%	100.00%
12	Limonite Av.	e/o Harrison Av.	89.49%	7.02%	3.48%	100.00%
13	Limonite Av.	e/o Sumner Av.	89.44%	7.03%	3.52%	100.00%
14	Limonite Av.	e/o Scholar Wy.	89.43%	7.04%	3.53%	100.00%
15	Limonite Av.	e/o Hamner Av.	89.49%	7.04%	3.47%	100.00%

[1] Source: The Homestead Traffic Impact Analysis, Urban Crossroads, Inc.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

6.3 VIBRATION ASSESSMENT

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-9. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. The FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-9: 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

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.

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7 OFF-SITE TRANSPORTATION NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with the proposed Project, noise contours were developed based on *The Homestead Traffic Impact Analysis*. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Conditions Without / With Project: This scenario refers to the existing present-day noise conditions without and with the proposed Project.
- Opening Year 2021 Without / With the Project: This scenario refers to Opening Year noise conditions without and with the proposed Project. This scenario includes all cumulative projects identified in the Traffic Impact Analysis.
- Interim Year 2023 Without / With the Project: This scenario refers to Interim Year noise conditions without and with the proposed Project. This scenario includes all cumulative projects identified in the Traffic Impact Analysis.
- Horizon Year 2040 Without / With the Project: This scenario refers to Horizon Year noise conditions without and with the proposed Project. This scenario includes all cumulative projects identified in the Traffic Impact Analysis.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 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 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 7-8 present a summary of the exterior traffic noise levels, without barrier attenuation, for the 15 study area roadway segments analyzed from the without Project to the with Project conditions in each of the analysis timeframes. Appendix 7.1 includes a summary of the traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Chino Av.	Residential	76.0	185	399	860
2	Archibald Av.	s/o Chino Av.	Residential	75.5	173	372	802
3	Archibald Av.	s/o Schaefer Av.	Residential	75.2	165	355	766
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	75.8	180	388	836
5	Archibald Av.	s/o Eucalyptus Av.	Residential	75.7	176	380	819
6	Archibald Av.	s/o Merrill Av.	Residential	75.9	184	396	853
7	Archibald Av.	s/o Limonite Av.	Residential	74.0	141	305	656
8	Archibald Av.	s/o 65th St.	Residential	74.6	154	333	717
9	Kimball Av.	w/o Hellman Av.	Residential	74.3	95	204	440
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	n/a	RW	RW	RW
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	72.4	109	235	506
12	Limonite Av.	e/o Harrison Av.	Residential	72.8	117	253	545
13	Limonite Av.	e/o Sumner Av.	Residential	73.2	123	266	572
14	Limonite Av.	e/o Scholar Wy.	Residential	73.7	135	290	626
15	Limonite Av.	e/o Hamner Av.	Commercial	73.2	124	268	577

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road; "n/a" = Roadway segment does not exist in the given scenario.

TABLE 7-2: EXISTING WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Chino Av.	Residential	76.2	191	412	888
2	Archibald Av.	s/o Chino Av.	Residential	75.8	179	385	831
3	Archibald Av.	s/o Schaefer Av.	Residential	75.5	171	369	795
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	76.0	186	401	865
5	Archibald Av.	s/o Eucalyptus Av.	Residential	75.9	183	394	848
6	Archibald Av.	s/o Merrill Av.	Residential	76.2	190	410	883
7	Archibald Av.	s/o Limonite Av.	Residential	74.1	144	309	666
8	Archibald Av.	s/o 65th St.	Residential	74.6	155	333	718
9	Kimball Av.	w/o Hellman Av.	Residential	74.5	98	212	456
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	58.9	RW	RW	RW
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	72.7	115	248	535
12	Limonite Av.	e/o Harrison Av.	Residential	73.2	123	266	572
13	Limonite Av.	e/o Sumner Av.	Residential	73.4	129	278	599
14	Limonite Av.	e/o Scholar Wy.	Residential	74.0	140	302	651
15	Limonite Av.	e/o Hamner Av.	Commercial	73.4	129	278	598

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road; "n/a" = Roadway segment does not exist in the given scenario.

TABLE 7-3: OPENING YEAR WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Chino Av.	Residential	76.4	198	428	921
2	Archibald Av.	s/o Chino Av.	Residential	76.0	186	401	865
3	Archibald Av.	s/o Schaefer Av.	Residential	75.7	178	385	829
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	76.2	192	415	893
5	Archibald Av.	s/o Eucalyptus Av.	Residential	76.1	189	407	876
6	Archibald Av.	s/o Merrill Av.	Residential	76.3	195	421	906
7	Archibald Av.	s/o Limonite Av.	Residential	74.4	149	321	691
8	Archibald Av.	s/o 65th St.	Residential	74.9	162	349	752
9	Kimball Av.	w/o Hellman Av.	Residential	74.6	99	213	459
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	56.6	RW	RW	RW
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	72.9	119	256	551
12	Limonite Av.	e/o Harrison Av.	Residential	73.3	127	273	589
13	Limonite Av.	e/o Sumner Av.	Residential	73.6	133	286	616
14	Limonite Av.	e/o Scholar Wy.	Residential	74.2	145	312	672
15	Limonite Av.	e/o Hamner Av.	Commercial	73.6	133	286	617

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road; "n/a" = Roadway segment does not exist in the given scenario.

TABLE 7-4: OPENING YEAR WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Chino Av.	Residential	76.6	204	440	948
2	Archibald Av.	s/o Chino Av.	Residential	76.2	192	414	892
3	Archibald Av.	s/o Schaefer Av.	Residential	76.0	185	398	857
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	76.4	199	428	921
5	Archibald Av.	s/o Eucalyptus Av.	Residential	76.3	195	420	905
6	Archibald Av.	s/o Merrill Av.	Residential	76.5	202	434	936
7	Archibald Av.	s/o Limonite Av.	Residential	74.5	151	325	701
8	Archibald Av.	s/o 65th St.	Residential	74.9	162	350	753
9	Kimball Av.	w/o Hellman Av.	Residential	74.8	102	220	475
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	60.9	RW	RW	88
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	73.2	125	268	578
12	Limonite Av.	e/o Harrison Av.	Residential	73.6	133	286	615
13	Limonite Av.	e/o Sumner Av.	Residential	73.9	138	298	641
14	Limonite Av.	e/o Scholar Wy.	Residential	74.4	150	323	697
15	Limonite Av.	e/o Hamner Av.	Commercial	73.9	137	296	637

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road; "n/a" = Roadway segment does not exist in the given scenario.

TABLE 7-5: INTERIM YEAR WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Chino Av.	Residential	76.7	208	449	967
2	Archibald Av.	s/o Chino Av.	Residential	76.4	196	423	911
3	Archibald Av.	s/o Schaefer Av.	Residential	76.1	188	406	875
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	76.5	202	435	937
5	Archibald Av.	s/o Eucalyptus Av.	Residential	76.4	198	427	919
6	Archibald Av.	s/o Merrill Av.	Residential	76.6	204	440	947
7	Archibald Av.	s/o Limonite Av.	Residential	75.2	168	362	781
8	Archibald Av.	s/o 65th St.	Residential	75.2	168	362	781
9	Kimball Av.	w/o Hellman Av.	Residential	74.8	102	220	475
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	58.8	RW	RW	RW
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	73.3	126	271	583
12	Limonite Av.	e/o Harrison Av.	Residential	73.7	134	288	621
13	Limonite Av.	e/o Sumner Av.	Residential	74.0	140	301	648
14	Limonite Av.	e/o Scholar Wy.	Residential	74.5	152	328	707
15	Limonite Av.	e/o Hamner Av.	Commercial	73.9	139	300	647

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road; "n/a" = Roadway segment does not exist in the given scenario.

TABLE 7-6: INTERIM YEAR WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Chino Av.	Residential	76.9	214	461	993
2	Archibald Av.	s/o Chino Av.	Residential	76.5	202	435	938
3	Archibald Av.	s/o Schaefer Av.	Residential	76.3	194	419	902
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	76.7	208	448	964
5	Archibald Av.	s/o Eucalyptus Av.	Residential	76.6	204	440	947
6	Archibald Av.	s/o Merrill Av.	Residential	76.8	210	453	976
7	Archibald Av.	s/o Limonite Av.	Residential	75.3	170	367	790
8	Archibald Av.	s/o 65th St.	Residential	75.2	168	363	782
9	Kimball Av.	w/o Hellman Av.	Residential	75.0	106	227	490
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	61.9	RW	RW	102
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	73.6	131	283	610
12	Limonite Av.	e/o Harrison Av.	Residential	74.0	139	300	647
13	Limonite Av.	e/o Sumner Av.	Residential	74.2	145	312	673
14	Limonite Av.	e/o Scholar Wy.	Residential	74.7	158	339	731
15	Limonite Av.	e/o Hamner Av.	Commercial	74.1	144	310	667

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road; "n/a" = Roadway segment does not exist in the given scenario.

TABLE 7-7: HORIZON YEAR WITHOUT PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Chino Av.	Residential	77.4	232	500	1077
2	Archibald Av.	s/o Chino Av.	Residential	77.1	221	475	1024
3	Archibald Av.	s/o Schaefer Av.	Residential	76.9	214	460	992
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	77.8	243	524	1129
5	Archibald Av.	s/o Eucalyptus Av.	Residential	77.7	242	522	1125
6	Archibald Av.	s/o Merrill Av.	Residential	78.0	253	545	1174
7	Archibald Av.	s/o Limonite Av.	Residential	76.4	203	438	943
8	Archibald Av.	s/o 65th St.	Residential	75.5	178	383	825
9	Kimball Av.	w/o Hellman Av.	Residential	77.1	146	314	675
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	75.2	170	366	789
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	77.3	232	499	1075
12	Limonite Av.	e/o Harrison Av.	Residential	77.4	236	509	1098
13	Limonite Av.	e/o Sumner Av.	Residential	76.4	203	438	943
14	Limonite Av.	e/o Scholar Wy.	Residential	76.3	200	430	926
15	Limonite Av.	e/o Hamner Av.	Commercial	77.1	225	485	1044

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-8: HORIZON YEAR WITH PROJECT CONDITIONS NOISE CONTOURS

ID	Road	Segment	Adjacent Planned (Existing) Land Use[1]	CNEL at Nearest Adjacent Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Archibald Av.	n/o Chino Av.	Residential	77.6	237	511	1101
2	Archibald Av.	s/o Chino Av.	Residential	77.3	226	487	1050
3	Archibald Av.	s/o Schaefer Av.	Residential	77.1	219	472	1017
4	Archibald Av.	s/o Ontario Ranch Rd.	Residential	77.9	249	536	1154
5	Archibald Av.	s/o Eucalyptus Av.	Residential	77.9	248	534	1150
6	Archibald Av.	s/o Merrill Av.	Residential	78.1	259	557	1200
7	Archibald Av.	s/o Limonite Av.	Residential	76.5	205	442	952
8	Archibald Av.	s/o 65th St.	Residential	75.5	178	383	826
9	Kimball Av.	w/o Hellman Av.	Residential	77.2	148	319	688
10	Limonite Av.	e/o Hellman Av.	Industrial (Agr.)	75.3	173	372	801
11	Limonite Av.	e/o Archibald Av.	Commercial/Res.	77.4	236	508	1095
12	Limonite Av.	e/o Harrison Av.	Residential	77.5	241	519	1117
13	Limonite Av.	e/o Sumner Av.	Residential	76.5	208	447	964
14	Limonite Av.	e/o Scholar Wy.	Residential	76.4	204	440	947
15	Limonite Av.	e/o Hamner Av.	Commercial	77.2	228	492	1060

[1] Sources: The Ontario Plan Exhibit LU-01, City of Chino General Plan Land Use Element Figure LU-2, and the City of Eastvale Land Use Map.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING CONDITIONS PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report. However, the analysis of existing traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until Opening Year and later cumulative conditions.

Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 72.4 to 76.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 58.9 to 76.2 dBA CNEL. Table 7-9 shows that the Project off-site traffic noise level increases will range from 0.0 to 0.4 dBA CNEL.

TABLE 7-7: UNMITIGATED EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	Archibald Av.	n/o Chino Av.	76.0	76.2	0.2	Yes	No
2	Archibald Av.	s/o Chino Av.	75.5	75.8	0.3	Yes	No
3	Archibald Av.	s/o Schaefer Av.	75.2	75.5	0.3	Yes	No
4	Archibald Av.	s/o Ontario Ranch Rd.	75.8	76.0	0.2	Yes	No
5	Archibald Av.	s/o Eucalyptus Av.	75.7	75.9	0.2	Yes	No
6	Archibald Av.	s/o Merrill Av.	75.9	76.2	0.3	Yes	No
7	Archibald Av.	s/o Limonite Av.	74.0	74.1	0.1	Yes	No
8	Archibald Av.	s/o 65th St.	74.6	74.6	0.0	Yes	No
9	Kimball Av.	w/o Hellman Av.	74.3	74.5	0.2	Yes	No
10	Limonite Av.	e/o Hellman Av.	n/a	58.9	n/a	No	No
11	Limonite Av.	e/o Archibald Av.	72.4	72.7	0.3	Yes	No
12	Limonite Av.	e/o Harrison Av.	72.8	73.2	0.4	Yes	No
13	Limonite Av.	e/o Sumner Av.	73.2	73.4	0.2	Yes	No
14	Limonite Av.	e/o Scholar Wy.	73.7	74.0	0.3	Yes	No
15	Limonite Av.	e/o Hamner Av.	73.2	73.4	0.2	No	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[2] Significance Criteria (Section 4).
"n/a" = Roadway segment does not exist in the given scenario.

7.3 OPENING YEAR 2021 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-3 presents the Opening Year without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 56.6 to 76.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Opening Year with Project conditions will range from 60.9 to 76.6 dBA CNEL. As shown on Table 7-10 the Project will generate a noise level increase of up to 4.3 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Opening Year conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-10: UNMITIGATED OPENING YEAR WITH PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	Archibald Av.	n/o Chino Av.	76.4	76.6	0.2	Yes	No
2	Archibald Av.	s/o Chino Av.	76.0	76.2	0.2	Yes	No
3	Archibald Av.	s/o Schaefer Av.	75.7	76.0	0.3	Yes	No
4	Archibald Av.	s/o Ontario Ranch Rd.	76.2	76.4	0.2	Yes	No
5	Archibald Av.	s/o Eucalyptus Av.	76.1	76.3	0.2	Yes	No
6	Archibald Av.	s/o Merrill Av.	76.3	76.5	0.2	Yes	No
7	Archibald Av.	s/o Limonite Av.	74.4	74.5	0.1	Yes	No
8	Archibald Av.	s/o 65th St.	74.9	74.9	0.0	Yes	No
9	Kimball Av.	w/o Hellman Av.	74.6	74.8	0.2	Yes	No
10	Limonite Av.	e/o Hellman Av.	56.6	60.9	4.3	No	No
11	Limonite Av.	e/o Archibald Av.	72.9	73.2	0.3	Yes	No
12	Limonite Av.	e/o Harrison Av.	73.3	73.6	0.3	Yes	No
13	Limonite Av.	e/o Sumner Av.	73.6	73.9	0.3	Yes	No
14	Limonite Av.	e/o Scholar Wy.	74.2	74.4	0.2	Yes	No
15	Limonite Av.	e/o Hamner Av.	73.6	73.9	0.3	No	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[2] Significance Criteria (Section 4).
"n/a" = Roadway segment does not exist in the given scenario.

7.4 INTERIM YEAR 2023 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-5 presents the Interim Year without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 58.8 to 76.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the Interim Year with Project conditions will range from 61.9 to 76.9 dBA CNEL. As shown on Table 7-11 the Project will generate a noise level increase of up to 3.1 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Interim Year conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-11: UNMITIGATED INTERIM YEAR WITH PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	Archibald Av.	n/o Chino Av.	76.7	76.9	0.2	Yes	No
2	Archibald Av.	s/o Chino Av.	76.4	76.5	0.1	Yes	No
3	Archibald Av.	s/o Schaefer Av.	76.1	76.3	0.2	Yes	No
4	Archibald Av.	s/o Ontario Ranch Rd.	76.5	76.7	0.2	Yes	No
5	Archibald Av.	s/o Eucalyptus Av.	76.4	76.6	0.2	Yes	No
6	Archibald Av.	s/o Merrill Av.	76.6	76.8	0.2	Yes	No
7	Archibald Av.	s/o Limonite Av.	75.2	75.3	0.1	Yes	No
8	Archibald Av.	s/o 65th St.	75.2	75.2	0.0	Yes	No
9	Kimball Av.	w/o Hellman Av.	74.8	75.0	0.2	Yes	No
10	Limonite Av.	e/o Hellman Av.	58.8	61.9	3.1	No	No
11	Limonite Av.	e/o Archibald Av.	73.3	73.6	0.3	Yes	No
12	Limonite Av.	e/o Harrison Av.	73.7	74.0	0.3	Yes	No
13	Limonite Av.	e/o Sumner Av.	74.0	74.2	0.2	Yes	No
14	Limonite Av.	e/o Scholar Wy.	74.5	74.7	0.2	Yes	No
15	Limonite Av.	e/o Hamner Av.	73.9	74.1	0.2	No	No

[1] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest adjacent land use.
[2] Significance Criteria (Section 4).
"n/a" = Roadway segment does not exist in the given scenario.

7.5 HORIZON YEAR 2040 PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-7 presents the Horizon Year without Project conditions CNEL noise levels. The without Project exterior noise levels are expected to range from 75.2 to 78.0 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-8 shows the Horizon Year with Project conditions will range from 75.3 to 78.1 dBA CNEL. As shown on Table 7-11 the Project will generate a noise level increase of up to 0.2 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Horizon Year conditions at the land uses adjacent to roadways conveying Project traffic.

TABLE 7-12: UNMITIGATED HORIZON YEAR WITH PROJECT TRAFFIC NOISE IMPACTS

ID	Road	Segment	CNEL at Adjacent Land Use (dBA)[1]			Noise-Sensitive Land Use?	Threshold Exceeded?[2]
			No Project	With Project	Project Addition		
1	Archibald Av.	n/o Chino Av.	77.4	77.6	0.2	Yes	No
2	Archibald Av.	s/o Chino Av.	77.1	77.3	0.2	Yes	No
3	Archibald Av.	s/o Schaefer Av.	76.9	77.1	0.2	Yes	No
4	Archibald Av.	s/o Ontario Ranch Rd.	77.8	77.9	0.1	Yes	No
5	Archibald Av.	s/o Eucalyptus Av.	77.7	77.9	0.2	Yes	No
6	Archibald Av.	s/o Merrill Av.	78.0	78.1	0.1	Yes	No
7	Archibald Av.	s/o Limonite Av.	76.4	76.5	0.1	Yes	No
8	Archibald Av.	s/o 65th St.	75.5	75.5	0.0	Yes	No
9	Kimball Av.	w/o Hellman Av.	77.1	77.2	0.1	Yes	No
10	Limonite Av.	e/o Hellman Av.	75.2	75.3	0.1	No	No
11	Limonite Av.	e/o Archibald Av.	77.3	77.4	0.1	Yes	No
12	Limonite Av.	e/o Harrison Av.	77.4	77.5	0.1	Yes	No
13	Limonite Av.	e/o Sumner Av.	76.4	76.5	0.1	Yes	No
14	Limonite Av.	e/o Scholar Wy.	76.3	76.4	0.1	Yes	No
15	Limonite Av.	e/o Hamner Av.	77.1	77.2	0.1	No	No

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

[2] Significance Criteria (Section 4).

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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, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Receivers are located in outdoor living areas (e.g., backyards) at 10 feet from any existing or proposed barriers or at the building façade, whichever is closer to the Project site, based on FHWA guidance, and consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Sensitive receiver locations in the Project study area include residential uses, as described below. 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.

R1: Located approximately 716 feet south of the Project site, R1 represents existing residential homes. A 24-hour noise measurement was taken near this location, L3, to describe the existing ambient noise environment.

R2: Location R2 represents the existing residential homes located northwest of the Project site at roughly 238 feet. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R3: Location R3 represents the existing residential homes southeast of the Project site at approximately 1,422 feet. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

R4: Location R4 represents the existing residential homes located roughly 1,327 feet south of the Project site. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

EXHIBIT 8-A: SENSITIVE RECEIVER LOCATIONS

LEGEND:

Receiver Locations
Distance from receiver to Project site boundary (in feet)
6' Existing Barrier Height (in feet)
Existing Barrier

9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from operation of the proposed The Homestead Project. Exhibit 9-A identifies the representative receiver locations and noise source locations used to assess the operational noise levels. Appendix 9.1 includes the detailed calculations for the Project operational noise levels presented in this section.

9.1 OPERATIONAL NOISE SOURCES

At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown. The on-site Project-related noise sources are expected to include: idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site.

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 idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements all operating simultaneously. These noise levels will likely vary throughout the day.

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. (21)

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Reference Meas. Duration (hh:mm:ss)	Dist. From Source (Feet)	Noise Source Height (Feet)	Hourly Activity (Min.)[4]	Reference Noise Levels (dBA) at Reference Meas. Distance			Reference Noise Levels (dBA) at Uniform 50 Feet		
					L_{eq}	L_{25}	L_{max}	L_{eq}	L_{25}	L_{max}
Roof-Top Air Conditioning Unit[1]	96:00:00	5'	5'	60	77.2	76.1	78.2	57.2	56.1	58.2
Parking Lot Vehicle Movements[2]	01:0:00	10'	5'	60	52.2	50.0	71.9	38.2	36.0	57.9
Truck Unloading/Docking Activity[3]	00:15:00	30'	8'	60	67.2	67.2	80.0	62.8	62.8	75.6

[1] As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.
[2] As measured by Urban Crossroads, Inc. on 5/17/2017 at the Panasonic Avionics Corporation parking lot in the City of Lake Forest.
[3] As measured by Urban Crossroads, Inc. on 1/7/2015 at the Motivational Fulfillment & Logistics Services distribution facility in Chino.
[4] Anticipated duration (minutes within the hour) of noise activity during peak hourly conditions expected at the Project site.

9.2.2 ROOF-TOP AIR CONDITIONING UNITS

To assess the impacts created by the roof-top air conditioning units at the Project buildings, reference noise levels measurements were taken over a four-day total duration at the Santee Walmart on July 27th, 2015. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe mechanical roof-top air conditioning units on the roof of an existing Walmart store, with additional roof-top units operating in the background. The reference noise level represents Lennox SCA120 series 10-ton model packaged air conditioning units. At 5 feet from the closest roof-top air conditioning unit, the highest exterior noise level from all four days of the measurement period was measured at 77.2 dBA L_{eq}. Using the uniform reference distance of 50 feet, the noise level is 57.2 dBA L_{eq}. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F.

9.2.3 PARKING LOT VEHICLE MOVEMENTS (AUTOS)

To determine the noise levels associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements over a 24-hour period on May 17th, 2017 at the parking lot for the Panasonic Avionics Corporation in the City of Lake Forest. The peak hour of activity measured over the 24-hour noise level measurement period occurred between 12:00 p.m. to 1:00 p.m., or the typical lunch hour for employees working in the area. The measured reference noise level at 50 feet from parking lot vehicle movements was measured at 41.7 dBA L_{eq}. The parking lot noise levels are mainly due to cars pulling in and out of spaces during peak lunch hour activity and employees talking.

9.2.4 TRUCK IDLING, DELIVERIES, BACKUP ALARMS, UNLOADING/LOADING, AND DOCKING

A single, short-term reference noise level measurement was collected on Wednesday, January 7th, 2015, by Urban Crossroads, Inc. at the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino. The noise level measurement represents the typical weekday dry goods logistics warehouse operation in a single building, of roughly 285,000 square feet, with a loading dock area on the western side of the building façade. The noise sources observed in the truck court area included a combination of Heavy Trucks (tractor trailer semi-trucks), Medium Trucks (two-axle delivery trucks), container loading/unloading, background truck idle, unloading, and movements, and background forklift operations, as follows:

- 1 Medium Truck unloading and idling in the background, to the left of the measurement location at roughly 100 feet;
- 1 Medium Truck movement to exit the truck court during the reference measurement in front of the sound level meter location at roughly 20 feet when passing by;
- 1 Medium Truck unloading and idling in the background, to the right of the measurement location at roughly 50 feet;
- 1 Medium Truck movement to exit the truck court during the reference measurement to the right of the sound level meter location at approximately 50 feet;
- 1 Heavy Truck container unloading in the background, to the right of the measurement location at roughly 50 feet;
- 1 Heavy Truck movement into the truck court in front of the reference measurement location, backing up to a loading dock, unloading, and idling at approximately 30 feet;
- 1 Medium Truck idling and unloading at loading docks immediately across from the reference measurement location at roughly 30 feet;
- 1 Heavy Truck container unloading immediately across from the reference measurement location at roughly 30 feet;
- 1 Heavy Truck entry movement into the truck court, backing up to a loading dock, unloading, and idling immediately across from the reference measurement location at roughly 50 feet;
- 8 Heavy Truck containers docked at loading bays in various stages of unloading/loading activity at distances ranging from 50 to 100 feet;
- Background forklift movements and interior activities generating noise through the open warehouse doors, at distances ranging from 100 to 200 feet.

The unloading/docking activity noise level measurement was taken over a fifteen-minute period and represents multiple noise sources, as described above, taken from the center of loading dock activities generating a reference noise level of 62.8 dBA L_{eq} at a uniform reference distance of 50 feet. The noise sources associated with employees unloading a docked truck container included the squeaking of the truck's shocks when weight was removed from the truck, employees playing music over a radio, as well as a forklift horn and backup alarm.

9.3 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include idling trucks, delivery truck activities, backup alarms, as well as loading and unloading of dry goods, roof-top air conditioning units, and parking lot vehicle movements, 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. The operational noise level calculations, shown on Table 9-2, 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. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL_1):

$$SPL_2 = SPL_1 - 20\log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location.

Table 9-2 shows the individual operational noise levels of each noise source at each of the nearby sensitive receiver locations. As indicated on Table 9-3, the Project-only operational noise levels will range from 27.6 to 38.2 dBA L_{eq} at the sensitive receiver locations. The Project operational noise level calculations include the barrier and berm attenuation provided by the existing noise barriers and the Project buildings, where applicable.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

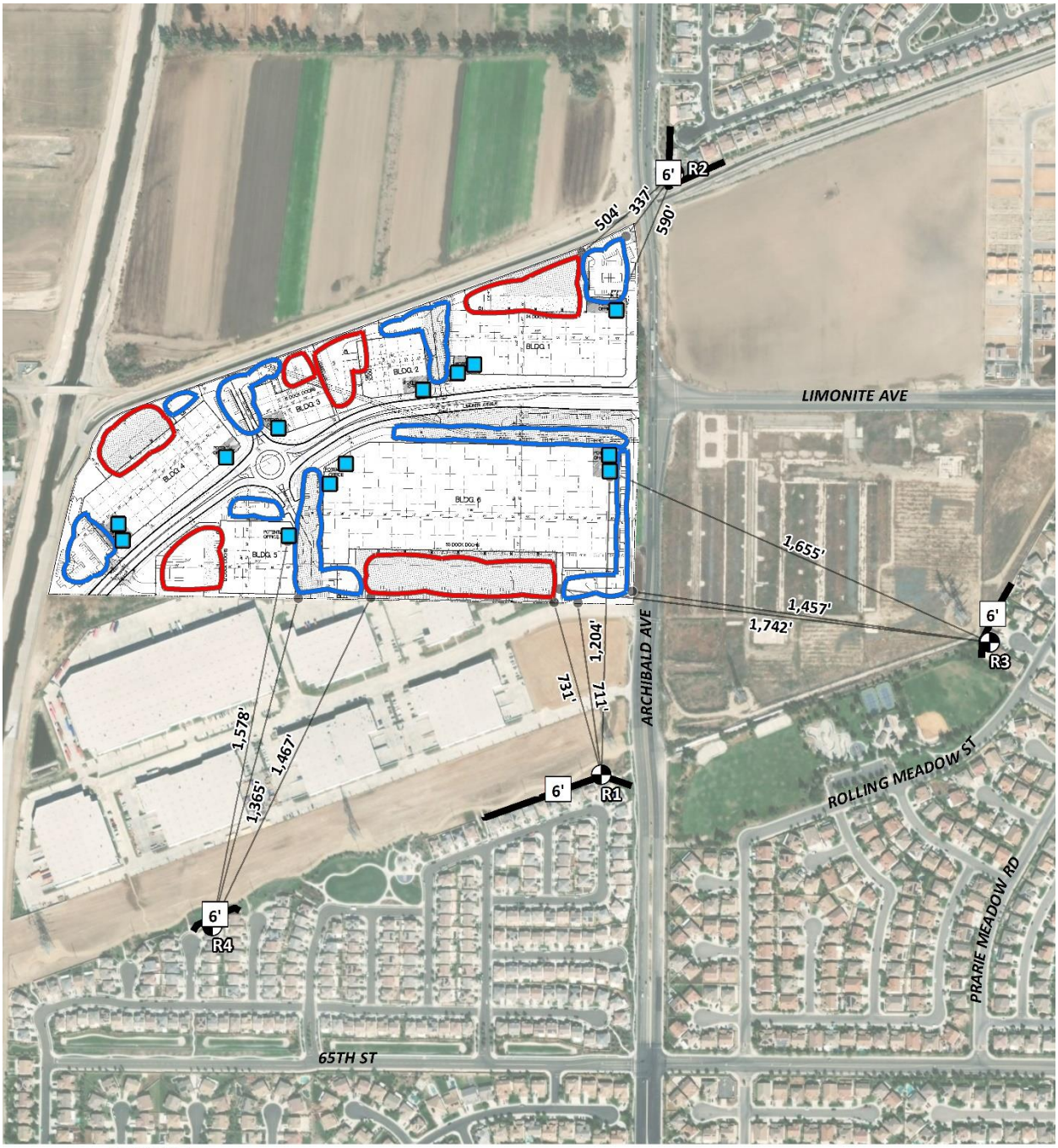

TABLE 9-2: UNMITIGATED PROJECT-ONLY OPERATIONAL NOISE LEVELS

Receiver Location[1]	Noise Source[2]	Project Operational Noise Levels (dBA)[3]		
		L_{eq} (E. Avg.)	L_{25} (15 mins)	L_{max} (Anytime)
R1	Roof-Top Air Conditioning Unit	24.3	23.2	25.3
	Truck Unloading/Docking Activity	34.0	34.0	46.8
	Parking Lot Vehicle Movements	9.7	7.5	29.4
	Combined Noise Level:	34.5	34.4	46.9
R2	Roof-Top Air Conditioning Unit	30.7	29.6	31.7
	Truck Unloading/Docking Activity	37.3	37.3	50.1
	Parking Lot Vehicle Movements	16.1	13.9	35.8
	Combined Noise Level:	38.2	38.0	50.3
R3	Roof-Top Air Conditioning Unit	21.5	20.4	22.5
	Truck Unloading/Docking Activity	26.4	26.4	39.2
	Parking Lot Vehicle Movements	3.4	1.2	23.1
	Combined Noise Level:	27.6	27.4	39.4
R4	Roof-Top Air Conditioning Unit	21.9	20.8	22.9
	Truck Unloading/Docking Activity	27.9	27.9	40.7
	Parking Lot Vehicle Movements	4.0	1.8	23.7
	Combined Noise Level:	28.9	28.7	40.9

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 9-1.
[3] Operational noise level calculations are provided in Appendix 9.1.

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Eastvale and City of Ontario exterior noise level standards. Table 9-3 shows the operational noise levels associated with The Homestead Project will satisfy the exterior noise level standards at receiver locations during the daytime and nighttime hours, and therefore, the Project-related unmitigated operational noise levels are considered *less than significant* impacts.

TABLE 9-3: UNMITIGATED OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver ID[1]	City	Noise Level at Receiver Locations (dBA)[2]			Threshold Exceeded?[3]	
		L_{eq} (E. Avg.)	L_{25} (15 mins)	L_{max} (Anytime)	Daytime	Nighttime
Residential Standards	**Eastvale**	**60**	**-**	**-**	**-**	**-**
		50	**-**	**-**	**-**	**-**
	Ontario	**65**	**65**	**85**	**-**	**-**
		45	**45**	**65**	**-**	**-**
R1	Eastvale	34.5	34.4	46.9	No	No
R2	Ontario	38.2	38.0	50.3	No	No
R3	Eastvale	27.6	27.4	39.4	No	No
R4	Eastvale	28.9	28.7	40.9	No	No

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Unmitigated Project operational noise levels as shown on Table 9-2.
[3] Do the estimated Project operational noise levels meet the operational noise level standards (Table 3-1)?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "E. Avg." = logarithmic (energy) average

9.4 PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTIONS

To describe the Project operational noise level contributions, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby 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. (4) 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 describe the Project noise level contributions to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the daytime and nighttime ambient conditions are presented on Tables 9-4 and 9-5, respectively.

As indicated on Tables 9-4 and 9-5, the Project is not shown to generate an unmitigated daytime or nighttime operational noise level increase due to high ambient noise levels measured in the Project study area. Since the Project-related operational noise level contributions will satisfy the operational noise level increase significance criteria presented in Table 4-2, the increases at the sensitive receiver locations will be *less than significant*.

TABLE 9-4: PROJECT DAYTIME NOISE LEVEL CONTRIBUTIONS

Receiver ID[1]	Unmitigated Project Noise Levels (dBA L_{eq})[2]	Measurement Location[3]	Reference Ambient Noise Levels (dBA L_{eq})[4]	Combined Project and Ambient (dBA L_{eq})[5]	Project Contribution (dBA L_{eq})[6]	Threshold?[7]	Threshold Exceeded?[7]
R1	34.5	L3	62.8	62.8	0.0	3.0	No
R2	38.2	L1	67.4	67.4	0.0	1.5	No
R3	27.6	L3	62.8	62.8	0.0	3.0	No
R4	28.9	L4	57.6	57.6	0.0	5.0	No

[1] See Exhibit 9-A for the sensitive receiver locations.
[2] Unmitigated Project 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 Criteria as defined in Section 4.

TABLE 9-5: PROJECT NIGHTTIME NOISE LEVEL CONTRIBUTIONS

Receiver ID[1]	Unmitigated Project Noise Levels (dBA L_{eq})[2]	Measurement Location[3]	Reference Ambient Noise Levels (dBA L_{eq})[4]	Combined Project and Ambient (dBA L_{eq})[5]	Project Contribution (dBA L_{eq})[6]	Threshold?[7]	Threshold Exceeded?[7]
R1	34.5	L3	62.4	62.4	0.0	3.0	No
R2	38.2	L1	65.6	65.6	0.0	1.5	No
R3	27.6	L3	62.4	62.4	0.0	3.0	No
R4	28.9	L4	50.9	50.9	0.0	5.0	No

[1] See Exhibit 9-A for the sensitive receiver locations.
[2] Unmitigated Project operational noise levels as shown on Table 9-3.
[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 Criteria as defined in Section 4.

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 nearby sensitive receiver locations previously described in Section 8.

10.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment is expected to occur in the following stages, based on *Air Quality Impact Analysis* prepared for the Project: (30)

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

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver and would be further reduced to 68 dBA at 200 feet from the source to the receiver.

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 10-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS

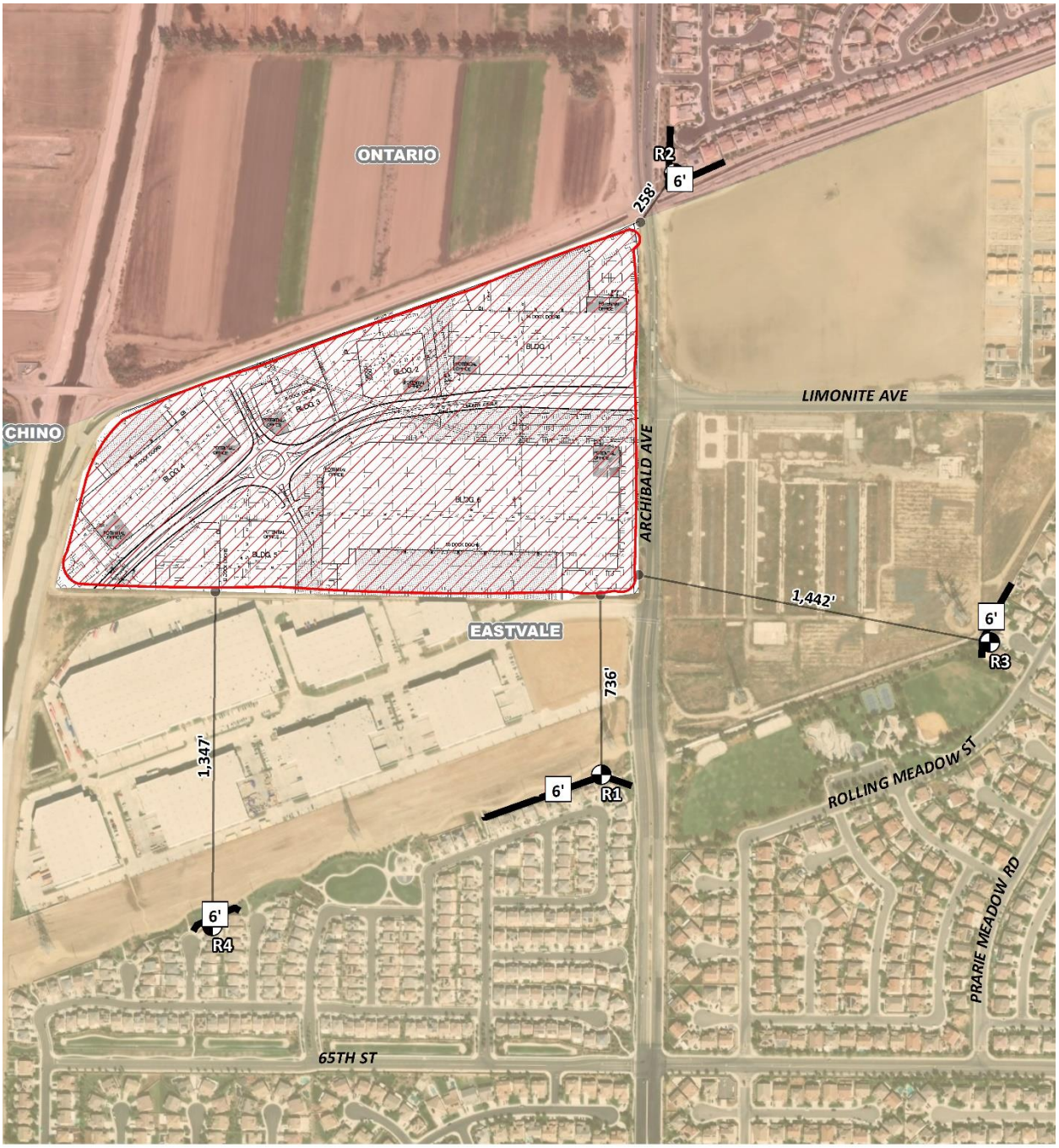

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L_{eq})	Reference Noise Levels @ 50 Feet (dBA L_{eq})[5]
1	Truck Pass-Bys & Dozer Activity[1]	30'	63.6	59.2
2	Dozer Activity[1]	30'	68.6	64.2
3	Construction Vehicle Maintenance Activities[2]	30'	71.9	67.5
4	Foundation Trenching[2]	30'	72.6	68.2
5	Rough Grading Activities[2]	30'	77.9	73.5
6	Framing[3]	30'	66.7	62.3
7	Concrete Mixer Truck Movements[4]	50'	71.2	71.2
8	Concrete Paver Activities[4]	30'	70.0	65.6
9	Concrete Mixer Pour & Paving Activities[4]	30'	70.3	65.9
10	Concrete Mixer Backup Alarms & Air Brakes[4]	50'	71.6	71.6
11	Concrete Mixer Pour Activities[4]	50'	67.7	67.7
12	Forklift, Jackhammer, & Metal Truck Bed Activities[5]	50'	67.9	67.9

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[3] As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.
[4] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[5] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Tables 10-2 to 10-6 present the short-term construction noise levels for each stage of construction. Table 10-7 provides a summary of the construction noise levels by stage at the nearby noise-sensitive receiver locations. Based on the stages of construction, the noise impacts associated with the proposed Project are expected to create temporarily high noise levels at the nearby receiver locations. To assess the worst-case construction noise levels, this analysis shows the highest noise impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity to each receiver location.

TABLE 10-2: DEMOLITION/SITE PREPARATION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Forklift, Jackhammer, & Metal Truck Bed Activities	67.9
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	67.9

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	736'	-23.4	-5.0	39.5
R2	258'	-14.3	-5.0	48.6
R3	1,442'	-29.2	-5.0	33.7
R4	1,347'	-28.6	-5.0	34.3

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

TABLE 10-3: GRADING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Truck Pass-Bys & Dozer Activity	59.2
Dozer Activity	64.2
Rough Grading Activities	73.5
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	73.5

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	736'	-23.4	-5.0	45.1
R2	258'	-14.3	-5.0	54.2
R3	1,442'	-29.2	-5.0	39.3
R4	1,347'	-28.6	-5.0	39.9

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

TABLE 10-4: BUILDING CONSTRUCTION EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Construction Vehicle Maintenance Activities	67.5
Foundation Trenching	68.2
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	68.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	736'	-23.4	-5.0	39.8
R2	258'	-14.3	-5.0	48.9
R3	1,442'	-29.2	-5.0	34.0
R4	1,347'	-28.6	-5.0	34.6

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

TABLE 10-5: PAVING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Concrete Mixer Truck Movements	71.2
Concrete Paver Activities	65.6
Concrete Mixer Pour & Paving Activities	65.9
Concrete Mixer Backup Alarms & Air Brakes	71.6
Concrete Mixer Pour Activities	67.7
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	71.6

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	736'	-23.4	-5.0	43.2
R2	258'	-14.3	-5.0	52.3
R3	1,442'	-29.2	-5.0	37.4
R4	1,347'	-28.6	-5.0	38.0

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

TABLE 10-6: ARCHITECTURAL COATING EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})
Construction Vehicle Maintenance Activities	67.5
Framing	62.3
Highest Reference Noise Level at 50 Feet (dBA L_{eq}):	67.5

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA L_{eq})[3]	Estimated Noise Barrier Attenuation (dBA L_{eq})[4]	Construction Noise Level (dBA L_{eq})
R1	736'	-23.4	-5.0	39.1
R2	258'	-14.3	-5.0	48.2
R3	1,442'	-29.2	-5.0	33.3
R4	1,347'	-28.6	-5.0	33.9

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Estimated barrier attenuation from existing barriers in the Project study area.

10.4 CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from primary Project construction activity to each of the nearby receiver locations. As shown on Table 10-7, the unmitigated construction noise levels are expected to range from 33.3 to 54.2 dBA L_{eq} at the nearby receiver locations.

TABLE 10-7: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY (DBA L_{EQ})

Receiver Location[1]	Unmitigated Construction Noise Levels (dBA L_{eq})					
	Demolition & Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Construction Noise Levels[2]
R1	39.5	45.1	39.8	43.2	39.1	45.1
R2	48.6	54.2	48.9	52.3	48.2	54.2
R3	33.7	39.3	34.0	37.4	33.3	39.3
R4	34.3	39.9	34.6	38.0	33.9	39.9

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Estimated construction noise levels during peak operating conditions.

To evaluate whether the Project will generate potentially significant short-term noise levels at off-site sensitive receiver locations a construction-related the NIOSH noise level threshold of 85 dBA L_{eq} is used as acceptable thresholds for construction noise at the nearby sensitive receiver locations. Table 10-8 shows the highest construction noise levels at the potentially impacted receiver locations are expected to approach 54.2 dBA L_{eq} and will satisfy the NIOSH 85 dBA L_{eq} significance threshold during temporary Project construction activities. The noise impact due to unmitigated Project construction noise levels is, therefore, considered a *less than significant* impact at all nearby sensitive receiver locations.

TABLE 10-8: CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA L_{EQ})

Receiver Location[1]	Unmitigated Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Level[2]	Threshold[3]	Threshold Exceeded?[4]
R1	45.1	85	No
R2	54.2	85	No
R3	39.3	85	No
R4	39.9	85	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Estimated construction noise levels during peak operating conditions, as shown on Table 10-7.
[3] Construction noise level threshold as shown on Table 4-2.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.5 CONSTRUCTION NOISE LEVEL INCREASES

To describe the temporary Project construction noise level contributions to the existing ambient noise environment, the Project construction noise levels were combined with the existing ambient noise levels measurements at the off-site receiver locations. The difference between the combined Project-construction and ambient noise levels are used to describe the construction noise level contributions. Temporary noise level increases that would be experienced at sensitive receiver locations when Project construction-source noise is added to the ambient daytime conditions are presented on Table 10-9. A temporary noise level increase of 12 dBA L_{eq} is considered a potentially significant impact based on the Caltrans substantial noise level increase criteria which is used to assess the Project-construction noise level increases. (4) No nighttime construction activity is permitted in the City of Eastvale Municipal Code, and therefore, nighttime noise level increases are not evaluated in this analysis.

As indicated in Table 10-9, the Project will contribute unmitigated, worst-case construction noise level increases between 0.0 to 0.2 dBA L_{eq} at the adjacent sensitive receiver locations during the daytime hours. The worst-case temporary noise level increases during Project construction activities are shown to remain below the 12 dBA L_{eq} significance threshold at all receiver locations, and therefore, the unmitigated construction-source noise level increases are considered *less than significant*.

TABLE 10-9: UNMITIGATED CONSTRUCTION TEMPORARY NOISE LEVEL INCREASES

Receiver Location[1]	Highest Project Construction Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Temporary Worst-Case Project Contribution[6]	Threshold Exceeded?[7]
R1	45.1	L3	62.8	62.9	0.1	No
R2	54.2	L1	67.4	67.6	0.2	No
R3	39.3	L3	62.8	62.8	0.0	No
R4	39.9	L4	57.6	57.7	0.1	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest unmitigated Project construction noise levels as shown on Table 10-8.
[3] Ambient 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 construction activities.
[6] The temporary noise level increase expected with the addition of the proposed Project activities.
[7] Based on the 12 dBA temporary increase significance criteria as defined in Section 4.

10.6 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to buildings, the vibration is usually short-term and is not of sufficient magnitude to cause building damage.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-9 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-10 presents the expected Project related vibration levels at the nearby receiver locations.

At distances ranging from 258 to 1,442 feet from Project construction activities, construction peak vibration velocity levels are expected to approach 0.003 in/sec PPV and will remain below the City of Eastvale threshold of 0.0787 in/sec PPV at all receiver locations, as shown on Table 10-10. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.

Moreover, the impacts at the site of the closest sensitive receivers 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 10-10: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver Location[1]	Distance To Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					Threshold Exceeded?[3]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Levels (PPV)	
R1	736'	0.0000	0.0002	0.0005	0.0006	0.0006	No
R2	258'	0.0001	0.0011	0.0023	0.0027	0.0027	No
R3	1,442'	0.0000	0.0001	0.0002	0.0002	0.0002	No
R4	1,347'	0.0000	0.0001	0.0002	0.0002	0.0002	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-9.
[3] Does the peak vibration exceed the maximum acceptable vibration threshold shown on Table 3-1?

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11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **Urban Crossroads, Inc.** *The Homestead Traffic Impact Analysis.* July 2019.
3. **California Department of Transportation.** *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.* May 2011.
4. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* May 2006. FTA-VA-90-1003-06.
5. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
6. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
7. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
8. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
9. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
10. **Occupational Safety and Health Administration.** *Standard 29 CRF, Part 1910.*
11. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment.* September 2018.
12. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
13. **State of California.** *California Green Building Standards Code.* 2019.
14. **City of Eastvale.** *General Plan Noise Element.* June 2012.
15. **City of Ontario.** *The Ontario Plan, Safety Element, Section 4 Noise Hazards.* February 2018.
16. **City of Chino.** *General Plan Noise Element.* July 2010.
17. **City of Ontario.** *Municipal Code, Title 5, Chapter 29 - Noise.*
18. **City of Eastvale.** *Municipal Code, Section 8.52.020.*
19. **National Institute for Occupational Safety and Health.** *Criteria for Recommended Standard: Occupational Noise Exposure.* June 1998.
20. **City of Chino.** *Municipal Code, Chapter 9.40 - Noise, and Section 20.09.050 Airport Overlay District.*
21. **County of San Bernardino.** *Chino Airport Master Plan, Appendix B Environmental Overview.* 2010.
22. **San Bernardino County Airport Land Use Commission.** *Chino Airport Comprehensive Land Use Plan.* November 1991.
23. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.

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

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

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

27. **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.

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

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

30. **Urban Crossroads, Inc.** *The Homestead Air Quality Impact Analysis.* August 2019.

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed The Homestead 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) 336-5979.

Bill Lawson, P.E., INCE
Principal
URBAN CROSSROADS, INC.
260 E. Baker Street, Suite 200
Costa Mesa, CA 92626
(949) 336-5979
blawson@urbanxroads.com

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:

CITY OF EASTVALE MUNICIPAL CODE

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CHAPTER 8.52. - NOISE REGULATION

Sec. 8.52.010. - Reserved.

Sec. 8.52.020. - Exemptions.

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

(1) Facilities owned or operated by or for a governmental agency;

(2) Capital improvement projects of a governmental agency;

(3) The maintenance or repair of public properties;

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

(5) Public or private schools and school-sponsored activities;

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

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

(8) Private construction projects located one-quarter of a mile or more from an inhabited dwelling;

(9) Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that construction does not occur between the hours of:

a. 6:00 p.m. and 6:00 a.m. during the months of June through September; and

b. 6:00 p.m. and 7:00 a.m. during the months of October through May;

(10) Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.;

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

(12) Heating and air conditioning equipment;

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

(14) The discharge of firearms consistent with all state laws.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.030. - Definitions.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

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

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

(1) The term, "A-weighting (dBA)" means the standard A-weighted frequency response of a sound level meter, which de-emphasizes low and high frequencies of sound in a manner similar to the human ear for moderate sounds.

(2) The term "maximum sound level (Lmax)" means the maximum sound level measured on a sound level meter.

Governmental agency means the United States, the state, the county, any city within the county, any special district within the county or any combination of these agencies.

Land use permit means a discretionary permit issued by the city pursuant to title 120 (planning and zoning) of this Code.

Motor vehicle means a vehicle that is self-propelled.

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

Noise means any loud, discordant or disagreeable sound.

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

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

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

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

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

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

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

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.040. - General sound level standards.

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

TABLE 1. SOUND LEVEL STANDARDS (dB Lmax)

General Plan Foundation Component				Maximum Decibel Level	
Land Use Designation General Plan		Land Use Designation Name	Density	7:00 a.m.—10:00 p.m.	10:00 p.m.—7:00 a.m.
Community development					
	EDR	Estate density residential	2 acres	55	45
	VLDR	Very low-density residential	1 acre	55	45
	LDR	Low-density residential	½ acre	55	45
	MDR	Medium-density residential	2—5	55	45
	MHDR	Medium high-density residential	5—8	55	45
	HDR	High-density residential	8—14	55	45
	VHDR	Very high-density residential	14—20	55	45
	H'TDR	Highest density residential	20+	55	45
	CR	Retail commercial		65	55
	CO	Office commercial		65	55
	CT	Tourist commercial		65	55
	CC	Community center		65	55
	LI	Light industrial		75	55
	HI	Heavy industrial		75	75
	BP	Business park		65	45
	PF	Public facility		65	45
	SP	Specific plan-residential		55	45
		Specific plan-commercial		65	55

		Specific plan-light industrial		75	55
		Specific plan-heavy industrial		75	75
Rural community					
	EDR	Estate density residential	2 acres	55	45
	VLDR	Very low-density residential	1 acre	55	45
	LDR	Low-density residential	½ acre	55	45
Rural					
	RR	Rural residential	5 acres	45	45
	RM	Rural mountainous	10 acres	45	45
	RD	Rural desert	10 acres	45	45
Agriculture					
	AG	Agriculture	10 acres	45	45
Open space					
	C	Conservation		45	45
	CH	Conservation habitat		45	45
	REC	Recreation		45	45
	RUR	Rural	20 acres	45	45
	W	Watershed		45	45
	MR	Mineral resources		75	45

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.050. - Sound level measurement methodology.

Sound level measurements may be made anywhere within the boundaries of an occupied property. The actual location of a sound level measurement shall be at the discretion of the enforcement officials identified in section 8.52.080. Sound level measurements shall be made with a sound level meter. Immediately before a measurement is made, the sound level meter shall be calibrated utilizing an acoustical calibrator meeting the standards of the American National Standards Institute. Following a sound level measurement, the calibration of the sound level meter shall be reverified. Sound level meters and calibration equipment shall be certified annually.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.060. - Special sound sources standards.

The general sound level standards set forth in section 8.52.040 apply to sound emanating from all sources, including the special sound sources set forth in this section, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards, the failure to comply with which constitutes separate violations of this chapter:

(1) *Motor vehicles.*

a. *Off-highway vehicles.*

1. No person shall operate an off-highway vehicle unless it is equipped with a USDA-qualified spark arrester and a constantly operating and properly maintained muffler. A muffler is not considered constantly operating and properly maintained if it is equipped with a cutout, bypass or similar device.
2. No person shall operate an off-highway vehicle unless the noise emitted by the vehicle is not more than 96 dBA if the vehicle was manufactured on or after January 1, 1986, or is not more than 101 dBA if the vehicle was manufactured before January 1, 1986. For purposes of this subsection, emitted noise shall be measured a distance of 20 inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.

b. *Sound systems.* No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of 10:00 p.m. and 8:00 a.m., such that the sound system is audible to the human ear inside any inhabited dwelling. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, at any other time such that the sound system is audible to the human ear at a distance greater than 100 feet from the vehicle.

(2) *Power tools and equipment.* No person shall operate any power tools or equipment between the hours of 10:00 p.m. and 8:00 a.m. such that the power tools or equipment are audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than 100 feet from the power tools or equipment.

(3) *Audio equipment.* No person shall operate any audio equipment, whether portable or not, between the hours of 10:00 p.m. and 8:00 a.m. such that the equipment is audible to the human ear inside an inhabited dwelling other than a dwelling in which the equipment may be located. No person shall operate any audio equipment, whether portable or not, at any other time such that the equipment is audible to the human ear at a distance greater than 100 feet from the equipment.

(4) *Sound-amplifying equipment and live music.* No person shall install, use or operate sound-amplifying equip perform, or allow to be performed, live music unless such activities comply with the following requirements that these requirements conflict with any conditions of approval attached to an underlying land use permit, requirements shall control:

a. Sound-amplifying equipment or live music is prohibited between the hours of 10:00 p.m. and 8:00 a.m.

b. Sound emanating from sound-amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than 200 feet from the equipment or music.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.070. - Exceptions.

Exceptions may be requested from the standards set forth in section 8.52.040 or 8.52.060 and may be characterized as construction-related, single-event or continuous event exceptions.

(1) *Application and processing.*

a. *Construction-related exceptions.* An application for a construction-related exception shall be made to and considered by the city on forms provided by the city and shall be accompanied by the appropriate filing fee. No public hearing is required.

b. *Single-event exceptions.* An application for a single-event exception shall be made to and considered by the city on forms provided by the planning department and shall be accompanied by the appropriate filing fee. No public hearing is required.

c. *Continuous-event exceptions.* An application for a continuous-event exception shall be made to the city on forms provided by the planning department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous-event exception, the city shall set the matter for public hearing before the planning commission, notice of which shall be given as provided in the Eastvale Municipal Code. Notwithstanding the exceptions set forth in this section, an application for a continuous-event exception that is associated with an application for a land use permit shall be processed concurrently with the land use permit in the same manner that the land use permit is required to be processed.

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

(3) *Appeals.* The city's decision on an application for a construction-related exception is considered final. The city's decision on an application for a single-event exception is considered final. After making a decision on an application for a continuous-event exception, the appropriate decision-making body or officer shall mail notice of the decision to the applicant. Within ten calendar days after the mailing of such notice, the applicant or an interested person may appeal the decision to the city council. Upon receipt of an appeal and payment of the appropriate appeal fee, the city clerk shall set the matter for hearing not less than

five days nor more than 30 days thereafter and shall give written notice of the hearing in the same manner as notice of the hearing was given by the appropriate hearing officer or body. The city council shall render its decision within 30 days after the appeal hearing is closed.

(4) *Effect of a pending continuous-event exception application.* For a period of 180 days from the effective date of the ordinance from which this chapter is derived, no person creating any sound prohibited by this chapter shall be considered in violation of this chapter if the sound is related to a use that is operating pursuant to an approved land use permit, if an application for a continuous-event exception has been filed to sanction the sound and if a decision on the application is pending.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.080. - Enforcement.

The chief of police and planning director shall have the primary responsibility for enforcing this chapter; provided, however, the chief of police and planning director may be assisted by the public health department. Violations shall be prosecuted as described in section 8.52.100, but nothing in this chapter shall prevent the chief of police, planning director or the department of public health from engaging in efforts to obtain voluntary compliance by means of warnings, notices or educational programs.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.090. - Duty to cooperate.

No person shall refuse to cooperate with, or obstruct, the enforcement officials identified in section 8.52.080 when they are engaged in the process of enforcing the provisions of this chapter. This duty to cooperate may require a person to extinguish a sound source so that it can be determined whether sound emanating from the source violates the provisions of this chapter.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

Sec. 8.52.100. - Violations and penalties.

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

(1) For the first violation within a 180-day period, the minimum mandatory fine shall be $500.00.

(2) For the second violation within a 180-day period, the minimum mandatory fine shall be $750.00.

(3) For any further violations within a 180-day period, the minimum mandatory fine shall be $1,000.00 or imprisonment in the county jail for a period not exceeding six months, or both.

(Ord. No. 2011-04, §§ 1, 2, 1-26-2011)

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APPENDIX 3.2:

CITY OF ONTARIO MUNICIPAL CODE

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Print

Ontario Municipal Code

CHAPTER 29: NOISE

Sec. 5-29.01. Declaration of findings and policy.

It is hereby found and declared that:

(a) The making and creation of excessive, unnecessary or unusually loud noises within the limits of the City is a condition that has existed for some time, however, the extent and volume of such noises is increasing;

(b) The making, creation or maintenance of such excessive, unnecessary, unnatural or unusually loud noises that are prolonged, unusual and unnatural in their time, place and use

affect and are a detriment to public health, comfort, convenience, safety, welfare and prosperity of the residents of the City; and

(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, comfort, convenience, safety, welfare and prosperity and the peace and quiet of the residents of the City.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.02. Definitions.

As used in this chapter, specific words and phrases are defined as follows:

(a) "Ambient noise level" shall mean the all-encompassing noise level associated with a given environment and is a composite of sounds from all sources, excluding the alleged offensive noise or excessive sound, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

(b) "Applicable (noise) zone" shall mean the noise zone category based on the actual use of the property, provided that the actual use is a legal use in the City.

(c) "A-weighted sound level" shall mean the sound pressure level in decibels (dBAs) as measured with a sound level meter using the A-weighted filter network (scale) at slow response and at a pressure of twenty (20) micropascals. The A-weighted filter de-emphasizes the very low and a very high frequency component of sound in a manner similar to the response of the human ear, and is a numerical method of rating human judgment of loudness.

(d) "Decibel (dBA)" shall mean a unit for measuring the amplitude of a sound, equal to twenty (20) times the logarithm to the base ten (10) of the ratio of pressure of the sound measured to the reference pressure of twenty (20) micropascals.

(e) "Equivalent sound or noise level (Leq)" shall mean the International Electrotechnical Commission (IEC) 60804 Standard for measurement, or the most recent revision thereof, for the sound level corresponding to a steady state noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level or the energy average noise level during the sample period. The measurement period for the purposes of this chapter is fifteen (15) minutes.

(f) "Impulsive noise" shall mean a noise of short duration usually less than one (1) second and of high intensity, with an abrupt onset and rapid decay. Such objectionable noises may also be repetitive.

(g) "Intrusive noise" shall mean that noise that intrudes over and above the ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence and tonal information content, as well as the prevailing ambient noise level.

(h) "Maintenance" shall mean the upkeep, repair or preservation of existing property or structures.

(i) "Noise" shall mean any unwanted sound or sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing or is otherwise annoying.

(j) "Noise level (sound level)" shall mean the weighted sound pressure level obtained by use of a sound level meter having a standard frequency filter for attenuating part of the sound spectrum.

For purposes of this chapter, all noise levels (sound levels) shall be A-weighted sound pressure level.

(k) "Noise (sound) level meter" shall mean an instrument, including a microphone, an amplifier, an output meter and frequency weighting networks for the measurement and determination of noise and sound levels. For the purposes of this chapter, the sound level meter must meet the International Electrotechnical Commission (IEC) 60651 and 60804 Standards, or the most recent revisions thereof, for Type 1 sound level meters or an instrument and the associated recording and analyzing equipment that will provide equivalent data.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.03. Designated noise zones.

The properties hereinafter described shall be assigned to the following noise zones:

Noise Zone I:	All single-family residential properties;
Noise Zone II:	All multi-family residential properties and mobile home parks;
Noise Zone III:	All commercial property;
Noise Zone IV:	The residential portion of mixed use properties;
Noise Zone V:	All manufacturing or industrial properties and all other uses.

The actual use of the property, and not necessarily its zoning designation, shall be the determining factor in establishing whether a property is in Noise Zone I, II, III, IV or V, provided that the actual use is a legal use within the applicable zone.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.04. Exterior noise standards.

(a) The following exterior noise standards, unless otherwise specifically indicated, shall apply to all properties within a designated noise zone.

Allowable Exterior Noise Level (1)		***Allowed Equivalent Noise Level, Leq. (2)***	
Noise Zone	***Type of Land Use***	***7 a.m. to 10 p.m.***	***10 p.m. to 7 a.m.***
I	Single-Family Residential	65 dBA	45 dBA
II	Multi-Family Residential, Mobile Home Parks	65 dBA	50 dBA
III	Commercial Property	65 dBA	60 dBA
IV	Residential Portion of Mixed Use	70 dBA	70 dBA
V	Manufacturing and Industrial, Other	70 dBA	70 dBA

	Uses		

(1) If the ambient noise level exceeds the resulting standard, the ambient noise level shall be the standard.

(2) Measurements for compliance are made on the affected property pursuant to § 5-29.15.

(b) It is unlawful for any person at any location within the incorporated area of the City to create noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which noise causes the noise level, when measured at any location on any other property, to exceed either of the following:

(1) The noise standard for the applicable zone for any fifteen-minute (15) period; and

(2) A maximum instantaneous (single instance) noise level equal to the value of the noise standard plus twenty (20) dBA for any period of time (measured using A-weighted slow response).

(c) In the event the ambient noise level exceeds the noise standard, the maximum allowable noise level under such category shall be increased to reflect the maximum ambient noise level.

(d) The Noise Zone IV standard shall apply to that portion of residential property falling within one hundred (100) feet of a commercial property or use, if the noise originates from that commercial property or use.

(e) If the measurement location is on a boundary between two (2) different noise zones, the lower noise level standard applicable to the noise zone shall apply.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.05. Interior noise standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all properties within a designated noise zone.

Allowable Interior Noise Level (1)		**Allowed Equivalent Noise Level, Leq.** (2)	
Noise Zone	***Type of Land Use***	***7 a.m. to 10 p.m.***	***10 p.m. to 7 a.m.***
I	Single-Family Residential	45 dBA	40 dBA
II	Multi-Family Residential, Mobile Home Parks	45 dBA	40 dBA
IV	Residential Portion of Mixed Use	45 dBA	40 dBA

(1) If the ambient noise level exceeds the resulting standard, the ambient noise level shall be the standard.

(2) Measurements for compliance are made on the affected property pursuant to § 5-29.15.

(b) It is unlawful for any person at any location within the incorporated area of the City to create noise, or to allow the creation of any noise on property owned, leased, occupied or

otherwise controlled by such person, which noise causes the noise level, when measured at any location on any other property, to exceed either of the following:

(1) The noise standard for the applicable zone for any fifteen-minute (15) period;

(2) A maximum instantaneous (single instance) noise level equal to the value of the noise standard plus twenty (20) dBA for any period of time (measured using A-weighted slow response).

(c) In the event the ambient noise level exceeds the noise standard, the maximum allowable noise level under such category shall be increased to reflect the maximum ambient noise level.

(d) The Noise Zone IV standard shall apply to that portion of residential property falling within one hundred (100) feet of a commercial property or use, if the noise originates from that commercial property or use.

(e) If the measurement location is on a boundary between two (2) different noise zones, the lower noise level standard applicable to the noise zone shall apply.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.06. Exemptions.

The following activities shall be exempted from the provisions of this chapter:

(a) Any activity conducted on public property, or on private property with the consent of the owner, by any public entity or its officers, employees, representatives, agents, subcontractors, permittees, licensees or lessees that the public entity has authorized are exempt from the provisions of this chapter. This includes, without limitation, sporting and recreational activities that are sponsored, co-sponsored, permitted or allowed by the City or any school district within the City's jurisdictional boundaries. This also includes, without limitation, occasional outdoor gatherings, public dances, shows or sporting and entertainment events, provided such events are conducted pursuant to an approval, authorization, contract, lease, permit or sublease by the appropriate public entity, specifically the planning commission or City Council;

(b) Occasional outdoor gatherings, public dances, show, sporting and entertainment events, provided said events are conducted pursuant to a permit or license issued by the appropriate jurisdiction relative to the staging of said events;

(c) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle, work or warning alarm or bell, provided the sounding of any bell or alarm on any building or motor vehicle shall terminate its operation within forty-five (45) minutes in any hour of its being activated;

(d) Noise sources associated with construction, repair, remodeling, demolition or grading of any real property. Such activities shall instead be subject to the provisions of § 5-29.09;

(e) Noise sources associated with construction, repair, remodeling, demolition or grading of public rights-of-way or during authorized seismic surveys;

(f) All mechanical devices, apparatus or equipment associated with agriculture operations provided that:

(1) Operations do not take place between 8:00 p.m. and 7:00 a.m.;

(2) Such operations and equipment are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions; or

(3) Such operations and equipment are associated with agricultural pest control through pesticide application, provided the application is made in accordance with permits issued by or regulations enforced by the California Department of Agriculture;

(g) Noise sources associated with the maintenance of real property. Such activities shall instead be subject to the provisions of § 5-29.08;

(h) Any activity to the extent regulation thereof has been preempted by state or federal law;

(i) Any noise sources associated with people and/or music associated with a party at a residential property. Such noise shall be subject to the provisions of OMC § 5-29.07;

(j) Any noise source emanating from an ice cream truck within the City. Such noise shall be subject to the provisions of OMC § 4-18.04;

(k) Any noise sources associated with barking dogs or other intermittent noises made by animals on any properly within the City. Such noise shall be subject to the provisions of OMC Chapter 1, Title 6;

(l) Noise sources related to uses approved by a permit or development agreement adopted prior to the date of adoption of this chapter and that contains acoustic or noise standard conditions of approval. This exemption shall only be applicable during the effective period of the City-approved permit or development agreement.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.07. Loud and disturbing noise.

(a) It is unlawful for any person or property owner within the City to make, cause or allow to be made any loud, excessive, impulsive or intrusive noise, disturbance or commotion that disturbs the peace or quiet of any area or that causes discomfort or annoyance to any reasonable person of normal sensitivities in the area, after a Police or Code Enforcement Officer has first requested that the person or property owner cease and desist from making such noise. The types of loud, disturbing, excessive, impulsive or intrusive noise may include, but shall not be limited to, yelling, shouting, hooting, whistling, singing, playing a musical instrument, or emitting or transmitting any loud music or noise from any mechanical or electrical sound making or sound-amplifying device.

(b) The factors, standards, and conditions that may be considered in determining whether a violation of the provisions of this section has been committed, included, but not limited to, the following:

(1) The level of the noise;

(2) The level and intensity of the background (ambient) noise, if any;

(3) The proximity of the noise to residential or commercial sleeping areas;

(4) The nature and zoning of the area within which the noise emanates;

(5) The density of inhabitation of the area within which the noise emanates;

(6) The time of day and night the noise occurs;

(7) The duration of the noise;

(8) Whether the noise is constant, recurrent or intermittent;

(9) Whether the noise is produced by a commercial or noncommercial activity; and

(10) Whether the use is lawful under the provisions of Title 5 of this Code and whether the noise is one that could reasonably be expected from the activity or allowed use.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.08. Real property maintenance noise regulations.

(a) No person, while engaged in maintenance of real property, shall operate any tool, equipment or machine in a manner that produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a Police or Code Enforcement Officer, except between the hours of 8:00 a.m. and 6:00 p.m.

(b) Trimming or pruning that requires the use of chainsaws or mulching machines shall only be allowed between the hours of 8:00 a.m. and 6:00 p.m. on a weekday and between the hours of 9:00 a.m. and 5:00 p.m. on Saturday or Sunday.

(c) The use of electrical or gasoline powered blowers, such as commonly used by gardeners or other persons for cleaning lawns, yards, driveways, gutters and other property shall only be allowed between the hours of 8:00 a.m. and 6:00 p.m. on a weekday and between the hours of 9:00 a.m. and 5:00 p.m. on Saturday or Sunday.

(d) No landowner, gardener, property maintenance service, contractor, subcontractor or employer shall permit or allow any person or persons working under his or her direction or control to operate any tool, equipment or machine in violation of the provisions of this section.

(e) Exceptions. The provisions of this section shall not apply to the following:

(1) Emergency property maintenance required by the building official;

(2) The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City, or its employees, contractors or agents, unless:

(i) The City Manager or department head determines that the maintenance, repair or improvement is immediately necessary to maintain public service,

(ii) The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours, or

(iii) The City Council has approved project specifications, contract provisions, or an environmental document that specifically authorizes maintenance during hours of the day that would otherwise be prohibited pursuant to this section; and

(3) Any maintenance that complies with the noise limits specified in § 5-29.04.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.09. Construction activity noise regulations.

(a) No person, while engaged in construction, remodeling, digging, grading, demolition or any other related building activity, shall operate any tool, equipment or machine in a manner that produces loud noise that disturbs a person of normal sensitivity who works or resides in the vicinity, or a Police or Code Enforcement Officer, on any weekday except between the hours of 7:00 a.m. and 6:00 p.m. or on Saturday or Sunday between the hours of 9:00 a.m. and 6:00 p.m.

(b) No landowner, construction company owner, contractor, subcontractor, or employer shall permit or allow any person or persons working under their direction and control to operate any tool, equipment or machine in violation of the provisions of this section.

(c) Exceptions.

(1) The provisions of this section shall not apply to emergency construction work performed by a private party when authorized by the City Manager or his or her designee;

(2) The maintenance, repair or improvement of any public work or facility by public employees, by any person or persons acting pursuant to a public works contract, or by any person or persons performing such work or pursuant to the direction of, or on behalf of, any public agency; provided, however, this exception shall not apply to the City, or its employees, contractors or agents, unless:

(i) The City Manager or a department head determines that the maintenance, repair or improvement is immediately necessary to maintain public services,

(ii) The maintenance, repair or improvement is of a nature that cannot feasibly be conducted during normal business hours, or

(iii) The City Council has approved project specifications, contract provisions, or an environmental document that specifically authorizes construction during hours of the day that would otherwise be prohibited pursuant to this section; and

(3) Any construction that complies with the noise limits specified in §§ 5-29.04 or 5-29.05.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.10. Other public agency exceptions.

The provisions of this chapter shall not be construed to prohibit any work at different hours by or under the direction of any other public agency or public or private utility companies in cases of necessity or emergency.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.11. Schools, day care centers, churches, libraries, museums, health care institutions; Special provisions.

It is unlawful for any person to create any noise that causes the outdoor noise level at any school, day care center, hospital or similar health care institution, church, library or museum while the same is in use, to exceed the noise standards specified in § 5-29.04 prescribed for the assigned Noise Zone I.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.12. Sound amplifying equipment.

Loudspeakers, sound amplifiers, public address systems or similar devices used to amplify sounds shall be subject to the provisions of § 5-29.13. Such sound amplifying equipment shall not be construed to include electronic devices, including but not limited to, radios, tape players, tape recorders, compact disc players, MP3 players, electric keyboards, music synthesizers, record players or televisions, which are designed and operated for personal use, or used entirely

within a building and are not designed or used to convey the human voice, music or any other sound to an audience outside such building, or which are used in vehicles and heard only by occupants of the vehicle in which installed.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.13. Amplified sound.

(a) The City Council enacts the following legislation for the sole purpose of securing and promoting the public health, comfort, safety and welfare for its citizenry. While recognizing that the use of sound amplifying equipment may be entitled to certain protection by the constitutional rights of freedom of speech and assembly, the City Council finds that in order to protect the public safety and the correlative rights of the citizens of this community to privacy and freedom from public nuisance of loud and unnecessary noise, reasonable regulation of the time, place and manner of the use of amplifying equipment is necessary. In no event shall approval or authorization required herein be withheld by reason of the constitutionally protected content of any material proposed to be broadcast through amplifying equipment.

(b) It is unlawful for any person, other than personnel of law enforcement or governmental agencies, to install, use or operate a loudspeaker or sound amplifying device in a fixed or movable position or mounted upon any vehicle within the City for the purpose of giving instructions, directions, talks, addresses or lectures to any persons or assemblages of persons in or upon any street, alley, sidewalk, park, place or public property without a permit to do so from the Police Chief or his or her designee. Notwithstanding any other provision of this chapter, the provisions of this section shall also apply to the use of sound amplifying equipment upon public or private property when used in connection with outdoor or indoor public or private events, whether or not admission is charged or food or beverages are sold, when such activity is to be attended by more than one hundred (100) persons and the noise emanating from the event will be audible at the property plane, or in the case of a street dance or concert on the nearest residential property. Those activities listed in § 5-29.06(a) are exempt from the requirements of this section.

(c) The Police Chief or his or her designee is authorized to approve and issue permits under this section.

(d) An application for a permit required by this section shall be filed with the Police Chief at least sixteen (16) days and no more than one hundred twenty (120) days prior to the date on which the sound amplifying equipment is intended to be used. Applications for events covered by the First Amendment of the United States Constitution are exempt from the time requirements of this section if it is shown that circumstances require a shorter filing period and the event will not constitute an unsafe condition. The application shall contain the following information:

(1) The name, address and telephone number of both the owner and the user of the sound amplifying equipment;

(2) The license number, if a sound truck is to be used;

(3) A general description of the sound amplifying equipment which is to be used;

(4) Whether sound amplifying equipment will be used for commercial or noncommercial purpose;

(5) The dates and times upon and within which, and the streets or property over or upon which, the equipment is proposed to be operated;

(6) The name or names of one (1) or more persons who will be present during the conduct of any activities for which registration is sought and who will have authority to reduce the volume of

any sound amplifying equipment during the course of the activities if required pursuant to this chapter and, otherwise, to insure compliance with the provisions of this chapter;

(7) A statement by the applicant that he or she is willing and able to comply with the provisions of this chapter and the conditions of the permit; and

(8) A sketch of the area or facilities within which the activities are to be conducted, with approximate dimensions and illustration of the location and orientation of all sound-amplifying equipment.

(e) The Police Chief shall deny the permit application or revoke any permit if the chief finds any of the following:

(1) The application contains materially false or intentionally misleading information;

(2) The use of sound amplifying equipment at an event or activity proposed will be located in or upon a premises, building or structure that is hazardous to the health or safety of the employees or patrons of the premises, business, activity, or event, or the general public, under the standards established by the Uniform Building or Fire Codes, or other applicable codes, as set forth in OMC Titles 4 and 8;

(3) The use of sound amplifying equipment at an event or activity proposed in or upon a premises, building or structure that lacks adequate on-site parking for participants attending the proposed event or activity under the applicable standards set forth in OMC Title 9;

(4) The conditions of any motor vehicle movement are such that, in his or her opinion, the use of the equipment would constitute an unreasonable interference with traffic safety;

(5) The conditions of pedestrian movement are such that the use of the equipment would constitute a detriment to traffic safety;

(6) The application submitted by the applicant reveals that the applicant would violate the provisions of this section or any other provision of federal, state and/or local law;

(7) The applicant is unwilling or unable to comply with the provisions of this chapter or any conditions imposed upon any permit issued;

(8) There had already been a permitted event at the intended location, or within a two hundred (200) yard radius of the intended location and the prior permitted event was located on residentially zoned property or on a street, alley, public parking lot or neighborhood park within three (3) months prior to the intended event. Community parks are exempt from this subsection (8); or

(9) The applicant or location has had previous violations within the past calendar year, and in the judgment of the Police Chief, issuance would be contrary to the intent of this section.

(f) In determining whether the use of the equipment would constitute an unreasonable interference with or detriment to traffic safety, the Police Chief shall consider, but shall not necessarily be limited to:

(1) The volumes, patterns and speed of vehicular and pedestrian traffic in the proposed area of use;

(2) The relationship of the proposed use of equipment and potential impacts upon traffic patterns;

(3) Availability of sufficient room for the operation of the equipment without significantly interfering with the traffic patterns;

(4) Proximity to schools, playgrounds and similar facilities where use of such equipment might attract children into traffic patterns; or

(5) Proximity to busy intersections or other potentially hazardous conditions where use of such equipment might constitute a hazard by reason of its tendency to distract drivers of vehicles or pedestrians.

(g) Issuance or denial.

(1) If the application is approved, the Police Chief shall return an approved copy of the application to the applicant and shall issue a permit. The permit shall constitute permission for the use of the sound amplifying equipment as requested.

(2) Any application filed shall be either approved or disapproved within five (5) days of the filing thereof.

(3) If the application is disapproved, the Police Chief shall return a disapproved copy forthwith to the applicant with a written statement on the reason for disapproval.

(i) Any person aggrieved by a decision of the Police Chief or his or her designee may file an appeal to the City Manager. A complete and proper appeal shall be filed with the City Clerk within ten (10) calendar days of the action that is the subject of the appeal. If the applicant fails to file an appeal within the ten (10) day filing period provided herein, denial shall take effect immediately upon expiration of such filing period. All appeals shall be in writing and shall contain the following information: (a) name(s) of the person filing the appeal, (b) a brief statement in ordinary and concise language of the relief sought, and (c) the signatures of all parties named as appellants and their mailing addresses. After receiving the appeal, the City Clerk shall immediately forward the matter to the City Manager for handling.

(ii) The City Manager shall, upon receipt of the appeal, set the matter for hearing before the City Manager or a hearing officer. Any hearing officer shall be a licensed attorney or recognized mediator designated by the City Manager. The hearing shall be set for not more than ten (10) calendar days after the receipt of the appeal unless a longer time is requested or consented to by the appellant. Notice of such hearing shall be given in writing and mailed at least five (5) calendar days prior to the date of the hearing, by U.S. mail, with a proof of service attached, addressed to the address listed on the permit application, or the written appeal if different from the permit application. The notice shall state the grounds of the complaint or reason for the denial and shall state the time and place where such hearing will be held.

(iii) The City Manager or hearing officer shall, within ten (10) calendar days following the conclusion of the hearing, make a written finding and decision, which shall be delivered to the City and the appellant by first class mail. Notwithstanding any provision in this Code, the decision of the City Manager or hearing officer shall be the final administrative decision of the City. Any party dissatisfied with the decision of the City Manager or hearing officer may seek review of such decision under the provisions of Code Civil Procedure, §§ 1094.5 and 1094.8, as amended from time to time.

(h) In addition to any other provisions of this Code, the use of sound-amplifying equipment and sound trucks in the City shall be subject to the following regulations:

(1) The only sounds permitted are music and human speech;

(2) Sound shall not be emitted within one hundred (100) yards of hospitals, churches, schools and City Hall;

(3) The volume of sound shall be controlled so that it will not be audible for a distance in excess of one hundred (100) feet from the sound amplifying equipment or sound truck, and so

that the volume is not unreasonably loud, raucous, jarring, disturbing or a nuisance to persons within the range of allowed audibility; or

(4) The sound amplifying equipment or sound truck shall not be used between the hours of 8:00 p.m. and 8:00 a.m.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.14. Motor vehicles.

The use of any motor vehicle in such a condition as to create excessive, impulsive or intrusive noises is prohibited. The discharge into the open air of the exhaust of any internal combustion engine, stationary or mounted on wheels, motorboat or motor vehicle, including motor cycle, whether or not discharged through a muffler or other similar device, which discharge creates excessive, unusual, impulsive or intrusive noise is prohibited. Motor vehicles shall comply with the noise regulations of the California Vehicle Code.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.15. Noise level measurement.

(a) The location selected for measuring exterior noise levels in a residential area shall be at any part of a private yard, patio, deck or balcony normally used for human activity and identified by the owner or, if occupied by someone other than the owner, the occupant of the affected property as suspected of exceeding the noise level standard. This location may be the closest point in the private yard or patio, or on the deck or balcony, to the noise source, but should not be located in nonhuman activity areas such as trash container storage areas, planter beds, above or contacting a property line fence, or other areas not normally used as part of the yard, patio, deck or balcony. The location selected for measuring exterior noise levels in a nonresidential area shall be at the closest point to the noise source. The measurement microphone height shall be five (5) feet above finish elevation or, in the case of a deck or balcony, the measurement microphone height shall be five (5) feet above the finished floor level.

(b) The location selected for measuring interior noise levels shall be made within the affected residential unit. The measurements shall be made at a point at least four (4) feet from the wall, ceiling or floor, or within the frame of a window opening, nearest the noise source. The measurements shall be made with windows in an open position.

(c) Any decibel measurement made pursuant to the provisions of this chapter shall be measured in decibels (dBAs) as measured with a sound level meter using the A-weighted sound pressure level.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.16. Prima facie violation.

Any noise exceeding the noise level standard as specified in §§ 5-29.04 and 5-29.05, shall be deemed to be prima facie evidence of a violation of the provisions of this chapter.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.17. Penalty.

(a) Any person who negligently or knowingly violates any provision of this chapter shall be guilty of an infraction and upon conviction shall be punishable by a fine specified in OMC § 1-2.01. Each day a violation occurs shall constitute a separate offense and shall be punishable as such.

(b) Any person who negligently or knowingly violates any provision of this chapter may also be subject to fine(s) specified in the administrative citation schedule of fines set forth in OMC § 1-5.04. The manner of issuing administrative citations shall comply with all the procedures specified in OMC Chapter 5, Title 1.

(c) As an additional remedy, the operation or maintenance of any device, instrument, vehicle or machinery in violation of any provisions of this chapter, which operation or maintenance causes or creates sound levels exceeding the allowable standards as specified in this chapter, shall be deemed and is declared to be a public nuisance and may be subject to abatement by a restraining order or injunction issued by a court of competent jurisdiction.

(d) Any violation of this chapter is declared to be a public nuisance and may be abated in accordance with law. The expense of enforcing this chapter is declared to be public nuisance and may be by resolution of the City Council declared to be a lien and special assessment against the property on which such nuisance is maintained, and any such charge shall also be a personal obligation of the property owner.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.18. Enforcement and administration.

(a) It shall be the responsibility of Police or Code Enforcement Officers to enforce the provisions of this chapter and to perform all other functions required by this chapter. Such duties shall include, but not be limited to investigating potential violations, issuing warning notices and citations, and providing evidence to the City prosecutor for legal action.

(b) For violations of § 5-29.07, Police or Code Enforcement Officers shall obtain a declaration under penalty of perjury from two (2) declarants living in separate households within a sixty (60) day period stating in detail all of the following:

(1) That the declarant is a resident of a residential neighborhood located within two hundred (200) yards of the noise source; and

(2) Within the past month declarant has heard noise for substantially long periods to the extreme annoyance of the declarant.

(3) Declarations from two (2) declarants are required to prove a violation of § 5-29.07, but are not required to prove that a person has violated any other provision of this chapter.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.19. City Manager waiver.

The City Manager is authorized to grant a temporary waiver to the provisions of this chapter for a period of time necessary to correct the violations of this chapter, if such temporary waiver would be in the public interest and there is no feasible and prudent alternative to the activity, or the method of conducting the activity, for which the temporary waiver is sought. This time period may include a commitment to a program that includes placing necessary orders and entering into necessary contracts within thirty (30) days for repair or installation.

(§ 2, Ord. 2888, eff. March 6, 2008)

Sec. 5-29.20. Noise abatement program.

(a) In circumstances where adopted community-wide noise standards and policies prove impractical in controlling noise generated from a specific source, the City Council may establish a noise abatement program that recognizes the characteristics of the noise source and affected property and that incorporates specialized mitigation measures.

(b) Noise abatement programs shall set forth in detail the approved terms, conditions and requirements for achieving maximum compliance with noise standards and policies. Said terms, conditions and requirements may include, but shall not be limited to, limitations, restrictions, or prohibitions on operating hours, location of operations, and the types of equipment.

(§ 2, Ord. 2888, eff. March 6, 2008)

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 11965 Study Area Photos

L1
33, 58' 39.830000", 117, 35' 34.890000"

L1_E
33, 58' 39.870000", 117, 35' 34.950000"

L1_N
33, 58' 39.660000", 117, 35' 35.000000"

L1_S
33, 58' 39.850000", 117, 35' 34.970000"

L1_W
33, 58' 39.800000", 117, 35' 34.950000"

L2
33, 58' 32.040000", 117, 35' 34.180000"

L2_E
33, 58' 32.140000", 117, 35' 34.150000"

L2_N
33, 58' 31.990000", 117, 35' 33.930000"

L2_S
33, 58' 32.140000", 117, 35' 34.070000"

L2_W
33, 58' 32.030000", 117, 35' 34.120000"

L3
33, 58' 16.510000", 117, 35' 36.480000"

L3_N
33, 58' 16.600000", 117, 35' 36.260000"

JN: 11965 Study Area Photos

L3_S
33, 58' 16.580000", 117, 35' 36.210000"

L3_W
33, 58' 16.630000", 117, 35' 36.320000"

L4
33, 58' 19.460000", 117, 36' 3.920000"

L4_4
33, 58' 19.320000", 117, 36' 3.980000"

L4_E
33, 58' 19.560000", 117, 36' 3.920000"

L4_N
33, 58' 19.520000", 117, 36' 3.980000"

JN: 11965 Study Area Photos

L4_S
33, 58' 19.520000", 117, 36' 3.870000"

L5
,

L5_E
33, 58' 30.600000", 117, 36' 4.880000"

L5_N
33, 58' 30.600000", 117, 36' 4.910000"

L5_S
33, 58' 30.610000", 117, 36' 4.880000"

L5_W
33, 58' 30.680000", 117, 36' 4.940000"

JN: 11965 Study Area Photos

L6
33, 58' 35.870000", 117, 35' 45.380000"

L6_E
33, 58' 35.890000", 117, 35' 45.470000"

L6_N
33, 58' 35.870000", 117, 35' 45.380000"

L6_S
33, 58' 35.950000", 117, 35' 45.520000"

L6_W
33, 58' 36.020000", 117, 35' 45.250000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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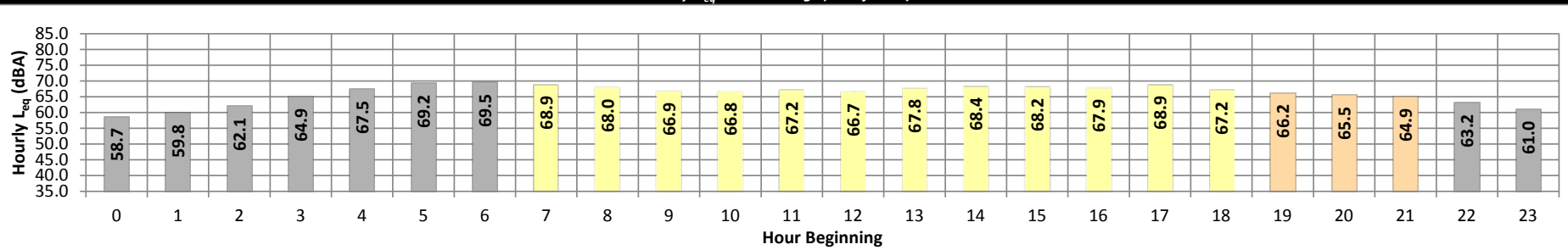
24-Hour Noise Level Measurement Summary

Date: Tuesday, July 30, 2019 *Location:* L1 - Located Northeast of project site on Remington Ave and Archibald *Meter:* Piccolo I *JN:* 11965

Project: The Homestead *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	58.7	73.2	41.5	68.0	67.0	66.0	65.0	56.0	47.0	43.0	43.0	42.0	58.7	10.0	68.7
	1	59.8	77.9	42.3	70.0	69.0	66.0	65.0	55.0	47.0	43.0	43.0	42.0	59.8	10.0	69.8
	2	62.1	80.4	42.6	72.0	71.0	68.0	67.0	59.0	50.0	45.0	44.0	43.0	62.1	10.0	72.1
	3	64.9	78.7	43.9	74.0	72.0	70.0	69.0	65.0	59.0	49.0	48.0	45.0	64.9	10.0	74.9
	4	67.5	80.4	46.1	75.0	74.0	72.0	71.0	69.0	65.0	52.0	50.0	48.0	67.5	10.0	77.5
	5	69.2	82.0	49.2	76.0	74.0	73.0	72.0	70.0	68.0	58.0	55.0	51.0	69.2	10.0	79.2
	6	69.5	81.3	51.2	76.0	74.0	73.0	72.0	70.0	68.0	60.0	57.0	53.0	69.5	10.0	79.5
Day	7	68.9	84.5	46.1	76.0	74.0	72.0	71.0	69.0	67.0	58.0	54.0	50.0	68.9	0.0	68.9
	8	68.0	80.5	45.3	76.0	74.0	72.0	71.0	69.0	66.0	53.0	50.0	47.0	68.0	0.0	68.0
	9	66.9	83.5	45.3	74.0	73.0	71.0	70.0	68.0	65.0	53.0	50.0	47.0	66.9	0.0	66.9
	10	66.8	80.0	44.7	75.0	73.0	71.0	70.0	68.0	65.0	52.0	50.0	46.0	66.8	0.0	66.8
	11	67.2	88.6	42.1	76.0	74.0	71.0	70.0	67.0	64.0	51.0	48.0	45.0	67.2	0.0	67.2
	12	66.7	77.8	44.9	73.0	72.0	71.0	70.0	68.0	65.0	54.0	51.0	48.0	66.7	0.0	66.7
	13	67.8	80.9	46.4	75.0	73.0	72.0	71.0	69.0	66.0	56.0	53.0	49.0	67.8	0.0	67.8
	14	68.4	85.5	47.4	75.0	74.0	72.0	71.0	69.0	67.0	58.0	54.0	50.0	68.4	0.0	68.4
	15	68.2	83.0	46.5	75.0	74.0	72.0	71.0	69.0	67.0	57.0	54.0	50.0	68.2	0.0	68.2
	16	67.9	85.4	45.0	74.0	73.0	71.0	71.0	69.0	67.0	58.0	55.0	51.0	67.9	0.0	67.9
	17	68.9	92.2	48.3	74.0	73.0	71.0	71.0	69.0	67.0	58.0	54.0	50.0	68.9	0.0	68.9
	18	67.2	84.6	47.1	74.0	72.0	71.0	70.0	68.0	66.0	53.0	51.0	48.0	67.2	0.0	67.2
Evening	19	66.2	76.4	46.0	72.0	71.0	70.0	70.0	68.0	65.0	52.0	50.0	47.0	66.2	5.0	71.2
	20	65.5	78.3	48.7	72.0	71.0	70.0	69.0	67.0	63.0	53.0	52.0	49.0	65.5	5.0	70.5
	21	64.9	79.1	43.8	72.0	71.0	70.0	69.0	66.0	61.0	50.0	48.0	46.0	64.9	5.0	69.9
Night	22	63.2	78.6	43.2	72.0	70.0	69.0	68.0	64.0	57.0	47.0	45.0	44.0	63.2	10.0	73.2
	23	61.0	74.7	42.0	70.0	69.0	67.0	66.0	61.0	53.0	45.0	44.0	43.0	61.0	10.0	71.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	66.7	77.8	42.1	73.0	72.0	71.0	70.0	67.0	64.0	51.0	48.0	45.0
	Max	68.9	92.2	48.3	76.0	74.0	72.0	71.0	69.0	67.0	58.0	55.0	51.0
Energy Average		67.8	Average:		74.8	73.3	71.4	70.6	68.5	66.0	55.1	52.0	48.4
Evening	Min	64.9	76.4	43.8	72.0	71.0	70.0	69.0	66.0	61.0	50.0	48.0	46.0
	Max	66.2	79.1	48.7	72.0	71.0	70.0	70.0	68.0	65.0	53.0	52.0	49.0
Energy Average		65.6	Average:		72.0	71.0	70.0	69.3	67.0	63.0	51.7	50.0	47.3
Night	Min	58.7	73.2	41.5	68.0	67.0	66.0	65.0	55.0	47.0	43.0	43.0	42.0
	Max	69.5	82.0	51.2	76.0	74.0	73.0	72.0	70.0	68.0	60.0	57.0	53.0
Energy Average		65.6	Average:		72.6	71.1	69.3	68.3	63.2	57.1	49.1	47.7	45.7

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
66.8	67.4	65.6

24-Hour CNEL (dBA)

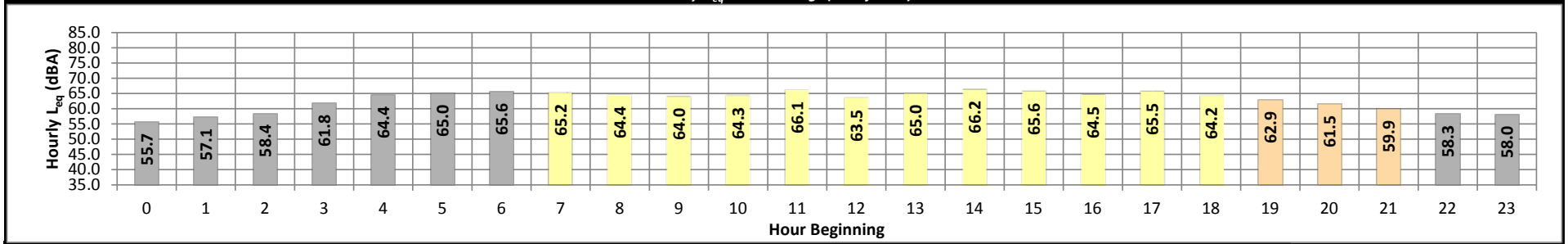
72.6

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 30, 2019 *Location:* L2 - Located East of the project site on Limonite Ave *Meter:* Piccolo I *JN:* 11965

Project: The Homestead *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	55.7	75.6	43.0	68.0	66.0	60.0	59.0	52.0	47.0	44.0	44.0	43.0	55.7	10.0	65.7
	1	57.1	76.6	43.2	70.0	66.0	62.0	60.0	52.0	47.0	44.0	44.0	43.0	57.1	10.0	67.1
	2	58.4	77.7	43.4	71.0	67.0	62.0	61.0	55.0	50.0	45.0	45.0	44.0	58.4	10.0	68.4
	3	61.8	82.3	45.7	72.0	70.0	67.0	65.0	61.0	56.0	50.0	48.0	47.0	61.8	10.0	71.8
	4	64.4	79.5	48.6	75.0	73.0	69.0	68.0	63.0	60.0	54.0	52.0	50.0	64.4	10.0	74.4
	5	65.0	79.8	47.6	73.0	72.0	70.0	68.0	65.0	62.0	56.0	55.0	52.0	65.0	10.0	75.0
	6	65.6	79.5	51.7	75.0	73.0	70.0	69.0	65.0	62.0	57.0	56.0	53.0	65.6	10.0	75.6
Day	7	65.2	79.4	50.2	75.0	73.0	70.0	68.0	64.0	62.0	57.0	55.0	53.0	65.2	0.0	65.2
	8	64.4	83.1	47.9	74.0	72.0	69.0	67.0	63.0	61.0	55.0	53.0	51.0	64.4	0.0	64.4
	9	64.0	81.2	46.8	73.0	71.0	69.0	67.0	63.0	60.0	54.0	53.0	50.0	64.0	0.0	64.0
	10	64.3	85.3	48.6	74.0	71.0	68.0	67.0	63.0	60.0	55.0	53.0	50.0	64.3	0.0	64.3
	11	66.1	89.2	46.3	75.0	72.0	69.0	68.0	63.0	60.0	54.0	52.0	49.0	66.1	0.0	66.1
	12	63.5	79.7	47.5	72.0	71.0	68.0	67.0	63.0	60.0	54.0	53.0	50.0	63.5	0.0	63.5
	13	65.0	85.3	49.6	74.0	72.0	70.0	68.0	64.0	61.0	55.0	54.0	51.0	65.0	0.0	65.0
	14	66.2	86.5	50.5	76.0	73.0	70.0	68.0	64.0	62.0	56.0	55.0	53.0	66.2	0.0	66.2
	15	65.6	85.4	51.8	75.0	73.0	70.0	69.0	65.0	62.0	57.0	55.0	53.0	65.6	0.0	65.6
	16	64.5	80.4	52.6	73.0	71.0	68.0	67.0	64.0	62.0	57.0	56.0	54.0	64.5	0.0	64.5
	17	65.5	86.8	51.3	76.0	72.0	68.0	67.0	63.0	61.0	57.0	55.0	54.0	65.5	0.0	65.5
	18	64.2	85.5	49.1	75.0	72.0	68.0	66.0	62.0	60.0	54.0	53.0	51.0	64.2	0.0	64.2
Evening	19	62.9	83.6	48.8	73.0	70.0	67.0	65.0	61.0	59.0	53.0	52.0	50.0	62.9	5.0	67.9
	20	61.5	79.7	45.7	71.0	69.0	66.0	65.0	61.0	57.0	52.0	50.0	48.0	61.5	5.0	66.5
	21	59.9	81.9	44.5	69.0	67.0	64.0	63.0	59.0	56.0	50.0	49.0	46.0	59.9	5.0	64.9
Night	22	58.3	77.7	43.7	68.0	67.0	63.0	61.0	57.0	53.0	47.0	46.0	45.0	58.3	10.0	68.3
	23	58.0	83.3	42.6	68.0	67.0	64.0	62.0	56.0	51.0	44.0	44.0	43.0	58.0	10.0	68.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	63.5	79.4	46.3	72.0	71.0	68.0	66.0	62.0	60.0	54.0	52.0	49.0
	Max	66.2	89.2	52.6	76.0	73.0	70.0	69.0	65.0	62.0	57.0	56.0	54.0
Energy Average		65.0	Average:		74.3	71.9	68.9	67.4	63.4	60.9	55.4	53.9	51.6
Evening	Min	59.9	79.7	44.5	69.0	67.0	64.0	63.0	59.0	56.0	50.0	49.0	46.0
	Max	62.9	83.6	48.8	73.0	70.0	67.0	65.0	61.0	59.0	53.0	52.0	50.0
Energy Average		61.6	Average:		71.0	68.7	65.7	64.3	60.3	57.3	51.7	50.3	48.0
Night	Min	55.7	75.6	42.6	68.0	66.0	60.0	59.0	52.0	47.0	44.0	44.0	43.0
	Max	65.6	83.3	51.7	75.0	73.0	70.0	69.0	65.0	62.0	57.0	56.0	53.0
Energy Average		61.9	Average:		71.1	69.0	65.2	63.7	58.4	54.2	49.0	48.2	46.7

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
63.7	64.5	61.9

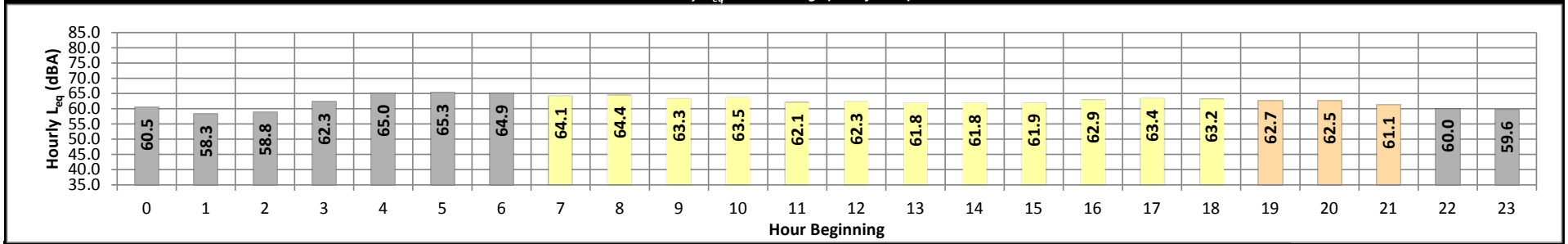
24-Hour CNEL (dBA)
69.0

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 30, 2019 *Location:* L3 - Located South of the project site near electric area. *Meter:* Piccolo I *JN:* 11965

Project: The Homestead *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	60.5	84.0	51.2	69.0	66.0	64.0	63.0	58.0	56.0	54.0	53.0	51.0	60.5	10.0	70.5
	1	58.3	75.8	49.8	69.0	66.0	63.0	61.0	56.0	55.0	52.0	52.0	51.0	58.3	10.0	68.3
	2	58.8	79.0	50.4	69.0	67.0	63.0	62.0	56.0	53.0	51.0	51.0	50.0	58.8	10.0	68.8
	3	62.3	85.8	51.5	72.0	70.0	67.0	66.0	62.0	57.0	52.0	52.0	51.0	62.3	10.0	72.3
	4	65.0	79.4	51.1	73.0	72.0	69.0	68.0	65.0	62.0	54.0	53.0	52.0	65.0	10.0	75.0
	5	65.3	78.9	50.4	73.0	72.0	70.0	69.0	66.0	63.0	54.0	52.0	51.0	65.3	10.0	75.3
	6	64.9	81.2	48.6	73.0	71.0	69.0	68.0	65.0	62.0	52.0	50.0	49.0	64.9	10.0	74.9
Day	7	64.1	78.0	48.2	72.0	71.0	68.0	67.0	64.0	62.0	52.0	51.0	49.0	64.1	0.0	64.1
	8	64.4	89.8	48.6	72.0	70.0	68.0	67.0	64.0	60.0	51.0	50.0	49.0	64.4	0.0	64.4
	9	63.3	79.4	49.2	72.0	70.0	68.0	67.0	63.0	60.0	52.0	51.0	49.0	63.3	0.0	63.3
	10	63.5	85.0	49.2	72.0	70.0	68.0	67.0	63.0	60.0	52.0	51.0	50.0	63.5	0.0	63.5
	11	62.1	75.5	49.2	70.0	69.0	67.0	66.0	62.0	59.0	52.0	51.0	49.0	62.1	0.0	62.1
	12	62.3	79.8	50.7	71.0	69.0	66.0	65.0	62.0	59.0	53.0	52.0	51.0	62.3	0.0	62.3
	13	61.8	77.0	51.1	70.0	68.0	66.0	65.0	62.0	59.0	53.0	52.0	51.0	61.8	0.0	61.8
	14	61.8	74.0	51.4	69.0	68.0	66.0	65.0	62.0	60.0	54.0	53.0	52.0	61.8	0.0	61.8
	15	61.9	76.7	51.2	70.0	68.0	66.0	65.0	62.0	60.0	53.0	53.0	51.0	61.9	0.0	61.9
	16	62.9	86.1	51.5	69.0	68.0	66.0	65.0	63.0	61.0	53.0	52.0	52.0	62.9	0.0	62.9
	17	63.4	81.1	52.0	70.0	69.0	67.0	66.0	63.0	61.0	54.0	53.0	52.0	63.4	0.0	63.4
	18	63.2	86.7	51.7	71.0	68.0	66.0	65.0	63.0	59.0	53.0	53.0	52.0	63.2	0.0	63.2
Evening	19	62.7	80.2	52.0	71.0	68.0	66.0	65.0	63.0	60.0	55.0	54.0	53.0	62.7	5.0	67.7
	20	62.5	76.8	54.0	69.0	68.0	66.0	66.0	63.0	60.0	56.0	55.0	55.0	62.5	5.0	67.5
	21	61.1	75.6	51.4	68.0	67.0	65.0	65.0	62.0	58.0	54.0	53.0	52.0	61.1	5.0	66.1
Night	22	60.0	73.6	49.3	68.0	66.0	65.0	64.0	60.0	56.0	53.0	53.0	51.0	60.0	10.0	70.0
	23	59.6	72.9	50.2	68.0	66.0	64.0	63.0	59.0	57.0	53.0	53.0	51.0	59.6	10.0	69.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	61.8	74.0	48.2	69.0	68.0	66.0	65.0	62.0	59.0	51.0	50.0	49.0
	Max	64.4	89.8	52.0	72.0	71.0	68.0	67.0	64.0	62.0	54.0	53.0	52.0
Energy Average		63.0	Average:		70.7	69.0	66.8	65.8	62.8	60.0	52.7	51.8	50.6
Evening	Min	61.1	75.6	51.4	68.0	67.0	65.0	65.0	62.0	58.0	54.0	53.0	52.0
	Max	62.7	80.2	54.0	71.0	68.0	66.0	66.0	63.0	60.0	56.0	55.0	55.0
Energy Average		62.2	Average:		69.3	67.7	65.7	65.3	62.7	59.3	55.0	54.0	53.3
Night	Min	58.3	72.9	48.6	68.0	66.0	63.0	61.0	56.0	53.0	51.0	50.0	49.0
	Max	65.3	85.8	51.5	73.0	72.0	70.0	69.0	66.0	63.0	54.0	53.0	52.0
Energy Average		62.4	Average:		70.4	68.4	66.0	64.9	60.8	57.9	52.8	52.1	50.8

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
62.7	**62.8**	**62.4**

24-Hour CNEL (dBA)

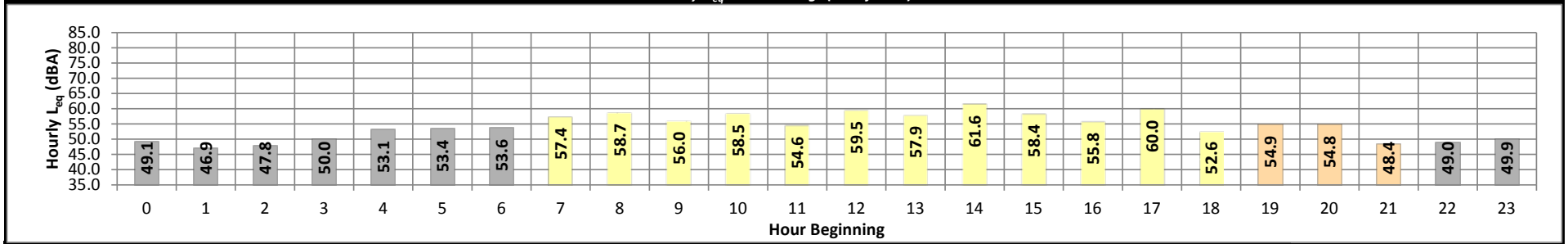
69.2

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 30, 2019 *Location:* L4 - Located Southwest of the project site near Parker House. *Meter:* Piccolo I *JN:* 11965

Project: The Homestead *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	49.1	66.1	43.9	61.0	58.0	49.0	47.0	46.0	46.0	45.0	45.0	44.0	49.1	10.0	59.1
	1	46.9	61.3	43.3	54.0	52.0	49.0	48.0	46.0	45.0	44.0	44.0	44.0	46.9	10.0	56.9
	2	47.8	66.6	43.8	56.0	52.0	48.0	47.0	46.0	46.0	45.0	44.0	44.0	47.8	10.0	57.8
	3	50.0	71.3	44.7	57.0	54.0	49.0	48.0	47.0	46.0	45.0	45.0	45.0	50.0	10.0	60.0
	4	53.1	76.5	44.4	65.0	54.0	48.0	47.0	46.0	46.0	45.0	45.0	44.0	53.1	10.0	63.1
	5	53.4	69.8	45.2	64.0	62.0	58.0	56.0	51.0	47.0	46.0	46.0	45.0	53.4	10.0	63.4
	6	53.6	70.7	46.3	64.0	61.0	57.0	55.0	51.0	50.0	48.0	48.0	47.0	53.6	10.0	63.6
Day	7	57.4	79.7	47.3	69.0	65.0	60.0	57.0	52.0	51.0	49.0	48.0	47.0	57.4	0.0	57.4
	8	58.7	77.9	47.6	72.0	69.0	61.0	59.0	53.0	51.0	49.0	49.0	48.0	58.7	0.0	58.7
	9	56.0	78.8	46.7	65.0	64.0	61.0	58.0	53.0	51.0	49.0	48.0	47.0	56.0	0.0	56.0
	10	58.5	79.1	40.8	71.0	67.0	63.0	60.0	52.0	50.0	44.0	42.0	42.0	58.5	0.0	58.5
	11	54.6	73.4	39.8	66.0	62.0	58.0	56.0	53.0	48.0	42.0	41.0	41.0	54.6	0.0	54.6
	12	59.5	81.1	50.2	69.0	67.0	63.0	61.0	58.0	56.0	53.0	52.0	51.0	59.5	0.0	59.5
	13	57.9	74.1	51.6	65.0	63.0	61.0	60.0	58.0	56.0	53.0	53.0	52.0	57.9	0.0	57.9
	14	61.6	85.7	51.4	70.0	69.0	68.0	64.0	59.0	57.0	54.0	54.0	53.0	61.6	0.0	61.6
	15	58.4	77.5	50.6	65.0	63.0	61.0	60.0	58.0	56.0	54.0	53.0	52.0	58.4	0.0	58.4
	16	55.8	67.7	52.2	61.0	60.0	58.0	57.0	55.0	55.0	54.0	53.0	53.0	55.8	0.0	55.8
	17	60.0	85.4	46.1	63.0	58.0	56.0	55.0	54.0	50.0	48.0	47.0	46.0	60.0	0.0	60.0
	18	52.6	71.7	46.0	62.0	59.0	55.0	54.0	51.0	49.0	47.0	47.0	46.0	52.6	0.0	52.6
Evening	19	54.9	77.9	45.5	65.0	64.0	60.0	57.0	51.0	49.0	47.0	47.0	46.0	54.9	5.0	59.9
	20	54.8	78.1	45.0	64.0	61.0	55.0	52.0	49.0	48.0	47.0	46.0	45.0	54.8	5.0	59.8
	21	48.4	63.4	44.4	56.0	54.0	51.0	50.0	47.0	46.0	45.0	45.0	45.0	48.4	5.0	53.4
Night	22	49.0	66.5	43.8	61.0	57.0	50.0	49.0	46.0	45.0	44.0	44.0	44.0	49.0	10.0	59.0
	23	49.9	69.5	43.6	61.0	59.0	52.0	50.0	46.0	45.0	44.0	44.0	44.0	49.9	10.0	59.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	52.6	67.7	39.8	61.0	58.0	55.0	54.0	51.0	48.0	42.0	41.0	41.0
	Max	61.6	85.7	52.2	72.0	69.0	68.0	64.0	59.0	57.0	54.0	54.0	53.0
Energy Average		58.2	Average:		66.5	63.8	60.4	58.4	54.7	52.5	49.7	48.9	48.2
Evening	Min	48.4	63.4	44.4	56.0	54.0	51.0	50.0	47.0	46.0	45.0	45.0	45.0
	Max	54.9	78.1	45.5	65.0	64.0	60.0	57.0	51.0	49.0	47.0	47.0	46.0
Energy Average		53.6	Average:		61.7	59.7	55.3	53.0	49.0	47.7	46.3	46.0	45.3
Night	Min	46.9	61.3	43.3	54.0	52.0	48.0	47.0	46.0	45.0	44.0	44.0	44.0
	Max	53.6	76.5	46.3	65.0	62.0	58.0	56.0	51.0	50.0	48.0	48.0	47.0
Energy Average		50.9	Average:		60.3	56.6	51.1	49.7	47.2	46.2	45.1	45.0	44.6

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
56.1	57.6	50.9

24-Hour CNEL (dBA)

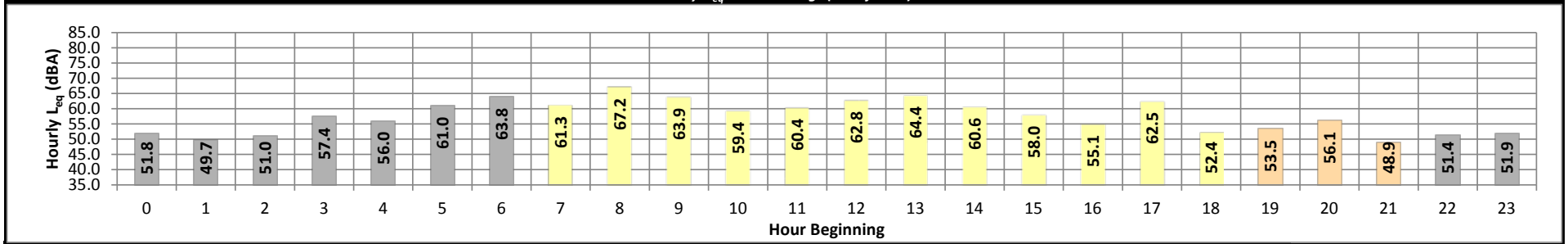
59.5

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 30, 2019 *Location:* L5 - Located directly west of the project site. *Meter:* Piccolo I *JN:* 11965

Project: The Homestead *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	51.8	70.0	45.7	64.0	60.0	51.0	50.0	48.0	47.0	46.0	46.0	46.0	51.8	10.0	61.8
	1	49.7	66.4	45.6	55.0	52.0	51.0	50.0	49.0	48.0	47.0	46.0	46.0	49.7	10.0	59.7
	2	51.0	70.8	47.0	61.0	54.0	51.0	50.0	49.0	48.0	48.0	47.0	47.0	51.0	10.0	61.0
	3	57.4	82.3	47.4	68.0	56.0	51.0	51.0	49.0	49.0	48.0	48.0	47.0	57.4	10.0	67.4
	4	56.0	82.6	45.8	67.0	60.0	54.0	53.0	49.0	48.0	47.0	46.0	46.0	56.0	10.0	66.0
	5	61.0	77.7	46.9	72.0	70.0	67.0	65.0	58.0	55.0	49.0	48.0	47.0	61.0	10.0	71.0
	6	63.8	87.3	52.8	75.0	71.0	67.0	65.0	61.0	59.0	55.0	54.0	53.0	63.8	10.0	73.8
Day	7	61.3	83.6	49.7	72.0	69.0	65.0	63.0	60.0	57.0	53.0	52.0	51.0	61.3	0.0	61.3
	8	67.2	94.4	48.6	74.0	72.0	68.0	66.0	64.0	63.0	54.0	51.0	50.0	67.2	0.0	67.2
	9	63.9	83.0	50.1	74.0	71.0	68.0	66.0	63.0	61.0	55.0	54.0	52.0	63.9	0.0	63.9
	10	59.4	79.1	44.6	69.0	66.0	63.0	61.0	59.0	56.0	52.0	49.0	45.0	59.4	0.0	59.4
	11	60.4	76.5	44.1	69.0	67.0	66.0	64.0	61.0	54.0	47.0	46.0	45.0	60.4	0.0	60.4
	12	62.8	79.4	46.9	71.0	69.0	67.0	66.0	64.0	58.0	50.0	49.0	48.0	62.8	0.0	62.8
	13	64.4	84.4	47.2	74.0	73.0	72.0	70.0	62.0	57.0	51.0	50.0	48.0	64.4	0.0	64.4
	14	60.6	77.7	46.9	72.0	71.0	66.0	63.0	57.0	54.0	50.0	49.0	48.0	60.6	0.0	60.6
	15	58.0	79.7	46.2	69.0	66.0	62.0	60.0	56.0	53.0	49.0	48.0	47.0	58.0	0.0	58.0
	16	55.1	72.6	44.5	64.0	62.0	60.0	58.0	54.0	51.0	47.0	47.0	45.0	55.1	0.0	55.1
	17	62.5	89.3	45.2	71.0	64.0	57.0	55.0	51.0	49.0	46.0	46.0	45.0	62.5	0.0	62.5
	18	52.4	68.4	44.6	64.0	62.0	57.0	54.0	50.0	48.0	46.0	45.0	45.0	52.4	0.0	52.4
Evening	19	53.5	70.8	44.4	65.0	63.0	60.0	56.0	50.0	48.0	45.0	45.0	45.0	53.5	5.0	58.5
	20	56.1	80.6	44.0	67.0	63.0	56.0	53.0	49.0	47.0	45.0	45.0	44.0	56.1	5.0	61.1
	21	48.9	69.8	43.2	59.0	56.0	52.0	50.0	47.0	45.0	44.0	44.0	43.0	48.9	5.0	53.9
Night	22	51.4	71.9	42.5	65.0	59.0	52.0	50.0	46.0	45.0	43.0	43.0	43.0	51.4	10.0	61.4
	23	51.9	71.4	42.3	66.0	62.0	53.0	50.0	45.0	44.0	43.0	43.0	43.0	51.9	10.0	61.9

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	52.4	68.4	44.1	64.0	62.0	57.0	54.0	50.0	48.0	46.0	45.0	45.0
	Max	67.2	94.4	50.1	74.0	73.0	72.0	70.0	64.0	63.0	55.0	54.0	52.0
Energy Average		62.2	Average:		70.3	67.7	64.3	62.2	58.4	55.1	50.0	48.8	47.4
Evening	Min	48.9	69.8	43.2	59.0	56.0	52.0	50.0	47.0	45.0	44.0	44.0	43.0
	Max	56.1	80.6	44.4	67.0	63.0	60.0	56.0	50.0	48.0	45.0	45.0	45.0
Energy Average		53.7	Average:		63.7	60.7	56.0	53.0	48.7	46.7	44.7	44.7	44.0
Night	Min	49.7	66.4	42.3	55.0	52.0	51.0	50.0	45.0	44.0	43.0	43.0	43.0
	Max	63.8	87.3	52.8	75.0	71.0	67.0	65.0	61.0	59.0	55.0	54.0	53.0
Energy Average		57.7	Average:		65.9	60.4	55.2	53.8	50.4	49.2	47.3	46.8	46.4

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
60.3	61.3	57.7

24-Hour CNEL (dBA)

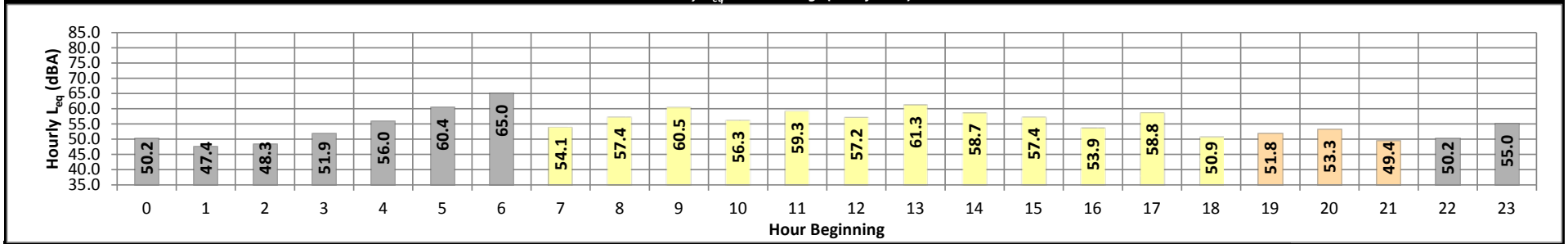
64.9

24-Hour Noise Level Measurement Summary

Date: Tuesday, July 30, 2019 *Location:* L6 - Located directly north of the project site. *Meter:* Piccolo I *JN:* 11965

Project: The Homestead *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	50.2	68.4	42.9	65.0	60.0	50.0	47.0	45.0	44.0	43.0	43.0	43.0	50.2	10.0	60.2
	1	47.4	66.2	43.3	54.0	51.0	48.0	47.0	46.0	45.0	44.0	44.0	43.0	47.4	10.0	57.4
	2	48.3	62.9	44.4	58.0	54.0	49.0	48.0	47.0	46.0	45.0	45.0	45.0	48.3	10.0	58.3
	3	51.9	71.9	46.1	59.0	56.0	52.0	51.0	50.0	48.0	47.0	46.0	46.0	51.9	10.0	61.9
	4	56.0	79.1	45.5	69.0	61.0	51.0	50.0	48.0	48.0	47.0	46.0	46.0	56.0	10.0	66.0
	5	60.4	83.9	47.4	71.0	68.0	63.0	59.0	53.0	51.0	49.0	48.0	48.0	60.4	10.0	70.4
	6	65.0	88.5	47.1	78.0	74.0	68.0	64.0	55.0	52.0	49.0	48.0	48.0	65.0	10.0	75.0
Day	7	54.1	75.5	47.2	65.0	62.0	57.0	55.0	51.0	50.0	48.0	48.0	48.0	54.1	0.0	54.1
	8	57.4	79.7	45.8	70.0	65.0	59.0	57.0	52.0	50.0	47.0	47.0	46.0	57.4	0.0	57.4
	9	60.5	78.4	45.0	71.0	69.0	67.0	65.0	57.0	51.0	47.0	47.0	46.0	60.5	0.0	60.5
	10	56.3	74.9	43.0	67.0	65.0	62.0	59.0	53.0	51.0	46.0	45.0	44.0	56.3	0.0	56.3
	11	59.3	84.6	41.0	70.0	66.0	60.0	58.0	53.0	49.0	43.0	42.0	41.0	59.3	0.0	59.3
	12	57.2	80.3	43.3	68.0	66.0	62.0	59.0	54.0	50.0	46.0	45.0	44.0	57.2	0.0	57.2
	13	61.3	87.3	43.3	72.0	69.0	64.0	61.0	52.0	49.0	46.0	45.0	44.0	61.3	0.0	61.3
	14	58.7	82.8	45.0	69.0	66.0	60.0	58.0	53.0	51.0	47.0	46.0	46.0	58.7	0.0	58.7
	15	57.4	78.6	45.4	68.0	66.0	62.0	59.0	54.0	51.0	48.0	47.0	46.0	57.4	0.0	57.4
	16	53.9	70.8	43.6	64.0	62.0	59.0	57.0	53.0	50.0	46.0	46.0	45.0	53.9	0.0	53.9
	17	58.8	83.2	45.1	72.0	63.0	56.0	52.0	49.0	47.0	46.0	46.0	45.0	58.8	0.0	58.8
	18	50.9	65.9	45.1	60.0	58.0	54.0	53.0	50.0	48.0	46.0	46.0	46.0	50.9	0.0	50.9
Evening	19	51.8	66.2	44.4	61.0	60.0	57.0	55.0	50.0	48.0	46.0	45.0	45.0	51.8	5.0	56.8
	20	53.3	77.6	43.7	64.0	60.0	55.0	53.0	49.0	47.0	45.0	45.0	44.0	53.3	5.0	58.3
	21	49.4	74.3	43.0	59.0	55.0	53.0	52.0	48.0	46.0	44.0	44.0	43.0	49.4	5.0	54.4
Night	22	50.2	69.3	41.4	63.0	57.0	51.0	49.0	47.0	45.0	43.0	43.0	42.0	50.2	10.0	60.2
	23	55.0	81.0	41.5	67.0	65.0	57.0	52.0	46.0	44.0	43.0	42.0	42.0	55.0	10.0	65.0

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	50.9	65.9	41.0	60.0	58.0	54.0	52.0	49.0	47.0	43.0	42.0	41.0
	Max	61.3	87.3	47.2	72.0	69.0	67.0	65.0	57.0	51.0	48.0	48.0	48.0
Energy Average		58.0	Average:		68.0	64.8	60.2	57.8	52.6	49.8	46.3	45.8	45.1
Evening	Min	49.4	66.2	43.0	59.0	55.0	53.0	52.0	48.0	46.0	44.0	44.0	43.0
	Max	53.3	77.6	44.4	64.0	60.0	57.0	55.0	50.0	48.0	46.0	45.0	45.0
Energy Average		51.8	Average:		61.3	58.3	55.0	53.3	49.0	47.0	45.0	44.7	44.0
Night	Min	47.4	62.9	41.4	54.0	51.0	48.0	47.0	45.0	44.0	43.0	42.0	42.0
	Max	65.0	88.5	47.4	78.0	74.0	68.0	64.0	55.0	52.0	49.0	48.0	48.0
Energy Average		57.8	Average:		64.9	60.7	54.3	51.9	48.6	47.0	45.6	45.0	44.8

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
57.5	**57.2**	**57.8**

24-Hour CNEL (dBA)

64.2

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: n/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,047 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,705 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.14	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.92	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.16	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.6	66.0	63.1	70.7	71.1
Medium Trucks:	70.3	67.8	64.0	64.5	71.4	71.6
Heavy Trucks:	71.0	69.4	62.2	62.9	70.7	70.9
Vehicle Noise:	75.4	73.4	69.1	68.3	75.7	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	178	384	828	1,784
CNEL:	185	399	860	1,854

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,341 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,434 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.68	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.38	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.62	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.1	65.6	62.6	70.2	70.6
Medium Trucks:	69.8	67.4	63.5	64.0	71.0	71.2
Heavy Trucks:	70.5	68.9	61.7	62.4	70.3	70.4
Vehicle Noise:	75.0	73.0	68.7	67.9	75.3	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	166	358	772	1,663
CNEL:	173	372	802	1,728

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Schaefer Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,707 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,271 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.38	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.68	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.92	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	67.8	65.3	62.3	69.9	70.3
Medium Trucks:	69.5	67.1	63.2	63.7	70.7	70.9
Heavy Trucks:	70.2	68.6	61.4	62.1	70.0	70.1
Vehicle Noise:	74.7	72.6	68.4	67.6	75.0	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	159	342	737	1,588
CNEL:	165	355	766	1,650

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,905 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,591 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.95	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.11	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.35	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.4	65.8	62.9	70.5	70.9
Medium Trucks:	70.1	67.7	63.8	64.3	71.2	71.4
Heavy Trucks:	70.8	69.2	62.0	62.7	70.5	70.7
Vehicle Noise:	75.2	73.2	68.9	68.1	75.5	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	173	373	805	1,733
CNEL:	180	388	836	1,801

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Eucalyptus Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,103 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,510 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.81	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.25	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.49	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	68.3	65.7	62.7	70.4	70.7
Medium Trucks:	69.9	67.5	63.7	64.2	71.1	71.3
Heavy Trucks:	70.7	69.0	61.9	62.6	70.4	70.6
Vehicle Noise:	75.1	73.1	68.8	68.0	75.4	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	170	366	788	1,697
CNEL:	176	380	819	1,764

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Merrill Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,707 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,671 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.08	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.98	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.22	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.5	66.0	63.0	70.6	71.0
Medium Trucks:	70.2	67.8	63.9	64.4	71.4	71.6
Heavy Trucks:	70.9	69.3	62.1	62.9	70.7	70.8
Vehicle Noise:	75.4	73.4	69.1	68.3	75.7	75.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	177	381	821	1,769
CNEL:	184	396	853	1,838

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Limonite Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,787 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,579 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.34	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.72	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.96	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.5	66.4	63.8	60.9	68.5	68.9
Medium Trucks:	68.2	65.8	62.0	62.5	69.4	69.6
Heavy Trucks:	69.4	67.7	60.6	61.3	69.1	69.3
Vehicle Noise:	73.5	71.5	67.1	66.4	73.8	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	136	293	632	1,361
CNEL:	141	305	656	1,414

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o 65th St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,454 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,945 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.92	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.14	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.38	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.0	64.4	61.5	69.1	69.5
Medium Trucks:	68.8	66.4	62.6	63.1	70.0	70.2
Heavy Trucks:	70.0	68.3	61.1	61.9	69.7	69.8
Vehicle Noise:	74.1	72.1	67.7	66.9	74.4	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	149	320	690	1,488
CNEL:	154	333	717	1,545

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Kimball Av.
Road Segment: w/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,116 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,412 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	49.0 feet
Centerline Dist. to Observer:	49.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	42.140
Medium Trucks:	41.929
Heavy Trucks:	41.950

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.27	1.01	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-12.33	1.04	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-15.57	1.04	-1.20	-5.44	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	66.6	64.1	61.1	68.8	69.1
Medium Trucks:	68.5	66.1	62.3	62.7	69.7	69.9
Heavy Trucks:	69.6	68.0	60.8	61.5	69.4	69.5
Vehicle Noise:	73.8	71.8	67.4	66.6	74.1	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	91	197	424	914
CNEL:	95	204	440	949

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Limonite Av.
Road Segment: e/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	0 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-42.77	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-53.83	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-57.07	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	24.4	22.3	19.7	16.8	24.4	24.8
Medium Trucks:	24.1	21.7	17.9	18.4	25.3	25.5
Heavy Trucks:	25.3	23.6	16.5	17.2	25.0	25.2
Vehicle Noise:	29.4	27.4	23.0	22.3	29.7	29.9

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: E
Road Name: Limonite Av.
Road Segment: e/o Archibald Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,476 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,748 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.35	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-11.41	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.65	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.8	64.7	62.2	59.2	66.8	67.2
Medium Trucks:	66.6	64.2	60.3	60.8	67.7	67.9
Heavy Trucks:	67.7	66.0	58.9	59.6	67.4	67.6
Vehicle Noise:	71.8	69.8	65.4	64.7	72.1	72.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	226	488	1,050
CNEL:	109	235	506	1,091

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Limonite Av.
Road Segment: e/o Harrison Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,514 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,951 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.13	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.93	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.17	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.3	65.2	62.6	59.7	67.3	67.7
Medium Trucks:	67.0	64.6	60.8	61.3	68.2	68.4
Heavy Trucks:	68.2	66.5	59.4	60.1	67.9	68.1
Vehicle Noise:	72.3	70.3	65.9	65.2	72.6	72.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	244	525	1,131
CNEL:	117	253	545	1,174

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Limonite Av.
Road Segment: e/o Sumner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,010 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,101 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.45	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.61	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.85	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.6	65.5	63.0	60.0	67.6	68.0
Medium Trucks:	67.4	65.0	61.1	61.6	68.5	68.7
Heavy Trucks:	68.5	66.8	59.7	60.4	68.2	68.4
Vehicle Noise:	72.6	70.6	66.2	65.5	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	256	551	1,188
CNEL:	123	266	572	1,233

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Limonite Av.
Road Segment: e/o Scholar Wy.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,015 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,402 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.04	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.03	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.27	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.1	63.5	60.6	68.2	68.6
Medium Trucks:	67.9	66.5	61.7	62.2	69.1	69.3
Heavy Trucks:	69.1	67.4	60.3	61.0	68.8	69.0
Vehicle Noise:	73.2	71.2	66.8	66.1	73.5	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	130	280	603	1,298
CNEL:	135	290	626	1,348

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E
Road Name: Limonite Av.
Road Segment: e/o Hamner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,762 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,676 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	1.96	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-9.10	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-12.34	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	65.3	62.7	59.8	67.4	67.8
Medium Trucks:	67.3	64.9	61.1	61.5	68.5	68.7
Heavy Trucks:	68.9	67.2	60.1	60.8	68.6	68.8
Vehicle Noise:	72.7	70.7	66.2	65.5	73.0	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	258	556	1,197
CNEL:	124	268	577	1,242

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Archibald Av.
Road Segment: n/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,339 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,734 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.19%
Medium Trucks:	69.0%	7.1%	23.8%	7.12%
Heavy Trucks:	82.1%	3.9%	13.9%	3.69%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.16	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.82	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.67	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.6	66.1	63.1	70.7	71.1
Medium Trucks:	70.4	68.0	64.1	64.6	71.5	71.7
Heavy Trucks:	71.5	69.8	62.7	63.4	71.2	71.4
Vehicle Noise:	75.6	73.6	69.3	68.5	75.9	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	184	397	855	1,842
CNEL:	191	412	888	1,913

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,650 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,465 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.15%
Medium Trucks:	69.0%	7.1%	23.8%	7.13%
Heavy Trucks:	82.1%	3.9%	13.9%	3.73%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.71	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.26	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.08	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	68.2	65.6	62.6	70.3	70.6
Medium Trucks:	69.9	67.5	63.7	64.1	71.1	71.3
Heavy Trucks:	71.1	69.4	62.3	63.0	70.8	71.0
Vehicle Noise:	75.2	73.2	68.8	68.1	75.5	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	172	371	800	1,723
CNEL:	179	385	831	1,789

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Schaefer Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,033 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,303 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.12%
Medium Trucks:	69.0%	7.1%	23.8%	7.13%
Heavy Trucks:	82.1%	3.9%	13.9%	3.75%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.41	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.56	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.34	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.9	67.9	65.3	62.3	70.0	70.3
Medium Trucks:	69.6	67.2	63.4	63.9	70.8	71.0
Heavy Trucks:	70.8	69.2	62.0	62.7	70.6	70.7
Vehicle Noise:	74.9	72.9	68.5	67.8	75.2	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	165	355	766	1,649
CNEL:	171	369	795	1,713

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,349 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,635 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.23%
Medium Trucks:	69.0%	7.1%	23.8%	7.08%
Heavy Trucks:	82.1%	3.9%	13.9%	3.68%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.00	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.00	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.84	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.4	65.9	62.9	70.6	70.9
Medium Trucks:	70.2	67.8	63.9	64.4	71.4	71.6
Heavy Trucks:	71.3	69.7	62.5	63.2	71.1	71.2
Vehicle Noise:	75.5	73.5	69.1	68.3	75.8	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	179	387	833	1,794
CNEL:	186	401	865	1,863

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Eucalyptus Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,564 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,556 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.23%
Medium Trucks:	69.0%	7.1%	23.8%	7.08%
Heavy Trucks:	82.1%	3.9%	13.9%	3.69%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.87	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.13	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.96	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.3	65.8	62.8	70.4	70.8
Medium Trucks:	70.0	67.6	63.8	64.3	71.2	71.4
Heavy Trucks:	71.2	69.6	62.4	63.1	70.9	71.1
Vehicle Noise:	75.4	73.3	69.0	68.2	75.6	75.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	176	379	817	1,759
CNEL:	183	394	848	1,827

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Merrill Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,338 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,734 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.32%
Medium Trucks:	69.0%	7.1%	23.8%	7.03%
Heavy Trucks:	82.1%	3.9%	13.9%	3.65%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.17	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.87	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.72	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.6	66.1	63.1	70.7	71.1
Medium Trucks:	70.3	67.9	64.1	64.5	71.5	71.7
Heavy Trucks:	71.4	69.8	62.6	63.3	71.2	71.3
Vehicle Noise:	75.6	73.6	69.3	68.5	75.9	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	183	395	850	1,832
CNEL:	190	410	883	1,903

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Limonite Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,151 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,615 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.57%
Medium Trucks:	69.0%	7.1%	23.8%	6.99%
Heavy Trucks:	82.1%	3.9%	13.9%	3.44%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.40	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.67	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.75	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.6	66.5	63.9	60.9	68.6	68.9
Medium Trucks:	68.3	65.9	62.0	62.5	69.5	69.7
Heavy Trucks:	69.6	67.9	60.8	61.5	69.3	69.5
Vehicle Noise:	73.6	71.6	67.2	66.5	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	138	298	642	1,383
CNEL:	144	309	666	1,436

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o 65th St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,691 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,969 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.73%
Medium Trucks:	69.0%	7.1%	23.8%	6.96%
Heavy Trucks:	82.1%	3.9%	13.9%	3.30%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.96	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.14	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.38	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.0	64.5	61.5	69.1	69.5
Medium Trucks:	68.8	66.4	62.6	63.1	70.0	70.2
Heavy Trucks:	70.0	68.3	61.1	61.9	69.7	69.8
Vehicle Noise:	74.1	72.1	67.7	67.0	74.4	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	149	321	692	1,490
CNEL:	155	333	718	1,547

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P | Project Name: Homestead
Road Name: Kimball Av. | Job Number: 11968
Road Segment: w/o Hellman Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,499 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,450 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	49.0 feet
Centerline Dist. to Observer:	49.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.39%
Medium Trucks:	69.0%	7.1%	23.8%	7.00%
Heavy Trucks:	82.1%	3.9%	13.9%	3.61%

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:	42.140
Medium Trucks:	41.929
Heavy Trucks:	41.950

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.17	1.01	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-12.23	1.04	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-15.10	1.04	-1.20	-5.44	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	66.8	64.2	61.2	68.9	69.2
Medium Trucks:	68.6	66.2	62.4	62.8	69.8	70.0
Heavy Trucks:	70.1	68.5	61.3	62.0	69.8	70.0
Vehicle Noise:	74.0	72.0	67.6	66.9	74.3	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	204	440	947
CNEL:	98	212	456	983

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Limonite Av.
Road Segment: e/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	469 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	47 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	83.35%
Medium Trucks:	69.0%	7.1%	23.8%	5.13%
Heavy Trucks:	82.1%	3.9%	13.9%	11.52%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-16.37	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-28.48	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-24.97	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.8	48.7	46.1	43.2	50.8	51.2
Medium Trucks:	49.5	47.1	43.2	43.7	50.7	50.9
Heavy Trucks:	57.4	55.7	48.6	49.3	57.1	57.3
Vehicle Noise:	58.8	57.0	51.3	51.1	58.7	58.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	29	63	135
CNEL:	14	30	65	139

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Limonite Av.
Road Segment: e/o Archibald Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,158 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,816 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.18%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.80%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.20	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-11.24	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.91	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.9	64.9	62.3	59.3	67.0	67.3
Medium Trucks:	66.7	64.3	60.5	61.0	67.9	68.1
Heavy Trucks:	68.4	66.8	59.6	60.3	68.2	68.3
Vehicle Noise:	72.2	70.2	65.7	65.0	72.5	72.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	239	516	1,111
CNEL:	115	248	535	1,153

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Limonite Av.
Road Segment: e/o Harrison Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,162 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,016 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.21%
Medium Trucks:	69.0%	7.1%	23.8%	7.03%
Heavy Trucks:	82.1%	3.9%	13.9%	3.76%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.25	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.78	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.50	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	65.3	62.8	59.8	67.4	67.8
Medium Trucks:	67.2	64.8	60.9	61.4	68.4	68.6
Heavy Trucks:	68.8	67.2	60.0	60.7	68.6	68.7
Vehicle Noise:	72.6	70.7	66.2	65.5	72.9	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	256	552	1,188
CNEL:	123	266	572	1,233

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Limonite Av.
Road Segment: e/o Sumner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,624 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,162 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.22%
Medium Trucks:	69.0%	7.1%	23.8%	7.04%
Heavy Trucks:	82.1%	3.9%	13.9%	3.73%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.56	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.47	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.22	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.6	63.1	60.1	67.7	68.1
Medium Trucks:	67.5	65.1	61.2	61.7	68.7	68.9
Heavy Trucks:	69.1	67.5	60.3	61.0	68.8	69.0
Vehicle Noise:	72.9	71.0	66.5	65.8	73.2	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	124	268	577	1,244
CNEL:	129	278	599	1,291

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Limonite Av.
Road Segment: e/o Scholar Wy.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,578 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,458 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.25%
Medium Trucks:	69.0%	7.1%	23.8%	7.05%
Heavy Trucks:	82.1%	3.9%	13.9%	3.69%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.12	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.90	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.72	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.3	66.2	63.6	60.7	68.3	68.7
Medium Trucks:	68.1	65.7	61.8	62.3	69.2	69.4
Heavy Trucks:	69.6	68.0	60.8	61.5	69.3	69.5
Vehicle Noise:	73.5	71.5	67.0	66.3	73.7	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	135	291	627	1,351
CNEL:	140	302	651	1,402

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: E+P
Road Name: Limonite Av.
Road Segment: e/o Hamner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,223 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,722 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.25%
Medium Trucks:	69.0%	7.1%	23.8%	7.08%
Heavy Trucks:	82.1%	3.9%	13.9%	3.67%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.02	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-8.99	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-11.84	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	65.3	62.8	59.8	67.4	67.8
Medium Trucks:	67.4	65.0	61.2	61.7	68.6	68.8
Heavy Trucks:	69.4	67.7	60.6	61.3	69.1	69.3
Vehicle Noise:	72.9	71.0	66.4	65.8	73.2	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	124	268	577	1,242
CNEL:	129	278	598	1,288

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY
Road Name: Archibald Av.
Road Segment: n/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,960 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,996 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.58	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.48	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.72	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.0	66.5	63.5	71.1	71.5
Medium Trucks:	70.7	68.3	64.4	64.9	71.9	72.1
Heavy Trucks:	71.4	69.8	62.6	63.3	71.2	71.3
Vehicle Noise:	75.9	73.9	69.6	68.8	76.2	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	191	411	886	1,910
CNEL:	198	428	921	1,984

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY
Road Name: Archibald Av.
Road Segment: s/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,248 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,725 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.17	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.89	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.13	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.6	66.1	63.1	70.7	71.1
Medium Trucks:	70.3	67.9	64.0	64.5	71.5	71.7
Heavy Trucks:	71.0	69.4	62.2	62.9	70.8	70.9
Vehicle Noise:	75.5	73.4	69.2	68.3	75.8	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	179	386	832	1,793
CNEL:	186	401	865	1,863

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Schaefer Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,560 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,556 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.89	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.17	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.41	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	68.3	65.8	62.8	70.4	70.8
Medium Trucks:	70.0	67.6	63.8	64.2	71.2	71.4
Heavy Trucks:	70.8	69.1	61.9	62.7	70.5	70.6
Vehicle Noise:	75.2	73.2	68.9	68.1	75.5	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	172	370	797	1,718
CNEL:	178	385	829	1,785

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Ontario Ranch Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,619 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,862 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.38	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.68	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.92	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	68.8	66.3	63.3	70.9	71.3
Medium Trucks:	70.5	68.1	64.2	64.7	71.7	71.9
Heavy Trucks:	71.2	69.6	62.4	63.2	71.0	71.1
Vehicle Noise:	75.7	73.7	69.4	68.6	76.0	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	185	399	860	1,852
CNEL:	192	415	893	1,925

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Eucalyptus Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,793 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,779 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.26	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.81	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.05	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.7	66.1	63.2	70.8	71.2
Medium Trucks:	70.4	68.0	64.1	64.6	71.5	71.8
Heavy Trucks:	71.1	69.5	62.3	63.0	70.9	71.0
Vehicle Noise:	75.5	73.5	69.2	68.4	75.9	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	182	391	843	1,817
CNEL:	189	407	876	1,887

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Merrill Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,249 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,925 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.48	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.58	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.82	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	68.9	66.4	63.4	71.0	71.4
Medium Trucks:	70.6	68.2	64.3	64.8	71.8	72.0
Heavy Trucks:	71.3	69.7	62.5	63.2	71.1	71.2
Vehicle Noise:	75.8	73.7	69.5	68.7	76.1	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	188	405	872	1,880
CNEL:	195	421	906	1,953

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o Limonite Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,861 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,786 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.68	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.38	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.62	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.8	66.7	64.2	61.2	68.8	69.2
Medium Trucks:	68.6	66.2	62.3	62.8	69.8	70.0
Heavy Trucks:	69.7	68.1	60.9	61.6	69.4	69.6
Vehicle Noise:	73.8	71.8	67.5	66.7	74.1	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	309	665	1,433
CNEL:	149	321	691	1,488

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: s/o 65th St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,647 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,165 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.23	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.83	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.07	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	67.3	64.7	61.8	69.4	69.8
Medium Trucks:	69.1	66.7	62.9	63.4	70.3	70.5
Heavy Trucks:	70.3	68.6	61.5	62.2	70.0	70.2
Vehicle Noise:	74.4	72.4	68.0	67.3	74.7	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	156	336	724	1,561
CNEL:	162	349	752	1,620

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY | Project Name: Homestead
Road Name: Kimball Av. | Job Number: 11968
Road Segment: w/o Hellman Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,022 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,502 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	49.0 feet
Centerline Dist. to Observer:	49.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	42.140
Medium Trucks:	41.929
Heavy Trucks:	41.950

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-1.00	1.01	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-12.06	1.04	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-15.30	1.04	-1.20	-5.44	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.0	66.9	64.4	61.4	69.0	69.4
Medium Trucks:	68.8	66.4	62.5	63.0	70.0	70.2
Heavy Trucks:	69.9	68.3	61.1	61.8	69.6	69.8
Vehicle Noise:	74.0	72.0	67.6	66.9	74.3	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	205	442	952
CNEL:	99	213	459	989

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY | Project Name: Homestead
Road Name: Limonite Av. | Job Number: 11968
Road Segment: e/o Hellman Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	466 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	47 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-16.09	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-27.15	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-30.39	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.1	49.0	46.4	43.5	51.1	51.5
Medium Trucks:	50.8	48.4	44.6	45.0	52.0	52.2
Heavy Trucks:	51.9	50.3	43.1	43.9	51.7	51.8
Vehicle Noise:	56.1	54.1	49.7	48.9	56.4	56.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	9	20	44	94
CNEL:	10	21	45	97

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY
Road Name: Limonite Av.
Road Segment: e/o Archibald Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,833 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,983 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.20	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.86	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-14.10	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.4	65.3	62.7	59.7	67.4	67.7
Medium Trucks:	67.1	64.7	60.9	61.3	68.3	68.5
Heavy Trucks:	68.2	66.6	59.4	60.1	68.0	68.1
Vehicle Noise:	72.4	70.4	66.0	65.2	72.7	72.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	114	246	530	1,143
CNEL:	119	256	551	1,187

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY
Road Name: Limonite Av.
Road Segment: e/o Harrison Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,923 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,192 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.64	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.42	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.66	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	65.7	63.1	60.2	67.8	68.2
Medium Trucks:	67.5	65.1	61.3	61.8	68.7	68.9
Heavy Trucks:	68.7	67.0	59.9	60.6	68.4	68.6
Vehicle Noise:	72.8	70.8	66.4	65.7	73.1	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	567	1,222
CNEL:	127	273	589	1,269

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY
Road Name: Limonite Av.
Road Segment: e/o Sumner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,434 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,343 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.93	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.13	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.37	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.0	63.4	60.5	68.1	68.5
Medium Trucks:	67.8	65.4	61.6	62.1	69.0	69.2
Heavy Trucks:	69.0	67.3	60.2	60.9	68.7	68.9
Vehicle Noise:	73.1	71.1	66.7	66.0	73.4	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	128	275	593	1,277
CNEL:	133	286	616	1,326

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY
Road Name: Limonite Av.
Road Segment: e/o Scholar Wy.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,756 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,676 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.50	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.56	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.80	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	66.6	64.0	61.0	68.7	69.0
Medium Trucks:	68.4	66.0	62.2	62.6	69.6	69.8
Heavy Trucks:	69.5	67.9	60.7	61.4	69.3	69.4
Vehicle Noise:	73.7	71.7	67.3	66.5	74.0	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	140	301	648	1,395
CNEL:	145	312	672	1,449

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY
Road Name: Limonite Av.
Road Segment: e/o Hamner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,589 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,959 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.40	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-8.66	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-11.90	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	65.7	63.2	60.2	67.8	68.2
Medium Trucks:	67.7	65.3	61.5	62.0	68.9	69.1
Heavy Trucks:	69.3	67.7	60.5	61.2	69.0	69.2
Vehicle Noise:	73.1	71.1	66.6	66.0	73.4	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	128	276	594	1,280
CNEL:	133	286	617	1,328

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: n/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,252 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,025 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.23%
Medium Trucks:	69.0%	7.1%	23.8%	7.11%
Heavy Trucks:	82.1%	3.9%	13.9%	3.65%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.60	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.38	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.27	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.0	66.5	63.5	71.1	71.5
Medium Trucks:	70.8	68.4	64.5	65.0	72.0	72.2
Heavy Trucks:	71.9	70.2	63.1	63.8	71.6	71.8
Vehicle Noise:	76.1	74.1	69.7	68.9	76.4	76.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	197	424	912	1,966
CNEL:	204	440	948	2,042

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: s/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,557 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,756 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.20%
Medium Trucks:	69.0%	7.1%	23.8%	7.12%
Heavy Trucks:	82.1%	3.9%	13.9%	3.68%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.20	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.78	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.64	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.6	66.1	63.1	70.7	71.1
Medium Trucks:	70.4	68.0	64.1	64.6	71.6	71.8
Heavy Trucks:	71.5	69.9	62.7	63.4	71.3	71.4
Vehicle Noise:	75.7	73.7	69.3	68.5	76.0	76.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	185	399	859	1,851
CNEL:	192	414	892	1,922

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: s/o Schaefer Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,886 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,589 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.18%
Medium Trucks:	69.0%	7.1%	23.8%	7.12%
Heavy Trucks:	82.1%	3.9%	13.9%	3.71%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.92	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-10.06	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.89	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.4	65.8	62.9	70.5	70.9
Medium Trucks:	70.1	67.7	63.9	64.4	71.3	71.5
Heavy Trucks:	71.3	69.6	62.5	63.2	71.0	71.2
Vehicle Noise:	75.4	73.4	69.0	68.3	75.7	76.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	178	383	825	1,777
CNEL:	185	398	857	1,846

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: s/o Ontario Ranch Rd.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,063 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,906 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.27%
Medium Trucks:	69.0%	7.1%	23.8%	7.08%
Heavy Trucks:	82.1%	3.9%	13.9%	3.65%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.43	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.58	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.45	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	68.9	66.3	63.4	71.0	71.4
Medium Trucks:	70.6	68.2	64.3	64.8	71.8	72.0
Heavy Trucks:	71.7	70.1	62.9	63.6	71.4	71.6
Vehicle Noise:	75.9	73.9	69.5	68.8	76.2	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	191	412	887	1,912
CNEL:	199	428	921	1,985

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: s/o Eucalyptus Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,254 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,825 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.27%
Medium Trucks:	69.0%	7.1%	23.8%	7.08%
Heavy Trucks:	82.1%	3.9%	13.9%	3.66%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.31	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.70	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.57	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.7	66.2	63.2	70.9	71.2
Medium Trucks:	70.5	68.1	64.2	64.7	71.7	71.9
Heavy Trucks:	71.6	70.0	62.8	63.5	71.3	71.5
Vehicle Noise:	75.8	73.8	69.4	68.6	76.1	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	188	404	871	1,877
CNEL:	195	420	905	1,949

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: s/o Merrill Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,880 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,988 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.35%
Medium Trucks:	69.0%	7.1%	23.8%	7.03%
Heavy Trucks:	82.1%	3.9%	13.9%	3.62%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.56	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.48	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.37	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.0	66.4	63.5	71.1	71.5
Medium Trucks:	70.7	68.3	64.4	64.9	71.9	72.1
Heavy Trucks:	71.8	70.2	63.0	63.7	71.5	71.7
Vehicle Noise:	76.0	74.0	69.6	68.9	76.3	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	194	418	901	1,941
CNEL:	202	434	936	2,016

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: s/o Limonite Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,225 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,823 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.57%
Medium Trucks:	69.0%	7.1%	23.8%	6.99%
Heavy Trucks:	82.1%	3.9%	13.9%	3.43%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.73	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.34	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.43	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	66.8	64.2	61.3	68.9	69.3
Medium Trucks:	68.6	66.2	62.4	62.8	69.8	70.0
Heavy Trucks:	69.9	68.3	61.1	61.8	69.6	69.8
Vehicle Noise:	73.9	71.9	67.5	66.8	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	145	313	675	1,454
CNEL:	151	325	701	1,510

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Archibald Av.
Road Segment: s/o 65th St.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,884 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,188 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.73%
Medium Trucks:	69.0%	7.1%	23.8%	6.97%
Heavy Trucks:	82.1%	3.9%	13.9%	3.31%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.27	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.83	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.07	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	67.3	64.8	61.8	69.4	69.8
Medium Trucks:	69.1	66.7	62.9	63.4	70.3	70.5
Heavy Trucks:	70.3	68.6	61.5	62.2	70.0	70.2
Vehicle Noise:	74.4	72.4	68.0	67.3	74.7	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	156	337	726	1,563
CNEL:	162	350	753	1,623

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Kimball Av.
Road Segment: w/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,405 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,541 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	49.0 feet
Centerline Dist. to Observer:	49.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.40%
Medium Trucks:	69.0%	7.1%	23.8%	7.00%
Heavy Trucks:	82.1%	3.9%	13.9%	3.60%

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:	42.140
Medium Trucks:	41.929
Heavy Trucks:	41.950

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.90	1.01	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-11.97	1.04	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-14.86	1.04	-1.20	-5.44	0.000	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	67.0	64.5	61.5	69.1	69.5
Medium Trucks:	68.9	66.5	62.6	63.1	70.1	70.3
Heavy Trucks:	70.4	68.7	61.6	62.3	70.1	70.3
Vehicle Noise:	74.3	72.3	67.8	67.1	74.5	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	98	212	457	985
CNEL:	102	220	475	1,022

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Limonite Av.
Road Segment: e/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	934 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	93 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	86.49%
Medium Trucks:	69.0%	7.1%	23.8%	6.07%
Heavy Trucks:	82.1%	3.9%	13.9%	7.44%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-13.22	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-24.76	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-23.87	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.9	51.8	49.3	46.3	53.9	54.3
Medium Trucks:	53.2	50.8	47.0	47.4	54.4	54.6
Heavy Trucks:	58.5	56.8	49.7	50.4	58.2	58.4
Vehicle Noise:	60.6	58.8	53.6	53.2	60.7	60.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	39	85	183
CNEL:	19	41	88	189

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P
Road Name: Limonite Av.
Road Segment: e/o Archibald Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,515 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,051 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.23%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.75%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.33	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.71	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.44	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.5	65.4	62.8	59.9	67.5	67.9
Medium Trucks:	67.2	64.8	61.0	61.5	68.4	68.6
Heavy Trucks:	68.9	67.2	60.1	60.8	68.6	68.8
Vehicle Noise:	72.7	70.7	66.2	65.5	73.0	73.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	557	1,201
CNEL:	125	268	578	1,246

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P | Project Name: Homestead
Road Name: Limonite Av. | Job Number: 11968
Road Segment: e/o Harrison Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,571 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,257 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.26%
Medium Trucks:	69.0%	7.1%	23.8%	7.03%
Heavy Trucks:	82.1%	3.9%	13.9%	3.71%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.75	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.29	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.06	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	65.8	63.3	60.3	67.9	68.3
Medium Trucks:	67.7	65.3	61.4	61.9	68.8	69.1
Heavy Trucks:	69.3	67.6	60.5	61.2	69.0	69.2
Vehicle Noise:	73.1	71.1	66.6	65.9	73.4	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	128	275	593	1,277
CNEL:	133	286	615	1,326

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P | Project Name: Homestead
Road Name: Limonite Av. | Job Number: 11968
Road Segment: e/o Sumner Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,048 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,405 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.27%
Medium Trucks:	69.0%	7.1%	23.8%	7.04%
Heavy Trucks:	82.1%	3.9%	13.9%	3.69%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.02	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.01	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.81	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.1	63.5	60.6	68.2	68.6
Medium Trucks:	68.0	65.6	61.7	62.2	69.1	69.3
Heavy Trucks:	69.5	67.9	60.7	61.4	69.3	69.4
Vehicle Noise:	73.4	71.4	66.9	66.2	73.7	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	133	287	618	1,331
CNEL:	138	298	641	1,382

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P | Project Name: Homestead
Road Name: Limonite Av. | Job Number: 11968
Road Segment: e/o Scholar Wy.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,319 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,732 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.29%
Medium Trucks:	69.0%	7.1%	23.8%	7.05%
Heavy Trucks:	82.1%	3.9%	13.9%	3.66%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.58	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.45	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.30	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	66.6	64.1	61.1	68.7	69.1
Medium Trucks:	68.5	66.1	62.3	62.7	69.7	69.9
Heavy Trucks:	70.0	68.4	61.2	61.9	69.8	69.9
Vehicle Noise:	73.9	71.9	67.5	66.8	74.2	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	145	312	671	1,447
CNEL:	150	323	697	1,501

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OY+P | Project Name: Homestead
Road Name: Limonite Av. | Job Number: 11968
Road Segment: e/o Hamner Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,050 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,005 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.29%
Medium Trucks:	69.0%	7.1%	23.8%	7.07%
Heavy Trucks:	82.1%	3.9%	13.9%	3.64%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.45	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-8.56	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-11.45	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	65.8	63.2	60.2	67.9	68.3
Medium Trucks:	67.8	65.4	61.6	62.1	69.0	69.2
Heavy Trucks:	69.8	68.1	61.0	61.7	69.5	69.7
Vehicle Noise:	73.4	71.4	66.8	66.2	73.6	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	132	285	614	1,324
CNEL:	137	296	637	1,373

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Archibald Av.
Road Segment: n/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,221 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,222 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.90	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.16	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.40	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.3	66.8	63.8	71.4	71.8
Medium Trucks:	71.0	68.6	64.8	65.2	72.2	72.4
Heavy Trucks:	71.8	70.1	63.0	63.7	71.5	71.7
Vehicle Noise:	76.2	74.2	69.9	69.1	76.5	76.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	200	432	931	2,005
CNEL:	208	449	967	2,083

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Archibald Av.
Road Segment: s/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,473 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,947 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.51	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.55	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.79	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	69.0	66.4	63.4	71.1	71.4
Medium Trucks:	70.6	68.2	64.4	64.9	71.8	72.0
Heavy Trucks:	71.4	69.7	62.6	63.3	71.1	71.3
Vehicle Noise:	75.8	73.8	69.5	68.7	76.1	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	189	407	877	1,889
CNEL:	196	423	911	1,963

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Archibald Av.
Road Segment: s/o Schaefer Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,730 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,773 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.25	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.82	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.06	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.7	66.1	63.2	70.8	71.2
Medium Trucks:	70.4	68.0	64.1	64.6	71.5	71.7
Heavy Trucks:	71.1	69.5	62.3	63.0	70.8	71.0
Vehicle Noise:	75.5	73.5	69.2	68.4	75.8	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	181	391	842	1,814
CNEL:	188	406	875	1,885

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Archibald Av.
Road Segment: s/o Ontario Ranch Rd.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,734 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,073 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.69	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.37	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.61	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.1	66.6	63.6	71.2	71.6
Medium Trucks:	70.8	68.4	64.6	65.0	72.0	72.2
Heavy Trucks:	71.6	69.9	62.7	63.5	71.3	71.4
Vehicle Noise:	76.0	74.0	69.7	68.9	76.3	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	194	419	902	1,943
CNEL:	202	435	937	2,018

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Archibald Av.
Road Segment: s/o Eucalyptus Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,882 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,988 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.57	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.49	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.73	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.0	66.5	63.5	71.1	71.5
Medium Trucks:	70.7	68.3	64.4	64.9	71.9	72.1
Heavy Trucks:	71.4	69.8	62.6	63.3	71.2	71.3
Vehicle Noise:	75.9	73.8	69.6	68.7	76.2	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	191	411	885	1,907
CNEL:	198	427	919	1,981

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Archibald Av.
Road Segment: s/o Merrill Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,258 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,126 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.77	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.30	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.53	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.2	66.7	63.7	71.3	71.7
Medium Trucks:	70.9	68.5	64.6	65.1	72.1	72.3
Heavy Trucks:	71.6	70.0	62.8	63.5	71.4	71.5
Vehicle Noise:	76.1	74.0	69.8	68.9	76.4	76.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	196	423	912	1,965
CNEL:	204	440	947	2,041

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Archibald Av.
Road Segment: s/o Limonite Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,476 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,348 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.48	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.58	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.82	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.5	65.0	62.0	69.6	70.0
Medium Trucks:	69.4	67.0	63.1	63.6	70.6	70.8
Heavy Trucks:	70.5	68.9	61.7	62.4	70.2	70.4
Vehicle Noise:	74.6	72.6	68.3	67.5	74.9	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	162	349	752	1,620
CNEL:	168	362	781	1,682

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Archibald Av.
Road Segment: s/o 65th St.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,456 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,346 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.48	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.59	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.83	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.5	65.0	62.0	69.6	70.0
Medium Trucks:	69.4	67.0	63.1	63.6	70.5	70.8
Heavy Trucks:	70.5	68.9	61.7	62.4	70.2	70.4
Vehicle Noise:	74.6	72.6	68.2	67.5	74.9	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	162	349	752	1,619
CNEL:	168	362	781	1,682

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Kimball Av.
Road Segment: w/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,792 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,579 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	49.0 feet
Centerline Dist. to Observer:	49.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	42.140
Medium Trucks:	41.929
Heavy Trucks:	41.950

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.79	1.01	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-11.85	1.04	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-15.09	1.04	-1.20	-5.44	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.2	67.1	64.6	61.6	69.2	69.6
Medium Trucks:	69.0	66.6	62.7	63.2	70.2	70.4
Heavy Trucks:	70.1	68.5	61.3	62.0	69.9	70.0
Vehicle Noise:	74.3	72.3	67.9	67.1	74.5	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	98	212	457	985
CNEL:	102	220	475	1,022

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Limonite Av.
Road Segment: e/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	777 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	78 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-13.87	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-24.93	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-28.17	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.3	51.2	48.6	45.7	53.3	53.7
Medium Trucks:	53.0	50.6	46.8	47.3	54.2	54.4
Heavy Trucks:	54.2	52.5	45.4	46.1	53.9	54.1
Vehicle Noise:	58.3	56.3	51.9	51.2	58.6	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	13	28	61	132
CNEL:	14	29	64	137

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Limonite Av.
Road Segment: e/o Archibald Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,611 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,161 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.58	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.48	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.72	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.6	63.1	60.1	67.7	68.1
Medium Trucks:	67.5	65.1	61.2	61.7	68.6	68.9
Heavy Trucks:	68.6	67.0	59.8	60.5	68.3	68.5
Vehicle Noise:	72.7	70.7	66.4	65.6	73.0	73.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	121	261	562	1,210
CNEL:	126	271	583	1,257

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY
Road Name: Limonite Av.
Road Segment: e/o Harrison Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,759 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,376 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.99	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.07	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.31	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.0	63.5	60.5	68.1	68.5
Medium Trucks:	67.9	65.5	61.6	62.1	69.1	69.3
Heavy Trucks:	69.0	67.4	60.2	60.9	68.8	68.9
Vehicle Noise:	73.1	71.1	66.8	66.0	73.4	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	129	278	598	1,289
CNEL:	134	288	621	1,339

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY | Project Name: Homestead
Road Name: Limonite Av. | Job Number: 11968
Road Segment: e/o Sumner Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,299 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,530 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.26	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.80	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.04	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.4	66.3	63.8	60.8	68.4	68.8
Medium Trucks:	68.2	65.8	61.9	62.4	69.3	69.5
Heavy Trucks:	69.3	67.6	60.5	61.2	69.0	69.2
Vehicle Noise:	73.4	71.4	67.0	66.3	73.7	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	290	624	1,344
CNEL:	140	301	648	1,396

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY | Project Name: Homestead
Road Name: Limonite Av. | Job Number: 11968
Road Segment: e/o Scholar Wy.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,867 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,887 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.83	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.23	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.47	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.0	66.9	64.3	61.4	69.0	69.4
Medium Trucks:	68.7	66.3	62.5	63.0	69.9	70.1
Heavy Trucks:	69.9	68.2	61.1	61.8	69.6	69.8
Vehicle Noise:	74.0	72.0	67.6	66.9	74.3	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	147	316	681	1,468
CNEL:	152	328	707	1,524

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY | Project Name: Homestead
Road Name: Limonite Av. | Job Number: 11968
Road Segment: e/o Hamner Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,789 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,179 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.71	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-8.35	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-11.59	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.0	63.5	60.5	68.1	68.5
Medium Trucks:	68.1	65.7	61.8	62.3	69.2	69.4
Heavy Trucks:	69.6	68.0	60.8	61.5	69.3	69.5
Vehicle Noise:	73.4	71.4	66.9	66.3	73.7	73.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	289	623	1,343
CNEL:	139	300	647	1,393

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P | Project Name: Homestead
Road Name: Archibald Av. | Job Number: 11968
Road Segment: n/o Chino Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,513 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,251 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.26%
Medium Trucks:	69.0%	7.1%	23.8%	7.10%
Heavy Trucks:	82.1%	3.9%	13.9%	3.63%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.92	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.07	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.99	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.4	66.8	63.8	71.5	71.8
Medium Trucks:	71.1	68.7	64.9	65.3	72.3	72.5
Heavy Trucks:	72.2	70.5	63.4	64.1	71.9	72.1
Vehicle Noise:	76.4	74.4	70.0	69.2	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	206	444	956	2,059
CNEL:	214	461	993	2,139

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Archibald Av.
Road Segment: s/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,782 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,978 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.23%
Medium Trucks:	69.0%	7.1%	23.8%	7.11%
Heavy Trucks:	82.1%	3.9%	13.9%	3.66%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.54	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.45	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.34	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.0	66.4	63.5	71.1	71.5
Medium Trucks:	70.7	68.3	64.5	65.0	71.9	72.1
Heavy Trucks:	71.8	70.2	63.0	63.7	71.6	71.7
Vehicle Noise:	76.0	74.0	69.6	68.9	76.3	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	195	419	903	1,946
CNEL:	202	435	938	2,021

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Archibald Av.
Road Segment: s/o Schaefer Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,056 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,806 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.21%
Medium Trucks:	69.0%	7.1%	23.8%	7.11%
Heavy Trucks:	82.1%	3.9%	13.9%	3.68%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.28	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.71	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.57	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.7	66.2	63.2	70.8	71.2
Medium Trucks:	70.5	68.1	64.2	64.7	71.6	71.8
Heavy Trucks:	71.6	69.9	62.8	63.5	71.3	71.5
Vehicle Noise:	75.8	73.8	69.4	68.6	76.0	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	187	403	869	1,872
CNEL:	194	419	902	1,944

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Archibald Av.
Road Segment: s/o Ontario Ranch Rd.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,178 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,118 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.30%
Medium Trucks:	69.0%	7.1%	23.8%	7.07%
Heavy Trucks:	82.1%	3.9%	13.9%	3.63%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.74	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.27	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.17	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.2	66.6	63.7	71.3	71.7
Medium Trucks:	70.9	68.5	64.7	65.1	72.1	72.3
Heavy Trucks:	72.0	70.3	63.2	63.9	71.7	71.9
Vehicle Noise:	76.2	74.2	69.8	69.1	76.5	76.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	200	431	928	2,000
CNEL:	208	448	964	2,077

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Archibald Av.
Road Segment: s/o Eucalyptus Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,343 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,034 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.29%
Medium Trucks:	69.0%	7.1%	23.8%	7.07%
Heavy Trucks:	82.1%	3.9%	13.9%	3.64%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.62	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.39	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.28	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.1	66.5	63.5	71.2	71.6
Medium Trucks:	70.8	68.4	64.5	65.0	72.0	72.2
Heavy Trucks:	71.9	70.2	63.1	63.8	71.6	71.8
Vehicle Noise:	76.1	74.1	69.7	68.9	76.4	76.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	197	423	912	1,965
CNEL:	204	440	947	2,041

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Archibald Av.
Road Segment: s/o Merrill Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,889 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,189 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.37%
Medium Trucks:	69.0%	7.1%	23.8%	7.03%
Heavy Trucks:	82.1%	3.9%	13.9%	3.60%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.84	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.20	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.11	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.3	66.7	63.8	71.4	71.8
Medium Trucks:	71.0	68.6	64.7	65.2	72.1	72.4
Heavy Trucks:	72.1	70.4	63.3	64.0	71.8	72.0
Vehicle Noise:	76.3	74.3	69.9	69.1	76.6	76.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	202	436	940	2,025
CNEL:	210	453	976	2,103

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Archibald Av.
Road Segment: s/o Limonite Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,840 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,384 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.59%
Medium Trucks:	69.0%	7.1%	23.8%	7.00%
Heavy Trucks:	82.1%	3.9%	13.9%	3.42%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.52	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.55	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.67	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.6	65.0	62.1	69.7	70.1
Medium Trucks:	69.4	67.0	63.2	63.6	70.6	70.8
Heavy Trucks:	70.7	69.0	61.9	62.6	70.4	70.6
Vehicle Noise:	74.7	72.7	68.3	67.6	75.0	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	353	761	1,640
CNEL:	170	367	790	1,703

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Archibald Av.
Road Segment: s/o 65th St.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,693 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,369 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.72%
Medium Trucks:	69.0%	7.1%	23.8%	6.97%
Heavy Trucks:	82.1%	3.9%	13.9%	3.31%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.51	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.59	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.83	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.6	65.0	62.1	69.7	70.1
Medium Trucks:	69.4	67.0	63.1	63.6	70.5	70.8
Heavy Trucks:	70.5	68.9	61.7	62.4	70.2	70.4
Vehicle Noise:	74.6	72.6	68.3	67.5	74.9	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	162	349	753	1,622
CNEL:	168	363	782	1,684

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Kimball Av.
Road Segment: w/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,175 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,618 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	49.0 feet
Centerline Dist. to Observer:	49.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.41%
Medium Trucks:	69.0%	7.1%	23.8%	7.00%
Heavy Trucks:	82.1%	3.9%	13.9%	3.58%

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:	42.140
Medium Trucks:	41.929
Heavy Trucks:	41.950

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.69	1.01	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-11.75	1.04	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-14.66	1.04	-1.20	-5.44	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	67.2	64.7	61.7	69.3	69.7
Medium Trucks:	69.1	66.7	62.8	63.3	70.3	70.5
Heavy Trucks:	70.6	68.9	61.7	62.5	70.3	70.4
Vehicle Noise:	74.5	72.5	68.0	67.3	74.8	75.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	102	219	472	1,017
CNEL:	106	227	490	1,055

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Limonite Av.
Road Segment: e/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,245 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	125 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	87.28%
Medium Trucks:	69.0%	7.1%	23.8%	6.31%
Heavy Trucks:	82.1%	3.9%	13.9%	6.42%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-11.93	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-23.34	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-23.27	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.2	53.1	50.6	47.6	55.2	55.6
Medium Trucks:	54.6	52.2	48.4	48.8	55.8	56.0
Heavy Trucks:	59.1	57.4	50.3	51.0	58.8	59.0
Vehicle Noise:	61.5	59.7	54.6	54.1	61.7	61.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	21	46	98	212
CNEL:	22	47	102	219

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Limonite Av.
Road Segment: e/o Archibald Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,293 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,229 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.27%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.71%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.69	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-10.35	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-13.12	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	65.7	63.2	60.2	67.9	68.2
Medium Trucks:	67.6	65.2	61.4	61.8	68.8	69.0
Heavy Trucks:	69.2	67.6	60.4	61.1	68.9	69.1
Vehicle Noise:	73.1	71.1	66.6	65.9	73.3	73.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	127	273	588	1,266
CNEL:	131	283	610	1,314

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Limonite Av.
Road Segment: e/o Harrison Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,407 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,441 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.29%
Medium Trucks:	69.0%	7.1%	23.8%	7.03%
Heavy Trucks:	82.1%	3.9%	13.9%	3.68%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.09	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.95	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.76	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.1	63.6	60.6	68.2	68.6
Medium Trucks:	68.0	65.6	61.8	62.2	69.2	69.4
Heavy Trucks:	69.6	67.9	60.8	61.5	69.3	69.5
Vehicle Noise:	73.4	71.4	67.0	66.3	73.7	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	134	289	623	1,343
CNEL:	139	300	647	1,394

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Limonite Av.
Road Segment: e/o Sumner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,913 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,591 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.29%
Medium Trucks:	69.0%	7.1%	23.8%	7.04%
Heavy Trucks:	82.1%	3.9%	13.9%	3.67%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.35	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.68	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.52	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.5	66.4	63.9	60.9	68.5	68.9
Medium Trucks:	68.3	65.9	62.0	62.5	69.5	69.7
Heavy Trucks:	69.8	68.2	61.0	61.7	69.5	69.7
Vehicle Noise:	73.7	71.7	67.2	66.5	74.0	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	140	301	648	1,397
CNEL:	145	312	673	1,450

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Limonite Av.
Road Segment: e/o Scholar Wy.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,430 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,943 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.32%
Medium Trucks:	69.0%	7.1%	23.8%	7.05%
Heavy Trucks:	82.1%	3.9%	13.9%	3.63%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.90	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-9.13	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-12.00	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	67.0	64.4	61.4	69.1	69.4
Medium Trucks:	68.8	66.4	62.6	63.1	70.0	70.2
Heavy Trucks:	70.3	68.7	61.5	62.2	70.1	70.2
Vehicle Noise:	74.2	72.2	67.8	67.1	74.5	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	152	327	704	1,518
CNEL:	158	339	731	1,575

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: IY+P
Road Name: Limonite Av.
Road Segment: e/o Hamner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,250 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,225 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.31%
Medium Trucks:	69.0%	7.1%	23.8%	7.07%
Heavy Trucks:	82.1%	3.9%	13.9%	3.62%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	2.76	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-8.26	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-11.17	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.1	63.5	60.6	68.2	68.6
Medium Trucks:	68.1	65.7	61.9	62.4	69.3	69.5
Heavy Trucks:	70.0	68.4	61.2	61.9	69.8	69.9
Vehicle Noise:	73.7	71.7	67.1	66.5	73.9	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	139	298	643	1,386
CNEL:	144	310	667	1,437

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Archibald Av.
Road Segment: n/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,874 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,787 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.60	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.46	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.70	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.1	70.0	67.5	64.5	72.1	72.5
Medium Trucks:	71.7	69.3	65.5	65.9	72.9	73.1
Heavy Trucks:	72.5	70.8	63.7	64.4	72.2	72.4
Vehicle Noise:	76.9	74.9	70.6	69.8	77.2	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	223	481	1,036	2,233
CNEL:	232	500	1,077	2,320

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Archibald Av.
Road Segment: s/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,133 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,513 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.27	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.79	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.03	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.7	67.2	64.2	71.8	72.2
Medium Trucks:	71.4	69.0	65.1	65.6	72.6	72.8
Heavy Trucks:	72.1	70.5	63.3	64.0	71.9	72.0
Vehicle Noise:	76.6	74.5	70.3	69.5	76.9	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	212	458	986	2,124
CNEL:	221	475	1,024	2,207

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Archibald Av.
Road Segment: s/o Schaefer Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,464 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,346 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.06	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-9.00	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.24	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.5	67.0	64.0	71.6	72.0
Medium Trucks:	71.2	68.8	64.9	65.4	72.4	72.6
Heavy Trucks:	71.9	70.3	63.1	63.8	71.7	71.8
Vehicle Noise:	76.3	74.3	70.1	69.2	76.7	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	206	443	954	2,056
CNEL:	214	460	992	2,136

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Archibald Av.
Road Segment: s/o Ontario Ranch Rd.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,669 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,067 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.91	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.15	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.39	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.3	67.8	64.8	72.5	72.8
Medium Trucks:	72.0	69.6	65.8	66.3	73.2	73.4
Heavy Trucks:	72.8	71.1	64.0	64.7	72.5	72.7
Vehicle Noise:	77.2	75.2	70.9	70.1	77.5	77.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	234	504	1,087	2,341
CNEL:	243	524	1,129	2,433

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Archibald Av.
Road Segment: s/o Eucalyptus Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,418 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,042 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.88	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.18	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.42	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	70.3	67.8	64.8	72.4	72.8
Medium Trucks:	72.0	69.6	65.7	66.2	73.2	73.4
Heavy Trucks:	72.7	71.1	63.9	64.7	72.5	72.6
Vehicle Noise:	77.2	75.2	70.9	70.1	77.5	77.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	233	502	1,082	2,332
CNEL:	242	522	1,125	2,423

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Archibald Av.
Road Segment: s/o Merrill Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,131 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,313 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.16	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-7.90	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.14	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.6	68.1	65.1	72.7	73.1
Medium Trucks:	72.3	69.9	66.0	66.5	73.5	73.7
Heavy Trucks:	73.0	71.4	64.2	64.9	72.8	72.9
Vehicle Noise:	77.5	75.4	71.2	70.3	77.8	78.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	244	525	1,130	2,435
CNEL:	253	545	1,174	2,530

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Archibald Av.
Road Segment: s/o Limonite Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,433 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,443 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.71	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-7.35	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.59	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	68.8	66.2	63.3	70.9	71.3
Medium Trucks:	70.6	68.2	64.4	64.8	71.8	72.0
Heavy Trucks:	71.7	70.1	62.9	63.6	71.5	71.6
Vehicle Noise:	75.9	73.9	69.5	68.7	76.2	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	196	422	908	1,957
CNEL:	203	438	943	2,032

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Archibald Av.
Road Segment: s/o 65th St.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,343 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,634 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.83	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.23	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.47	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	67.9	65.3	62.4	70.0	70.4
Medium Trucks:	69.7	67.3	63.5	64.0	70.9	71.1
Heavy Trucks:	70.9	69.2	62.1	62.8	70.6	70.8
Vehicle Noise:	75.0	73.0	68.6	67.9	75.3	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	171	369	794	1,711
CNEL:	178	383	825	1,777

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Kimball Av.
Road Segment: w/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,819 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,682 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	49.0 feet
Centerline Dist. to Observer:	49.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	42.140
Medium Trucks:	41.929
Heavy Trucks:	41.950

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.51	1.01	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-9.55	1.04	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-12.79	1.04	-1.20	-5.44	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.4	66.9	63.9	71.5	71.9
Medium Trucks:	71.3	68.9	65.0	65.5	72.5	72.7
Heavy Trucks:	72.4	70.8	63.6	64.3	72.2	72.3
Vehicle Noise:	76.6	74.6	70.2	69.4	76.8	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	140	302	651	1,402
CNEL:	146	314	675	1,455

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Limonite Av.
Road Segment: e/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,972 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,397 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.54	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.52	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.76	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.6	65.0	62.1	69.7	70.1
Medium Trucks:	69.4	67.0	63.2	63.7	70.6	70.8
Heavy Trucks:	70.6	68.9	61.8	62.5	70.3	70.5
Vehicle Noise:	74.7	72.7	68.3	67.6	75.0	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	164	352	759	1,636
CNEL:	170	366	789	1,699

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Limonite Av.
Road Segment: e/o Archibald Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	54,064 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,406 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.56	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-6.50	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-9.74	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	69.6	67.1	64.1	71.7	72.1
Medium Trucks:	71.5	69.1	65.2	65.7	72.6	72.8
Heavy Trucks:	72.6	70.9	63.8	64.5	72.3	72.5
Vehicle Noise:	76.7	74.7	70.3	69.6	77.0	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	223	480	1,035	2,230
CNEL:	232	499	1,075	2,316

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Limonite Av.
Road Segment: e/o Harrison Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	55,789 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,579 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.70	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-6.37	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-9.61	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.8	67.2	64.2	71.9	72.2
Medium Trucks:	71.6	69.2	65.3	65.8	72.8	73.0
Heavy Trucks:	72.7	71.1	63.9	64.6	72.5	72.6
Vehicle Noise:	76.9	74.9	70.5	69.7	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	228	491	1,057	2,277
CNEL:	236	509	1,098	2,365

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Limonite Av.
Road Segment: e/o Sumner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,429 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,443 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.71	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-7.36	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.59	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	68.8	66.2	63.3	70.9	71.3
Medium Trucks:	70.6	68.2	64.4	64.8	71.8	72.0
Heavy Trucks:	71.7	70.1	62.9	63.6	71.5	71.6
Vehicle Noise:	75.9	73.9	69.5	68.7	76.2	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	196	422	908	1,957
CNEL:	203	438	943	2,032

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Limonite Av.
Road Segment: e/o Scholar Wy.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,258 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,326 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.59	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-7.47	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.71	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.6	66.1	63.1	70.8	71.1
Medium Trucks:	70.5	68.1	64.2	64.7	71.7	71.9
Heavy Trucks:	71.6	70.0	62.8	63.5	71.4	71.5
Vehicle Noise:	75.8	73.7	69.4	68.6	76.0	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	192	414	892	1,922
CNEL:	200	430	926	1,996

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY
Road Name: Limonite Av.
Road Segment: e/o Hamner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,190 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,519 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.65%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.33%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	5.83	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-5.23	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-8.47	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.1	66.6	63.6	71.2	71.6
Medium Trucks:	71.2	68.8	64.9	65.4	72.4	72.6
Heavy Trucks:	72.7	71.1	63.9	64.6	72.5	72.6
Vehicle Noise:	76.6	74.6	70.1	69.4	76.8	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	217	467	1,006	2,168
CNEL:	225	485	1,044	2,249

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Archibald Av.
Road Segment: n/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,166 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,817 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.32%
Medium Trucks:	69.0%	7.1%	23.8%	7.09%
Heavy Trucks:	82.1%	3.9%	13.9%	3.59%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.62	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.38	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.34	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.2	70.1	67.5	64.5	72.2	72.5
Medium Trucks:	71.8	69.4	65.5	66.0	73.0	73.2
Heavy Trucks:	72.8	71.2	64.0	64.7	72.6	72.7
Vehicle Noise:	77.0	75.0	70.7	69.9	77.3	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	228	492	1,060	2,285
CNEL:	237	511	1,101	2,373

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Archibald Av.
Road Segment: s/o Chino Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,442 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,544 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.30%
Medium Trucks:	69.0%	7.1%	23.8%	7.09%
Heavy Trucks:	82.1%	3.9%	13.9%	3.61%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.29	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.70	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.64	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.7	67.2	64.2	71.8	72.2
Medium Trucks:	71.5	69.1	65.2	65.7	72.6	72.9
Heavy Trucks:	72.5	70.9	63.7	64.4	72.3	72.4
Vehicle Noise:	76.7	74.7	70.4	69.6	77.0	77.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	218	469	1,011	2,177
CNEL:	226	487	1,050	2,261

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Archibald Av.
Road Segment: s/o Schaefer Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,790 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,379 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.29%
Medium Trucks:	69.0%	7.1%	23.8%	7.09%
Heavy Trucks:	82.1%	3.9%	13.9%	3.62%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.09	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.91	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.84	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.5	67.0	64.0	71.6	72.0
Medium Trucks:	71.3	68.9	65.0	65.5	72.4	72.6
Heavy Trucks:	72.3	70.7	63.5	64.2	72.1	72.2
Vehicle Noise:	76.5	74.5	70.2	69.4	76.8	77.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	211	455	980	2,110
CNEL:	219	472	1,017	2,192

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Archibald Av.
Road Segment: s/o Ontario Ranch Rd.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,113 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,111 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.38%
Medium Trucks:	69.0%	7.1%	23.8%	7.06%
Heavy Trucks:	82.1%	3.9%	13.9%	3.56%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.94	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.08	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.06	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	70.4	67.8	64.9	72.5	72.9
Medium Trucks:	72.1	69.7	65.8	66.3	73.3	73.5
Heavy Trucks:	73.1	71.5	64.3	65.0	72.8	73.0
Vehicle Noise:	77.4	75.3	71.0	70.2	77.6	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	239	516	1,111	2,394
CNEL:	249	536	1,154	2,487

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Archibald Av.
Road Segment: s/o Eucalyptus Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,879 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,088 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.39%
Medium Trucks:	69.0%	7.1%	23.8%	7.06%
Heavy Trucks:	82.1%	3.9%	13.9%	3.56%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.92	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-8.11	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-11.08	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	70.4	67.8	64.8	72.5	72.8
Medium Trucks:	72.1	69.7	65.8	66.3	73.2	73.5
Heavy Trucks:	73.1	71.4	64.3	65.0	72.8	73.0
Vehicle Noise:	77.3	75.3	71.0	70.2	77.6	77.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	238	514	1,107	2,385
CNEL:	248	534	1,150	2,477

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Archibald Av.
Road Segment: s/o Merrill Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,762 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,376 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	93 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	74.0 feet
Centerline Dist. to Observer:	74.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.44%
Medium Trucks:	69.0%	7.1%	23.8%	7.03%
Heavy Trucks:	82.1%	3.9%	13.9%	3.53%

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:	57.782
Medium Trucks:	57.629
Heavy Trucks:	57.644

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.22	-1.05	-1.20	-4.73	0.000	0.000
Medium Trucks:	82.40	-7.83	-1.03	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.82	-1.03	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	70.7	68.1	65.1	72.8	73.1
Medium Trucks:	72.3	69.9	66.1	66.6	73.5	73.7
Heavy Trucks:	73.3	71.7	64.5	65.2	73.1	73.2
Vehicle Noise:	77.6	75.6	71.3	70.5	77.9	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	249	536	1,155	2,489
CNEL:	259	557	1,200	2,585

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Archibald Av.
Road Segment: s/o Limonite Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	44,797 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,480 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.60%
Medium Trucks:	69.0%	7.1%	23.8%	7.00%
Heavy Trucks:	82.1%	3.9%	13.9%	3.39%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.74	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-7.33	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.47	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	68.8	66.2	63.3	70.9	71.3
Medium Trucks:	70.6	68.2	64.4	64.9	71.8	72.0
Heavy Trucks:	71.9	70.2	63.1	63.8	71.6	71.8
Vehicle Noise:	75.9	73.9	69.5	68.8	76.2	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	197	425	917	1,975
CNEL:	205	442	952	2,050

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Archibald Av.
Road Segment: s/o 65th St.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,580 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,658 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.72%
Medium Trucks:	69.0%	7.1%	23.8%	6.97%
Heavy Trucks:	82.1%	3.9%	13.9%	3.31%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.87	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.23	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.47	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	67.9	65.4	62.4	70.0	70.4
Medium Trucks:	69.7	67.3	63.5	64.0	70.9	71.1
Heavy Trucks:	70.9	69.2	62.1	62.8	70.6	70.8
Vehicle Noise:	75.0	73.0	68.6	67.9	75.3	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	171	369	795	1,714
CNEL:	178	383	826	1,780

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Kimball Av.
Road Segment: w/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,202 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	2,720 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	51 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	49.0 feet
Centerline Dist. to Observer:	49.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.51%
Medium Trucks:	69.0%	7.1%	23.8%	7.01%
Heavy Trucks:	82.1%	3.9%	13.9%	3.48%

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:	42.140
Medium Trucks:	41.929
Heavy Trucks:	41.950

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.57	1.01	-1.20	-4.64	0.000	0.000
Medium Trucks:	81.00	-9.49	1.04	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-12.53	1.04	-1.20	-5.44	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.5	66.9	64.0	71.6	72.0
Medium Trucks:	71.4	69.0	65.1	65.6	72.5	72.7
Heavy Trucks:	72.7	71.0	63.9	64.6	72.4	72.6
Vehicle Noise:	76.7	74.7	70.3	69.5	77.0	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	143	308	663	1,429
CNEL:	148	319	688	1,483

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Limonite Av.
Road Segment: e/o Hellman Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,440 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	3,444 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.56%
Medium Trucks:	69.0%	7.1%	23.8%	6.99%
Heavy Trucks:	82.1%	3.9%	13.9%	3.44%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.60	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-8.48	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-11.56	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.7	65.1	62.1	69.8	70.1
Medium Trucks:	69.5	67.1	63.2	63.7	70.7	70.9
Heavy Trucks:	70.8	69.1	62.0	62.7	70.5	70.7
Vehicle Noise:	74.8	72.8	68.4	67.7	75.1	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	166	358	771	1,662
CNEL:	173	372	801	1,725

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Limonite Av.
Road Segment: e/o Archibald Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	54,746 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,475 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.49%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.49%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.61	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-6.45	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-9.49	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.8	69.7	67.1	64.2	71.8	72.2
Medium Trucks:	71.5	69.1	65.3	65.7	72.7	72.9
Heavy Trucks:	72.8	71.2	64.0	64.7	72.6	72.7
Vehicle Noise:	76.8	74.9	70.4	69.7	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	227	489	1,055	2,272
CNEL:	236	508	1,095	2,358

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Limonite Av.
Road Segment: e/o Harrison Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,437 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	5,644 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.49%
Medium Trucks:	69.0%	7.1%	23.8%	7.02%
Heavy Trucks:	82.1%	3.9%	13.9%	3.48%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.74	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-6.31	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-9.36	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.9	69.8	67.2	64.3	71.9	72.3
Medium Trucks:	71.6	69.2	65.4	65.9	72.8	73.0
Heavy Trucks:	73.0	71.3	64.2	64.9	72.7	72.9
Vehicle Noise:	77.0	75.0	70.6	69.8	77.3	77.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	232	499	1,076	2,318
CNEL:	241	519	1,117	2,407

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Limonite Av.
Road Segment: e/o Sumner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,043 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,504 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.44%
Medium Trucks:	69.0%	7.1%	23.8%	7.03%
Heavy Trucks:	82.1%	3.9%	13.9%	3.52%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.76	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-7.29	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.29	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	68.8	66.3	63.3	70.9	71.3
Medium Trucks:	70.7	68.3	64.4	64.9	71.8	72.1
Heavy Trucks:	72.0	70.4	63.2	64.0	71.8	71.9
Vehicle Noise:	76.0	74.0	69.6	68.9	76.3	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	200	431	929	2,000
CNEL:	208	447	964	2,077

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Limonite Av.
Road Segment: e/o Scholar Wy.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,821 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	4,382 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.43%
Medium Trucks:	69.0%	7.1%	23.8%	7.04%
Heavy Trucks:	82.1%	3.9%	13.9%	3.53%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.64	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	81.00	-7.40	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-10.40	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.7	66.1	63.2	70.8	71.2
Medium Trucks:	70.6	68.2	64.3	64.8	71.7	71.9
Heavy Trucks:	71.9	70.3	63.1	63.8	71.7	71.8
Vehicle Noise:	75.9	73.9	69.5	68.8	76.2	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	197	424	912	1,966
CNEL:	204	440	947	2,041

Thursday, August 8, 2019

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY+P
Road Name: Limonite Av.
Road Segment: e/o Hamner Av.
Project Name: Homestead
Job Number: 11968

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	65,651 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	6,565 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	78 feet

Site Data

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

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

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

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	74.1%	10.3%	15.6%	89.49%
Medium Trucks:	69.0%	7.1%	23.8%	7.04%
Heavy Trucks:	82.1%	3.9%	13.9%	3.47%

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:	65.422
Medium Trucks:	65.286
Heavy Trucks:	65.299

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	5.85	-1.85	-1.20	-4.73	0.000	0.000
Medium Trucks:	79.45	-5.19	-1.84	-1.20	-4.88	0.000	0.000
Heavy Trucks:	84.25	-8.26	-1.84	-1.20	-5.25	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	69.2	66.6	63.7	71.3	71.7
Medium Trucks:	71.2	68.8	65.0	65.5	72.4	72.6
Heavy Trucks:	72.9	71.3	64.1	64.9	72.7	72.8
Vehicle Noise:	76.7	74.7	70.1	69.5	76.9	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	220	474	1,022	2,201
CNEL:	228	492	1,060	2,284

Thursday, August 8, 2019

APPENDIX 9.1:

OPERATIONAL STATIONARY-SOURCE NOISE CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL

12/12/2019

Observer Location: **R1**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,204.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,194.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	30.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	76.1	0.0	0.0	78.2
Distance Attenuation	1,204.0	-47.6	-47.6	-47.6	-47.6	-47.6	-47.6
Shielding (Barrier Attenuation)	1,194.0	-5.3	-5.3	-5.3	-5.3	-5.3	-5.3
Raw (Distance + Barrier)		24.3	-52.9	23.2	-52.9	-52.9	25.3
60 Minute Hourly Adjustment		**24.3**	**-52.9**	**23.2**	**-52.9**	**-52.9**	**25.3**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/12/2019

Observer Location: **R1**
Source: Truck Unloading/Docking Activity
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	731.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	721.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	67.2	0.0	67.2	0.0	0.0	80.0
Distance Attenuation	731.0	-27.7	-27.7	-27.7	-27.7	-27.7	-27.7
Shielding (Barrier Attenuation)	721.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		34.0	-33.2	34.0	-33.2	-33.2	46.8
60 Minute Hourly Adjustment		**34.0**	**-33.2**	**34.0**	**-33.2**	**-33.2**	**46.8**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/12/2019

Observer Location: **R1**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	711.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	701.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	52.2	0.0	50.0	0.0	0.0	71.9
Distance Attenuation	711.0	-37.0	-37.0	-37.0	-37.0	-37.0	-37.0
Shielding (Barrier Attenuation)	701.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		9.7	-42.5	7.5	-42.5	-42.5	29.4
60 Minute Hourly Adjustment		**9.7**	**-42.5**	**7.5**	**-42.5**	**-42.5**	**29.4**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/12/2019

Observer Location: **R2**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	590.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	580.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	30.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	76.1	0.0	0.0	78.2
Distance Attenuation	590.0	-41.4	-41.4	-41.4	-41.4	-41.4	-41.4
Shielding (Barrier Attenuation)	580.0	-5.1	-5.1	-5.1	-5.1	-5.1	-5.1
Raw (Distance + Barrier)		30.7	-46.5	29.6	-46.5	-46.5	31.7
60 Minute Hourly Adjustment		**30.7**	**-46.5**	**29.6**	**-46.5**	**-46.5**	**31.7**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/12/2019

Observer Location: **R2**
Source: Truck Unloading/Docking Activity
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	504.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	494.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	67.2	0.0	67.2	0.0	0.0	80.0
Distance Attenuation	504.0	-24.5	-24.5	-24.5	-24.5	-24.5	-24.5
Shielding (Barrier Attenuation)	494.0	-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Raw (Distance + Barrier)		37.3	-29.9	37.3	-29.9	-29.9	50.1
60 Minute Hourly Adjustment		**37.3**	**-29.9**	**37.3**	**-29.9**	**-29.9**	**50.1**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/12/2019

Observer Location: **R2**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	337.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	327.0 feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	52.2	0.0	50.0	0.0	0.0	71.9
Distance Attenuation	337.0	-30.6	-30.6	-30.6	-30.6	-30.6	-30.6
Shielding (Barrier Attenuation)	327.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		16.1	-36.1	13.9	-36.1	-36.1	35.8
60 Minute Hourly Adjustment		**16.1**	**-36.1**	**13.9**	**-36.1**	**-36.1**	**35.8**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/12/2019

Observer Location: **R3**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,655.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,645.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	30.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	76.1	0.0	0.0	78.2
Distance Attenuation	1,655.0	-50.4	-50.4	-50.4	-50.4	-50.4	-50.4
Shielding (Barrier Attenuation)	1,645.0	-5.3	-5.3	-5.3	-5.3	-5.3	-5.3
Raw (Distance + Barrier)		21.5	-55.7	20.4	-55.7	-55.7	22.5
60 Minute Hourly Adjustment		**21.5**	**-55.7**	**20.4**	**-55.7**	**-55.7**	**22.5**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/12/2019

Observer Location: **R3**
Source: Truck Unloading/Docking Activity
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,742.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,732.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	67.2	0.0	67.2	0.0	0.0	80.0
Distance Attenuation	1,742.0	-35.3	-35.3	-35.3	-35.3	-35.3	-35.3
Shielding (Barrier Attenuation)	1,732.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		26.4	-40.8	26.4	-40.8	-40.8	39.2
60 Minute Hourly Adjustment		**26.4**	**-40.8**	**26.4**	**-40.8**	**-40.8**	**39.2**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/12/2019

Observer Location: **R3**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,457.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,447.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	52.2	0.0	50.0	0.0	0.0	71.9
Distance Attenuation	1,457.0	-43.3	-43.3	-43.3	-43.3	-43.3	-43.3
Shielding (Barrier Attenuation)	1,447.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		3.4	-48.8	1.2	-48.8	-48.8	23.1
60 Minute Hourly Adjustment		**3.4**	**-48.8**	**1.2**	**-48.8**	**-48.8**	**23.1**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/12/2019

Observer Location: **R4**
Source: Roof-Top Air Conditioning Unit
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,578.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,568.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	30.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	77.2	0.0	76.1	0.0	0.0	78.2
Distance Attenuation	1,578.0	-50.0	-50.0	-50.0	-50.0	-50.0	-50.0
Shielding (Barrier Attenuation)	1,568.0	-5.3	-5.3	-5.3	-5.3	-5.3	-5.3
Raw (Distance + Barrier)		21.9	-55.3	20.8	-55.3	-55.3	22.9
60 Minute Hourly Adjustment		**21.9**	**-55.3**	**20.8**	**-55.3**	**-55.3**	**22.9**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/12/2019

Observer Location: **R4**
Source: Truck Unloading/Docking Activity
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,467.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,457.0	feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	30.0	67.2	0.0	67.2	0.0	0.0	80.0
Distance Attenuation	1,467.0	-33.8	-33.8	-33.8	-33.8	-33.8	-33.8
Shielding (Barrier Attenuation)	1,457.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		27.9	-39.3	27.9	-39.3	-39.3	40.7
60 Minute Hourly Adjustment		**27.9**	**-39.3**	**27.9**	**-39.3**	**-39.3**	**40.7**

STATIONARY SOURCE NOISE PREDICTION MODEL

12/12/2019

Observer Location: **R4**
Source: Parking Lot Vehicle Movements
Condition: Operational

Project Name: The Homestead
Job Number: 11965
Analyst: B. Lawson

NOISE MODEL INPUTS

Noise Distance to Observer	1,365.0	feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	1,355.0	feet	*Noise Source Height:*	5.0 feet
Barrier Distance to Observer:	10.0	feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0	feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0	feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0	feet		

20 = 6 dBA per doubling of distance
15 = 4.5 dBA per doubling of distance

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	10.0	52.2	0.0	50.0	0.0	0.0	71.9
Distance Attenuation	1,365.0	-42.7	-42.7	-42.7	-42.7	-42.7	-42.7
Shielding (Barrier Attenuation)	1,355.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		4.0	-48.2	1.8	-48.2	-48.2	23.7
60 Minute Hourly Adjustment		**4.0**	**-48.2**	**1.8**	**-48.2**	**-48.2**	**23.7**