

# JS 63 MX (f.k.a. Milestone MX Ethanac Road Motorcycle Park) Noise Impact Analysis County of Riverside

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12374-11 Noise Study



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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
Hz	Hertz
INCE	Institute of Noise Control Engineering
L <sub>eq</sub>	Equivalent continuous (average) sound level
L <sub>max</sub>	Maximum level measured over the time interval
L <sub>min</sub>	Minimum level measured over the time interval
MX	Motocross
mph	Miles per hour
MSHCP	Multiple Species Habitat Conservation Plan
OPR	Office of Planning and Research
Project	JS 63 MX
REMEL	Reference Energy Mean Emission Level

# **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 JS 63 MX development ("Project"), formerly known as Milestone MX Ethanac Road Motorcycle Park ("Project"). The Project site is located at 21220 Ethanac Road in the County of Riverside. The Project is a Motorcycle Park/Racetrack proposed to consist of various tracks, approximately six structures, and five parking lots. The tracks would be available for practice 7 days a week and events would be limited to weekends and are estimated at approximately 15 per year. The facility would be open for evening practice 3 days per week. All Project activities will be limited to the daytime hours between 7:00 a.m. and 10:00 p.m. with no nighttime activities between the hours of 10:00 p.m. to 7:00 a.m.

This study has been prepared to satisfy applicable County of Riverside 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 eight study-area roadway segments were calculated using the transportation related twenty-four-hour Community Noise Equivalent Levels (CNEL) based on average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in the *JS 63 MX Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) The analysis shows that the unmitigated Project-related traffic noise level increases with Project traffic scenarios are considered *less than significant* impacts at land uses adjacent to the study area roadway segments.

While the noise sensitive residential land uses located on Ethanac Road west of SR-74 will experience an off-site Project related traffic noise level increase of 5.5 dBA CNEL, the exterior noise levels of 57.0 dBA CNEL at the boundary of the right-of-way will remain well below the County of Riverside exterior transportation related noise level standards of 65 dBA CNEL.

### **OPERATIONAL NOISE ANALYSIS**

Based on a review of the existing Milestone MX facility in the Riverside area on 12685 Holly Street, the primary operational noise sources are expected to consist of various motocross and off-road all-terrain vehicle activity. Using reference noise levels collected from the existing Milestone MX to represent the expected noise sources from the JS 63 MX site, the operational noise analysis estimates the Project-related stationary-source hourly average L<sub>eq</sub> noise levels at nearby sensitive receiver locations. To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against the exterior noise limits outlined in Policy N 4.1 of the Noise Element.



The operational noise analysis shows the expected Project operational noise are expected to range from 48.0 to 54.7 dBA L<sub>eq</sub> during the daytime hours of 7:00 a.m. to 10:00 p.m. at the nearest noise sensitive residential receivers located at distances ranging from 530 to 2,104 feet from the Project site boundary. The operational noise analysis demonstrates that the operational noise levels associated with JS 63 MX Project will satisfy the County of Riverside 65 dBA L<sub>eq</sub> daytime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations provided that all Project activities will be limited to the daytime hours between 7:00 a.m. and 10:00 p.m.

Since the existing ambient noise levels already exceed the general exterior sound level standards of 45 dBA L<sub>eq</sub>, the Project would request an exception from certain requirements of Ordinance No. 847 in accordance with Section 7, Exceptions, which specifically allows for the application for continuous exceptions from the provisions of Ordinance No. 847. The exception is subject to a fee and the County Planning Director's approval.

In addition, the operational noise analysis shows that the Project-related motocross noise levels will satisfy the 65 dBA  $L_{eq}$  exterior noise level threshold identified for the proposed MSHCP Conservation Areas. Accordingly, the Project's noise impacts to the adjacent MSHCP Conservation Area would be *less than significant*.

### **CONSTRUCTION NOISE ANALYSIS**

On-site construction noise represents a short-term increase on the ambient noise levels associated with the development of the Project on nearby receivers. Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the Project site boundary. Using sample reference noise levels to represent the planned construction activities, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. Since the County of Riverside General Plan and Municipal Codes do not identify specific construction noise level limits, this analysis relies on the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* daytime exterior construction noise level of 80 dBA Leq as a reasonable threshold for noise sensitive residential land use.

This analysis shows that the Project-related short-term construction noise levels are estimated to range from 50.1 to 69.5 dBA  $L_{eq.}$  The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA  $L_{eq}$  significance threshold during Project construction activities. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

### **CONSTRUCTION VIBRATION ANALYSIS**

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. At distances ranging from 530 to 2,104 feet from Project construction



activities, construction vibration velocity levels are estimated to range from 0.000 to 0.001 in/sec RMS and will remain below the County of Riverside threshold of 0.01 in/sec RMS at all receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.

#### SUMMARY OF CEQA SIGNIFICANCE FINDINGS

The results of this JS 63 MX Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures described below.

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



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# 1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed JS 63 MX ("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 transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes a detailed analysis of the potential Project-related motorcycle operational noise impacts.

## 1.1 SITE LOCATION

The proposed JS 63 MX site is located at 21220 Ethanac Road in the County of Riverside, as shown in Exhibit 1-A. Existing land uses near the site include nearby noise sensitive residential homes located to the north and the east of the site. Access to the Project site will be provided to the SR-74 Highway via Ethanac Road.

## **1.2 PROJECT DESCRIPTION**

The Project is a Motorcycle Park/Racetrack proposed to consist of various tracks, approximately six structures, and five parking lots as shown on Exhibit 1-B. The six proposed structures would consist of the following uses: proposed storage units with a bathroom (with 4-6 stalls) and snack bar; proposed bike wash; proposed Pro Shop building; proposed Pro Race Shops building; proposed ticket booth; and a proposed event hall building with a bathroom and shower area. There would be four parking areas for automobiles and a designated R.V. (Recreational Vehicle) parking area. The tracks would be available for practice 7 days a week and events would be limited to weekends and are estimated at approximately 15 per year. The facility would be open for evening practice 3 days per week. All Project activities will be limited to the daytime hours between 7:00 a.m. and 10:00 p.m. with no nighttime activities between the hours of 10:00 p.m.

Per the *JS 63 MX Traffic Impact Analysis* (TIA) prepared by Urban Crossroads, Inc. the Project is expected to generate a total of approximately 410 two-way vehicular trips per day (2).





#### 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.

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

#### EXHIBIT 2-A: TYPICAL NOISE LEVELS

## 2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (3) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort. (4) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

# 2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level ( $L_{eq}$ ). 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 (typically one hour) and is commonly used to describe the "average" noise levels within the environment. The Project hourly average  $L_{eq}$  noise descriptor is used in this analysis to describe the stationary-source operational and construction noise levels.

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 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 County of Riverside relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

## 2.3 SOUND PROPAGATION

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

## 2.3.1 GEOMETRIC SPREADING

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

## 2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a



reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (5)

#### 2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (3)

#### 2.3.4 SHIELDING

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

### 2.4 NOISE CONTROL

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

### **2.5** Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (5)

### 2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial



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

### 2.7 COMMUNITY RESPONSE TO NOISE

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

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

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (7) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (7) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (5)



#### EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



# **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 (including motorcycles), while regulation of stationary (operational) noise 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). (8) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

### 3.2 COUNTY OF RIVERSIDE GENERAL PLAN NOISE ELEMENT

The County of Riverside has adopted a Noise Element of the General Plan to control and abate environmental noise, and to protect the citizens of County of Riverside from excessive exposure to noise. (9) The Noise Element specifies the maximum allowable exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports and railroads. In addition, the Noise Element identifies several polices to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To protect County of Riverside residents from excessive noise, the Noise Element contains the following policies related to the Project:

- N 1.1 Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used.
- N 1.3 Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 CNEL:
  - Schools
  - Hospitals
  - Rest Homes
  - Long Term Care Facilities
  - Mental Care Facilities



- Residential Uses
- Libraries
- Passive Recreation Uses
- Places of Worship
- N 1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.
- *N* 4.1 *Prohibit facility-related noise, received by any sensitive use, from exceeding the following worst-case noise levels:* 
  - a. 45 dBA 10-minute  $L_{eq}$  between 10:00 p.m. and 7:00 a.m.
  - b. 65 dBA 10-minute  $L_{eq}$  between 7:00 a.m. and 10:00 p.m.

To ensure noise-sensitive land uses are protected from high levels of noise (N 1.1), Table N-1 of the Noise Element identifies guidelines to evaluate proposed developments based on exterior and interior noise level limits for land uses and requires a noise analysis to determine needed mitigation measures if necessary. The Noise Element identifies residential use as a noise-sensitive land use (N 1.3) and discourages new development in areas with transportation related levels of 65 dBA CNEL or greater existing ambient noise levels. To prevent and mitigate noise impacts for its residents (N 1.5), County of Riverside requires noise attenuation measures for sensitive land use exposed to transportation related noise levels higher than 65 dBA CNEL. Policy N 4.1 of the Noise Element sets a stationary-source exterior noise limit to not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L<sub>eq</sub> for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA L<sub>eq</sub> during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m.

### **3.3** COUNTY OF RIVERSIDE STATIONARY NOISE STANDARDS

In addition to the guidelines and policies contained in the General Plan Noise Element, the County of Riverside has adopted Noise Regulations as part of its Ordinance No. 847 regulating noise to limit noise that may jeopardize the health, safety or general welfare of residents and degrade their quality of life. Ordinance No. 847 establishes the general sound level standards regulating noise that may intrude into a neighboring property. The Ordinance is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act (CEQA).

According to Section 4 Table 1, exterior noise levels for the noise sensitive rural residential land uses shall not exceed 45 dBA L<sub>eq</sub> during the daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L<sub>eq</sub> during the nighttime hours (10:00 p.m. to 7:00 a.m.). (10) The County of Riverside Noise Ordinance Regulations are included in Appendix 3.1. However, a review of the existing ambient noise level measurements presented in Section 5 shows that the existing daytime ambient noise levels already exceed the general exterior sound level standards of 45 dBA L<sub>eq</sub>. Therefore, the Project would request an exception from certain requirements of Ordinance No. 847 in accordance with Section 7, Exceptions, which specifically allows for the application for continuous exceptions from the provisions of Ordinance No. 847. The exceptions are subject to a fee and the County Planning Director's approval. Since the existing ambient noise levels in the Project study area already exceed the 45 dBA L<sub>eq</sub> general exterior sound level standards for rural



residential land use, this analysis relies on stationary-source daytime exterior noise limit of 65 dBA  $L_{eq}$  outlined in Policy N 4.1 of the Noise Element

### **3.4 CONSTRUCTION NOISE STANDARDS**

To control noise impacts associated with the construction of the proposed Project, the County of Riverside has established limits to the hours of operation. Section 2.i. of the County's Noise Ordinance No. 847 indicates that noise associated with any private construction activity located within one-quarter of a mile from an inhabited dwelling is considered exempt between the hours of 6:00 a.m. and 6:00 p.m., during the months of June through September, and 7:00 a.m. and 6:00 p.m., during the months of October through May. Neither the County's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA Leq as a reasonable threshold for noise sensitive residential land use. (11 p. 179)

### **3.5 CONSTRUCTION VIBRATION STANDARDS**

Construction activity can result in varying degrees of ground-borne vibration, depending on the equipment and methods used, distance to the affected structures and soil type. (11) Construction vibration is generally associated with pile driving and rock blasting. Other construction equipment such as air compressors, light trucks, hydraulic loaders, etc., generates little or no ground vibration. Occasionally large bulldozers and loaded trucks can cause perceptible vibration levels at close proximity.

The County of Riverside does not have vibration standards for temporary construction, but the County's General Plan Noise Element does contain the human reaction to typical vibration levels. Vibration levels with peak particle velocity of 0.0787 inches per second are considered readily perceptible and above 0.1968 in/sec are considered annoying to people in buildings. Further, County of Riverside General Plan Policy N 16.3 identifies a motion velocity perception threshold for vibration due to passing trains of 0.01 inches per second (in/sec) over the range of one to 100 Hz, which is used in this noise study to assess potential impacts due to Project construction vibration levels. (9)



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# 4 SIGNIFICANCE CRITERIA

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

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- B. Generation of excessive ground-borne vibration or ground-borne noise levels?
- C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

While the County of Riverside 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.

### CEQA GUIDELINES NOT FURTHER ANALYZED

The Project site is not located within an airport land use plan or within 2 miles of a public airport, or within the vicinity of a private airstrip. Therefore, the Project would not result in potential noise impacts for people residing or working at the Project site. As such, the Project does not have the potential to expose people residing or working in the Project area to excessive noise levels and no impact would occur. No further analysis of CEQA Guideline C is required.

## 4.1 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.* (12)

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) (13) 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<sub>eq</sub>).

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. (12) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the existing noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exceedance.

### 4.2 NON-NOISE-SENSITIVE RECEIVERS

The County of Riverside General Plan Noise Element, Table N-1, *Land Use Compatibility for Community Noise Exposure* was used to establish the satisfactory noise levels of significance for non-noise-sensitive land uses in the Project study area. As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise levels for non-noise-sensitive land uses is 70 dBA CNEL. Noise levels greater than 70 dBA CNEL are considered *conditionally acceptable* per the *Land Use Compatibility for Community Noise Exposure*. (9)

To determine if Project-related traffic noise level increases are significant at off-site non-noisesensitive land uses, a *readily perceptible* 5 dBA and *barely perceptible* 3 dBA criteria were 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 County of Riverside General Plan Noise Element, Table N-1, *Land Use Compatibility for Community Noise Exposure normally acceptable* 70 dBA CNEL exterior noise level criteria.



### 4.3 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 and the resulting noise level would exceed acceptable exterior noise standards; 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 and the resulting noise level would exceed acceptable exterior noise standards; 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., office, commercial, industrial):
  - are less than the County of Riverside General Plan Noise Element, Table N-1, normally acceptable 70 dBA CNEL and the Project creates a readily perceptible 5 dBA CNEL or greater Project related noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
  - are greater than the County of Riverside General Plan Noise Element, Table N-1, normally acceptable 70 dBA CNEL and the Project creates a barely perceptible 3 dBA CNEL or greater Project noise level increase.

#### **OPERATIONAL NOISE**

- If Project-related operational (stationary-source) noise levels exceed the exterior 65 dBA L<sub>eq</sub> daytime or 45 dBA L<sub>eq</sub> nighttime noise level standards at nearby sensitive receiver locations (Policy N 4.1 of the Noise Element)
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
  - are less than 60 dBA L<sub>eq</sub> and the Project creates a *readily perceptible* 5 dBA L<sub>eq</sub> or greater Project-related noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
  - range from 60 to 65 dBA L<sub>eq</sub> and the Project creates a *barely perceptible* 3 dBA L<sub>eq</sub> or greater Project-related noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
  - $\circ$  already exceed 65 dBA L<sub>eq</sub> and the Project creates a community noise level increase of greater than 1.5 dBA L<sub>eq</sub> (FICON, 1992).

#### CONSTRUCTION NOISE & VIBRATION

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• If Project-related construction activities create noise levels which exceed the 80 dBA L<sub>eq</sub> acceptable noise level threshold at the nearby sensitive receiver locations (Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual);



• If short-term Project-generated construction vibration levels exceed the County of Riverside vibration standard of 0.01 in/sec RMS at sensitive receiver locations (County of Riverside General Plan Noise Element, Policy N 16.3).

Analusia	Receiving	Condition(c)	Significance Criteria			
Analysis	Land Use	Condition(s)	Daytime	Nighttime		
		If ambient is < 60 dBA CNEL	≥ 5 dBA CNEL Project increase and the resulting noise level would exceed acceptable exterior noise standards			
	Noise- Sensitive <sup>1</sup>	If ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL Project increase and the resulting noise level would exceed acceptable exterior noise standards			
Off-Site Traffic		If ambient is > 65 dBA CNEL	≥ 1.5 dBA CNEL	Project increase		
Tune	Non-Noise- Sensitive <sup>1,2</sup>	If ambient is < 70 dBA CNEL	≥ 5 dBA CNEL Project increase and the resulting noise level would exceed acceptable exterior noise standards			
		If ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase and the resulting noise level would exceed acceptable exterior noise standards			
		Exterior Noise Level Standards <sup>3</sup>	65 dBA L <sub>eq</sub>	45 dBA L <sub>eq</sub>		
Operational	Noise-	If ambient is < 60 dBA $L_{eq}^1$	≥ 5 dBA CNEL Project increase and the resulting noise level would exceed acceptable exterior noise standards			
	Sensitive	lf ambient is 60 - 65 dBA L <sub>eq</sub> 1	≥ 3 dBA CNEL Project increase and the resulting noise level would exceed acceptable exterior noise standards			
Construction	Noise-	Noise Level Threshold <sup>4</sup>	80 dE	BA L <sub>eq</sub>		
Construction	Sensitive	Vibration Level Threshold <sup>5</sup>	0.01 in/sec RMS			

#### TABLE 4-1: SIGNIFICANCE CRITERIA SUMMARY

<sup>1</sup> Source: FICON, 1992.

 $^{\rm 2}$  Source: County of Riverside General Plan Noise Element, Table N-1.

<sup>3</sup> Source: County of Riverside General Plan Noise Element, Policy 4.1

<sup>4</sup> Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.

<sup>5</sup> County of Riverside General Plan Noise Element, Policy N 16.3.

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



# 5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at four locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Tuesday, July 30<sup>th</sup>, 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. (14)

## 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. (3) Further, FTA guidance states, that it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community. (11)* 

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. (11) 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 north of the Project site on Sharp Road near existing
  residential home and vacant land. The noise levels at this location consist primarily of traffic
  noise from Sharp Road. The noise level measurements collected show an overall 24-hour
  exterior noise level of 54.2 dBA CNEL. The energy (logarithmic) average daytime noise level
  was calculated at 53.5 dBA L<sub>eq</sub> with an average nighttime noise level of 44.8 dBA L<sub>eq</sub>.
- Location L2 represents the noise levels east of the Project site. The ambient noise levels at this location account for traffic on Spring Street. The noise level measurements collected show an overall 24-hour exterior noise level of 54.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 49.0 dBA L<sub>eq</sub> with an average nighttime noise level of 47.8 dBA L<sub>eq</sub>.
- Location L3 represents the noise levels south of the project on Read Street and Ethanac Road near existing residential home. The noise level measurements collected show an overall 24hour exterior noise level of 55.8 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 50.0 dBA L<sub>eq</sub> with an average nighttime noise level of 49.0 dBA L<sub>eq</sub>. The noise levels at this location consist primarily of traffic noise from Ethanac Road.
- Location L4 represents the noise levels on the southern boundary of the Project site near existing vacant land. The 24-hour CNEL indicates that the overall exterior noise level is 50.8 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 46.7 dBA L<sub>eq</sub> with an average nighttime noise level of 43.3 dBA L<sub>eq</sub>. Traffic on Ethanac Road represents the primary source of noise at this location.

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<sub>1</sub>, L<sub>2</sub>, L<sub>5</sub>, L<sub>8</sub>, L<sub>25</sub>, L<sub>50</sub>, L<sub>90</sub>, L<sub>95</sub>, and L<sub>99</sub> percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with surface streets. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 5-1.



Location <sup>1</sup>	Description	Energy / Noise (dBA	CNEL	
		Daytime	Nighttime	
L1	Located north of the Project site on Sharp Road near existing residential home and vacant land.	53.5	44.8	54.2
L2	Located east of the Project site.	49.0	47.8	54.5
L3	Located south of the project on Read Street and Ethanac Road near existing residential home.	50.0	49.0	55.8
L4	Located on the southern boundary of the Project site near existing vacant land.	46.7	43.3	50.8

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

<sup>1</sup> See Exhibit 5-A for the noise level measurement locations.

<sup>2</sup> Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.





EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

LEGEND: N A Measurement Locations



# 6 METHODS AND PROCEDURES

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

### 6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (15) 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. (16) 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.

This is 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. (17)

### 6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site dBA CNEL transportation noise impacts. Table 6-1 identifies the 8 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the County of Riverside General Plan Circulation Element, and the posted vehicle speeds. The ADT volumes used in this study are presented on Table 6-2 are based on the *JS 63 MX Traffic Impact Analysis* prepared by Urban Crossroads, Inc. for the following traffic scenarios:

- 1. Existing (E) Conditions
- 2. Existing plus Project (E+P) Conditions
- 3. Existing plus Ambient (EA) Conditions
- 4. Existing plus Ambient with Project (EAP) Conditions
- 5. Existing plus Ambient plus Cumulative without Project (EAC) Conditions
- 6. Existing plus Ambient plus Cumulative with Project (EAPC) Conditions



The ADT volumes vary for each roadway segment based on the existing and future year traffic volumes plus the project traffic volumes for each traffic scenario. The *General Plan Noise Element* (9) requires that future on-site traffic noise impacts be assessed using the maximum capacity design standard for highways and major roads. However, this analysis relies on a comparative analysis of the off-site traffic noise impacts, without and with project ADT traffic volumes from the Project traffic study. The use of the maximum capacity design standards is typically reserved for determining the future long-range on-site traffic noise impacts, not the comparative contributions associated with the off-site Project traffic noise level impacts.

ID	Roadway	Segment	Receiving Land Use <sup>1</sup>	Distance from Centerline to Receiving Land Use (Feet) <sup>2</sup>	Vehicle Speed (mph)
1	SR-74	n/o Theda St.	VLDR	64'	60
2	SR-74	s/o Theda St.	VLDR/RR	64'	60
3	SR-74	n/o Ethanac Rd.	RR/LI	59'	60
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	110'	60
5	SR-74	n/o River Rd.	VLDR/MU/CR	110'	60
6	SR-74	s/o River Rd.	VLDR/MU/CR	110'	60
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	110'	60
8	Ethanac Rd.	w/o SR-74	VLDR/RR	37'	40

#### TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

<sup>1</sup> Sources: Mead Valley Area Plan, Land Use Plan, Figure 3.

<sup>2</sup> Distance to receiving land use is based upon the right-of-way distances for each functional roadway classification provided in the General Plan Circulation Element.

"RR" = Rural Residential; "LDR" = Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use; "VLDR"= Very Low Density Residential.



			Average Daily Traffic Volumes <sup>1</sup>						
ID	Roadway	Segment	Existing		Existing + Ambient (EA)		Existing + Ambient + Cumulative (EAC)		
			Without Project	With Project	Without Project	With Project	Without Project	With Project	
1	SR-74	n/o Theda St.	26,059	26,248	26,841	27,030	28,241	28,430	
2	SR-74	s/o Theda St.	29,216	29,426	30,093	30,303	31,643	31,853	
3	SR-74	n/o Ethanac Rd.	27,965	28,175	28,804	29,014	30,352	30,562	
4	SR-74	s/o Ethanac Rd.	28,879	29,089	29,745	29,955	31,293	31,503	
5	SR-74	n/o River Rd.	29,949	30,159	30,847	31,057	31,937	32,147	
6	SR-74	s/o River Rd.	29,404	29,614	30,286	30,496	31,226	31,436	

#### TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

<sup>1</sup> Source: Milestone JS 63 Traffic Impact Analysis, Urban Crossroads, Inc.



		Total of Time of					
venicie rype	Daytime	Evening	Nighttime	Day Splits			
Riverside County (Expressway, Arterial, Major)							
Autos	77.50%	12.90%	9.60%	100.00%			
Medium Trucks	84.80%	4.90%	10.30%	100.00%			
Heavy Trucks	86.50%	2.70%	10.80%	100.00%			
Riverside County (Secondary, Collector)							
Autos	75.55%	13.96%	10.49%	100.00%			
Medium Trucks	48.91%	2.17%	48.91%	100.00%			
Heavy Trucks	47.30%	5.41%	47.30%	100.00%			

#### TABLE 6-3: TIME OF DAY VEHICLE SPLITS

<sup>1</sup> Source: County of Riverside Office of Industrial Hygiene, 2017.

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

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

	Тс				
Roadway	Autos	Medium Trucks	Heavy Trucks	Total	
Expressway, Arterial, Major <sup>1</sup>	92.00%	3.00%	5.00%	100.00%	
Secondary, Collector <sup>1</sup>	97.42%	1.84%	0.74%	100.00%	

<sup>1</sup> Source: County of Riverside Office of Industrial Hygiene, 2017.

# 7 OFF-SITE TRANSPORTATION NOISE ANALYSIS

To assess the off-site transportation dBA CNEL noise level impacts associated with the proposed Project, noise contours were developed based on the *JS 63 MX Traffic Impact Analysis*. (2) Noise contour boundaries represent the equal levels of noise exposure and are measured in dBA CNEL from the center of the roadway. Noise contours were developed for the following traffic scenarios:

- Existing Without / With Project:
  - This scenario refers to the Existing present-day noise conditions, without and with the proposed Project.
- Existing and Ambient Conditions Without / With Project:
  - This scenario refers to the background noise conditions at future without and with the proposed Project plus ambient growth.
- Existing and Ambient and Cumulative Without / With Project:
  - This scenario refers to the existing and cumulative noise conditions without and with the proposed Project.

### 7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 7-1 through 7-6 present a summary of the exterior dBA CNEL traffic noise levels, without barrier attenuation, for the eight study area roadway segments analyzed from without Project to with Project conditions in each of the following timeframes: Existing, Existing plus Ambient, and Existing plus Ambient plus Cumulative. Appendix 7.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.



ID	Road	Segment	Receiving Land Use <sup>1</sup>	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
				Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	SR-74	n/o Theda St.	VLDR	78.5	236	509	1096
2	SR-74	s/o Theda St.	VLDR/RR	79.0	255	549	1183
3	SR-74	n/o Ethanac Rd.	RR/LI	79.4	251	541	1165
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	76.1	280	603	1299
5	SR-74	n/o River Rd.	VLDR/MU/CR	76.2	287	618	1331
6	SR-74	s/o River Rd.	VLDR/MU/CR	76.2	283	610	1315
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	76.7	306	660	1422
8	Ethanac Rd.	w/o SR-74	VLDR/RR	51.4	RW	RW	RW

#### TABLE 7-1: EXISTING WITHOUT PROJECT

<sup>1</sup> Sources: Mead Valley Area Plan, Land Use Plan, Figure 3.

<sup>2</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.

ID	Road	Segment	Receiving Land Use <sup>1</sup>	CNEL at Nearest Receiving Land Use (dBA) <sup>2</sup>	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	SR-74	n/o Theda St.	VLDR	78.5	237	511	1101
2	SR-74	s/o Theda St.	VLDR/RR	79.0	256	552	1188
3	SR-74	n/o Ethanac Rd.	RR/LI	79.5	252	544	1171
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	76.1	281	606	1306
5	SR-74	n/o River Rd.	VLDR/MU/CR	76.3	288	621	1337
6	SR-74	s/o River Rd.	VLDR/MU/CR	76.2	285	613	1321
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	76.7	308	663	1427
8	Ethanac Rd.	w/o SR-74	VLDR/RR	57.0	RW	RW	RW

#### TABLE 7-2: EXISTING WITH PROJECT

<sup>1</sup> Sources: Mead Valley Area Plan, Land Use Plan, Figure 3.

<sup>2</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.


10		Common t	Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
U	Land Use <sup>1</sup>		Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL		
1	SR-74	n/o Theda St.	VLDR	78.6	241	519	1118	
2	SR-74	s/o Theda St.	VLDR/RR	79.1	260	560	1206	
3	SR-74	n/o Ethanac Rd.	RR/LI	79.6	256	552	1188	
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	76.2	286	615	1325	
5	SR-74	n/o River Rd.	VLDR/MU/CR	76.4	293	630	1358	
6	SR-74	s/o River Rd.	VLDR/MU/CR	76.3	289	623	1341	
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	76.8	312	673	1450	
8	Ethanac Rd.	w/o SR-74	VLDR/RR	51.5	RW	RW	RW	

TABLE 7-3: EXISTING PLUS AMBIENT WITHOUT PROJECT

<sup>1</sup> Sources: Mead Valley Area Plan, Land Use Plan, Figure 3.

<sup>2</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.

10	Deed	Common t	Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ם	κοαά	Segment	Land Use <sup>1</sup>	Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	SR-74	n/o Theda St.	VLDR	78.7	242	521	1123	
2	SR-74	s/o Theda St.	VLDR/RR	79.2	261	563	1212	
З	SR-74	n/o Ethanac Rd.	RR/LI	79.6	257	554	1194	
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	76.2	287	618	1331	
5	SR-74	n/o River Rd.	VLDR/MU/CR	76.4	294	633	1364	
6	SR-74	s/o River Rd.	VLDR/MU/CR	76.3	290	625	1347	
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	76.8	314	676	1456	
8	Ethanac Rd.	w/o SR-74	VLDR/RR	57.0	RW	RW	RW	

#### TABLE 7-4: EXISTING PLUS AMBIENT WITH PROJECT

<sup>1</sup> Sources: Mead Valley Area Plan, Land Use Plan, Figure 3.

<sup>2</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.



	Deed	Comment	Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
	KUAU	Segment	Land Use <sup>1</sup>	Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	SR-74	n/o Theda St.	VLDR	78.9	249	537	1156	
2	SR-74	s/o Theda St.	VLDR/RR	79.3	269	579	1247	
3	SR-74	n/o Ethanac Rd.	RR/LI	79.8	265	571	1231	
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	76.4	295	636	1371	
5	SR-74	n/o River Rd.	VLDR/MU/CR	76.5	299	645	1390	
6	SR-74	s/o River Rd.	VLDR/MU/CR	76.4	295	635	1369	
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	76.9	316	682	1468	
8	Ethanac Rd.	w/o SR-74	VLDR/RR	51.5	RW	RW	RW	

TABLE 7-5: EXISTING PLUS AMBIENT PLUS CUMULATIVE WITHOUT PROJECT

<sup>1</sup> Sources: Mead Valley Area Plan, Land Use Plan, Figure 3.

<sup>2</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.

TABLE 7-6: E	<b>EXISTING PLUS A</b>	MBIENT PLUS C	CUMULATIVE WIT	H PROJECT
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15	Deed	Comment	Receiving	CNEL at Nearest	Distance to Contour from Centerline (Feet)			
ם	коаа	Segment	Land Use <sup>1</sup>	Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	
1	SR-74	n/o Theda St.	VLDR	78.9	250	539	1161	
2	SR-74	s/o Theda St.	VLDR/RR	79.4	270	582	1253	
3	SR-74	n/o Ethanac Rd.	RR/LI	79.8	266	574	1236	
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	76.5	297	639	1377	
5	SR-74	n/o River Rd.	VLDR/MU/CR	76.6	301	648	1396	
6	SR-74	s/o River Rd.	VLDR/MU/CR	76.5	296	638	1375	
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	76.9	318	684	1474	
8	Ethanac Rd.	w/o SR-74	VLDR/RR	57.0	RW	RW	RW	

<sup>1</sup> Sources: Mead Valley Area Plan, Land Use Plan, Figure 3.

<sup>2</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the nearest receiving land use. "RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.



# 7.2 EXISTING CONDITIONS NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the *JS 63 MX Traffic Impact Analysis* prepared by Urban Crossroads, Inc. However, the analysis of existing off-site 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 future year cumulative conditions. Therefore, no mitigation measures are considered to reduce the Existing Plus Project traffic noise level increases. The Existing plus Ambient Plus Cumulative traffic noise conditions that include all cumulative projects are used to determine the significance of the Project off-site traffic noise level increases on the study area roadway segments.

Table 7-1 shows the Existing without Project conditions dBA CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 51.4 to 79.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions dBA CNEL noise levels will range from 57.0 to 79.5 dBA CNEL. Table 7-7 shows that the Project off-site traffic noise level increases will range from 0.0 to 5.6 dBA CNEL on the study area roadway segments.

## 7.3 EXISTING CONDITIONS PLUS AMBIENT NOISE LEVEL INCREASES

Table 7-3 presents the Existing Conditions plus Ambient without proposed Project conditions dBA CNEL noise levels ranging from 51.5 to 79.6 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows existing plus ambient with proposed project conditions ranging from 57.0 to 79.6 dBA CNEL. Table 7-8 shows that the Project off-site traffic noise level increases will range from 0.0 to 5.5 dBA CNEL on the study area roadway segments.

## 7.4 EXISTING CONDITIONS PLUS AMBIENT PLUS CUMULATIVE NOISE LEVEL INCREASES

Table 7-5 shows the Existing plus Ambient Plus Cumulative without Project conditions dBA CNEL noise levels ranging from 51.5 to 79.8 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows the Existing plus Ambient plus Cumulative with Project conditions dBA CNEL noise levels ranging from 57.0 to 79.8 dBA CNEL. Table 7-9 shows that the Project off-site traffic noise level increases will range from 0.0 to 5.5 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise presented in Table 4-1, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

While the noise sensitive residential land uses located on Ethanac Road west of SR-74 will experience an off-site Project related traffic noise level increase of 5.5 dBA CNEL, the exterior noise levels of 57.0 dBA CNEL at the boundary of the right-of-way will remain well below the County of Riverside exterior transportation related noise level standards of 65 dBA CNEL.



ID	Road	Segment	Receiving	Noise- Sensitive	CNEL at Receiving Land Use (dBA) <sup>1</sup>			Noise Lev Signi Crit	el Increase ficance ceria <sup>2</sup>	Exterior Noise Level (dBA CNEL) <sup>3</sup>	
	Land		Land Use*	Use?		With Project	Project Increase	Criteria	Exceeded?	Standard	Exceeded?
1	SR-74	n/o Theda St.	VLDR	Yes	78.5	78.5	0.0	1.5	No	65	Yes
2	SR-74	s/o Theda St.	VLDR/RR	Yes	79.0	79.0	0.0	1.5	No	65	Yes
3	SR-74	n/o Ethanac Rd.	RR/LI	Yes	79.4	79.5	0.1	1.5	No	65	Yes
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	Yes	76.1	76.1	0.0	1.5	No	65	Yes
5	SR-74	n/o River Rd.	VLDR/MU/CR	Yes	76.2	76.3	0.1	1.5	No	65	Yes
6	SR-74	s/o River Rd.	VLDR/MU/CR	Yes	76.2	76.2	0.0	1.5	No	65	Yes
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	Yes	76.7	76.7	0.0	1.5	No	65	Yes
8	Ethanac Rd.	w/o SR-74	VLDR/RR	Yes	51.4	57.0	5.6	5.0	Yes	65	No

 TABLE 7-7: EXISTING PLUS PROJECT TRAFFIC NOISE LEVEL INCREASES

<sup>1</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

<sup>2</sup> Does the Project create an off-site transportation related noise level increase exceeding the significance criteria (Table 4-1)?

<sup>3</sup> Does the Project exceed the transportation related exterior noise level standards for the receiving land use?

"RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.



ID	Road	Segment	Receiving	Noise- Sensitive Land Use?	CNEL at Receiving Land Use (dBA) <sup>1</sup>			Noise Level Increase Significance Criteria <sup>2</sup>		Exterior Noise Level (dBA CNEL) <sup>3</sup>	
			Land Use <sup>+</sup>		No Project	With Project	Project Increase	Criteria	Exceeded?	Standard	Exceeded?
1	SR-74	n/o Theda St.	VLDR	Yes	78.6	78.7	0.1	1.5	No	65	Yes
2	SR-74	s/o Theda St.	VLDR/RR	Yes	79.1	79.2	0.1	1.5	No	65	Yes
3	SR-74	n/o Ethanac Rd.	RR/LI	Yes	79.6	79.6	0.0	1.5	No	65	Yes
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	Yes	76.2	76.2	0.0	1.5	No	65	Yes
5	SR-74	n/o River Rd.	VLDR/MU/CR	Yes	76.4	76.4	0.0	1.5	No	65	Yes
6	SR-74	s/o River Rd.	VLDR/MU/CR	Yes	76.3	76.3	0.0	1.5	No	65	Yes
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	Yes	76.8	76.8	0.0	1.5	No	65	Yes
8	Ethanac Rd.	w/o SR-74	VLDR/RR	Yes	51.5	57.0	5.5	5.0	Yes	65	No

#### TABLE 7-8: EXISTING PLUS AMBIENT CONDITIONS TRAFFIC NOISE LEVEL INCREASES

<sup>1</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

<sup>2</sup> Does the Project create an off-site transportation related noise level increase exceeding the significance criteria (Table 4-1)?

<sup>3</sup> Does the Project exceed the transportation related exterior noise level standards for the receiving land use?

"RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.



ID	Boad	Segment	Receiving	Noise- Sensitive	CNEL at Receiving Land Use (dBA) <sup>1</sup>			Noise Level Increase Significance Criteria <sup>2</sup>		Exterior Noise Level (dBA CNEL) <sup>3</sup>		Significant
			Land Use <sup>1</sup>	Land Use?	No Project	With Project	Project Increase	Criteria	Exceeded?	Standard	Exceeded?	Impact?
1	SR-74	n/o Theda St.	VLDR	Yes	78.9	78.9	0.0	1.5	No	65	Yes	No
2	SR-74	s/o Theda St.	VLDR/RR	Yes	79.3	79.4	0.1	1.5	No	65	Yes	No
3	SR-74	n/o Ethanac Rd.	RR/LI	Yes	79.8	79.8	0.0	1.5	No	65	Yes	No
4	SR-74	s/o Ethanac Rd.	VLDR/MU/CR	Yes	76.4	76.5	0.1	1.5	No	65	Yes	No
5	SR-74	n/o River Rd.	VLDR/MU/CR	Yes	76.5	76.6	0.1	1.5	No	65	Yes	No
6	SR-74	s/o River Rd.	VLDR/MU/CR	Yes	76.4	76.5	0.1	1.5	No	65	Yes	No
7	SR-74	s/o Meadowbrook Av.	MU/VLDR	Yes	76.9	76.9	0.0	1.5	No	65	Yes	No
8	Ethanac Rd.	w/o SR-74	VLDR/RR	Yes	51.5	57.0	5.5	5.0	Yes	65	No	No

TABLE 7-9: EXISTING PLUS AMBIENT PLUS CUMULATIVE TRAFFIC NOISE LEVEL INCREASES

<sup>1</sup> The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

<sup>2</sup> Does the Project create an off-site transportation related noise level increase exceeding the significance criteria (Table 4-1)?

<sup>3</sup> Does the Project exceed the transportation related exterior noise level standards for the receiving land use?

"RW" = Location of the respective noise contour falls within the right-of-way of the road. "RR" = Rural Residential; "VLDR" = Very Low Density Residential; "CR" = Commercial Retail; "LI" = Light Industrial; "MU" = Mixed Use.



# 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, outpatient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Receiver locations 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. Distance is measured in a straight line from the project boundary to each receiver location.

- R1: Located approximately 530 feet north of the Project site, R1 represents existing single family-residential home. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R2: Location R2 represents the existing residential home located northeast of the Project site at roughly 1,225 feet, on the west side of Spring Street just south of Sharp Road. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.
- R3: Location R3 represents a noise sensitive use west of Spring St approximately 2,104 feet from the Project site, at 25401 Spring Street. A 24-hour noise measurement near this location, L2, is used to describe the existing ambient noise environment.
- R4: Location R4 represents the existing residential homes on the northeast side of Ethanac Road approximately 1,753 feet from the Project site. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.
- R5: Location R5 represents the existing residential home on the north side of Ethanac Road at approximately 1,303 feet from the Project site. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.
- R6: Location R6 represents the existing residential home on the south side of Ethanac Road at approximately 709 feet from the Project site. A 24-hour noise measurement near this location, L3, 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)

# 9 OPERATIONAL NOISE ANLAYSIS

This section analyzes the potential stationary-source hourly average  $L_{eq}$  noise level impacts at the nearby receiver locations, identified in Section 8, resulting from the operation of the proposed JS 63 MX Project. Exhibit 9-A identifies the representative receiver locations and noise source locations used to assess the operational noise levels.

## 9.1 OPERATIONAL NOISE SOURCES

Based on a review of the existing Milestone MX facility in the Riverside area on 12685 Holly Street, the primary operational noise sources are expected to consist of various motocross and off-road all-terrain vehicle activity. This noise analysis is intended to describe the hourly  $L_{eq}$  noise level impacts associated with the typical weekday 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 all the motocross tracks operating continuously throughout the Project site. These sources of noise activity will likely vary by location throughout the day. Appendix 9.1 provides reference measurement photos for each noise source.

### 9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using Piccolo Type 2 integrating sound level meters and dataloggers. All sound level meters were 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. (14)





EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS







Noise Source	Duration	Ref.	Noise Source	Referen Level (c	Sound Power		
Noise Source	(hh:mm:ss)	(Feet) <sup>3</sup>	Height (Feet)	@ Ref. Dist.	@ 50 Feet	Level (dBA) <sup>4</sup>	
Main MX Track <sup>1</sup>	01:14:00	50'	5'	70.5	70.5	117.8	
Veteran MX Track <sup>1</sup>	01:13:00	15'	5'	76.7	66.2	113.5	
Parking Lot MX Staging <sup>1</sup>	01:06:00	15'	5'	70.5	60.0	105.1	
Air Conditioning Units <sup>2</sup>	96:00:00	5'	15'	77.2	57.2	88.9	

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

<sup>1</sup> As measured by Urban Crossroads, Inc. at the existing Milestone MX park located at 12685 Holly Street, Riverside.

<sup>2</sup> As measured by Urban Crossroads, Inc. at the Santee Walmart located at 170 Town Center Parkway.

<sup>3</sup> Distance from adjacent noise source to noise level measurement location.

<sup>4</sup> Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.

#### 9.2.1 MAIN MX TRACK

According to Milestone MX, the main mx track is targeted towards intermediate and professional riders. To describe the noise levels associated with the main mx motocross activities, short-term reference noise level measurements were collected during peak weekday activity on Friday, August 16<sup>th</sup>, 2019, by Urban Crossroads, Inc. at the existing Milestone MX site. The short-term reference noise levels were collected in the late afternoon (between the hours of 3:00 p.m. to 5:00 p.m.) at the main mx track located at 12685 Holly Street in the City of Riverside.

At 50 feet from the center of motocross noise source activity, the main mx track generated a reference noise level of 70.5 dBA  $L_{eq}$ . The main mx track noise level measurement was collected over a period of one hour and fourteen minutes of continuous intermediate and professional rider motocross activity. In addition, due to the proximity of the main mx track to the veteran mx, the main mx track reference noise level measurement may include some additional background noise activity from veteran mx track.

#### 9.2.2 VETERAN MX TRACK

The veteran mx track is targeted towards beginner riders. To describe the noise levels associated with typical veteran mx track activities, short-term reference noise level measurements were collected during peak weekday activity on Friday, August 16<sup>th</sup>, 2019, by Urban Crossroads, Inc. at the existing Milestone MX site. The short-term reference noise levels were collected in the late afternoon (between the hours of 3:00 p.m. to 5:00 p.m.) near the veteran mx track located at 12685 Holly Street in the City of Riverside. At 50 feet the center of the motocross noise source activity, the veteran mx track generated a reference noise level of 66.2 dBA Leq. The veteran track noise level measurement was collected over a period of one hour and thirteen minutes of continuous motocross activity.



### 9.2.3 PARKING LOT

To determine the noise levels associated with parking lot vehicle movements and motocross staging activities, Urban Crossroads collected reference noise level measurements for a period of one hour and six minutes on Friday, August  $16^{th}$ , 2019 in the parking lot of the existing Milestone MX site. The reference noise level at 50 feet from parking lot vehicle movements was measured at 60.0 dBA L<sub>eq</sub>. The parking lot noise levels are mainly due to vehicles, vans and trucks maneuvering in the parking lot, motocross bike preparation and staging before and after riding on the Milestone MX tracks.

### 9.2.4 AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units within the planned commercial retail land uses within the Project site, reference noise levels measurements were taken at the Santee Walmart. Located at 170 Town Center Parkway in the City of Santee, the noise level measurements describe a single mechanical roof-top air conditioning unit on the roof of the existing Walmart store. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. At 5 feet from the roof-top air conditioning unit, the exterior noise levels were measured at 77.2 dBA  $L_{eq}$ . At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA  $L_{eq}$ . Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings. The noise attenuation provided by the existing parapet wall is not reflected in this reference noise level measurement.

# 9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze the noise level of multiple types of noise sources and calculates the noise levels at any location using the spatially accurate Project site plan and includes the effects of topography, buildings, and multiple barriers in its calculations using the latest standards to predict outdoor noise impacts. Appendix 9.1 includes the detailed noise model inputs used to estimate the Project operational noise levels presented in this section. Using the spatially accurate Project site plan and flown aerial imagery from Nearmap, a CadnaA noise prediction model of the Project study area was developed. The noise model provides a three-dimensional representation of the Project study area using the following key data inputs:

- Ground absorption;
- Multiple reflections at buildings and barriers;
- Reference noise level sources by type (area, point, etc.) and noise source height;
- Multiple noise receiver locations and heights;
- Topography and earthen berms;



• Barrier and building heights.

Using the ISO 9613 protocol, the CadnaA noise prediction model will calculate the distance from each noise source to the noise receiver locations, the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level calculations at each receiver location and the partial noise level contributions by noise source. The reference sound power level (PWL) for the highest noise source expected at the Project site was input into the CadnaA noise prediction model.

While sound pressure levels (e.g. L<sub>eq</sub>) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish as a result of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Appendix 9.2 includes the detailed calculations for the Project operational noise levels presented in this section.

# 9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include continuous motocross activity, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at at the nearest noise sensitive residential receivers located at distances ranging from 530 to 2,104 feet from the Project site boundary. Table 9-2 shows the expected Project operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 48.0 to 54.7 dBA L<sub>eq</sub>.

Notes Course 12	Operational Noise Levels by Receiver Location (dBA Leq)								
Noise Source	R1	R2	R3	R4	R5	R6			
Main MX Track	53.6	48.4	46.0	47.2	49.2	49.9			
Veteran MX Track	46.2	44.0	42.7	45.1	47.8	49.5			
Parking Lot MX Staging	43.7	38.1	36.5	40.2	42.3	44.1			
Air Conditioning Units	27.2	22.6	22.9	27.0	29.6	31.5			
Total (All Noise Sources)	54.7	50.0	48.0	49.8	52.1	53.3			

<sup>1</sup> See Exhibit 9-A for the noise source locations.

<sup>2</sup> CadnaA noise model calculations are included in Appendix 9.2.



# 9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against the 65 dBA  $L_{eq}$  stationary-source daytime exterior noise limit outlined in Policy N 4.1 of the Noise Element. Table 9-3 shows that the operational noise levels associated with JS 63 MX Project will satisfy the County of Riverside 65 dBA  $L_{eq}$  daytime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations provided that all Project activities will be limited to the daytime hours between 7:00 a.m. and 10:00 p.m.

Receiver Location <sup>1</sup>	Project Operational Noise Levels	Noise Level Standards (dBA Leq) <sup>3</sup>	Standards Exceeded? <sup>4</sup>
D1		65	No
KI	54.7	60	INO
R2	50.0	65	No
R3	48.0	65	No
R4	49.8	65	No
R5	52.1	65	No
R6	53.3	65	No

 TABLE 9-3: PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

<sup>1</sup> See Exhibit 8-A for the noise receiver locations.

<sup>2</sup> Proposed Project operational noise levels as shown on Table 9-2.

<sup>3</sup> County of Riverside exterior noise level standards for residential land use, as shown on Table 4-1.

<sup>4</sup> Do the estimated Project operational noise source activities exceed the daytime noise level standards?

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

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

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level 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 ambient conditions are presented on Table 9-4. As indicated on Table 9-4, the Project will generate an unmitigated daytime operational noise level increases ranging from 1.6 to 5.0 dBA L<sub>eq</sub> at the nearby receiver locations. Project-related operational noise level contributions will satisfy the operational noise level increase significance

criteria presented on Table 4-1, and, therefore, the noise level increases at the sensitive receiver locations will be *less than significant*.

Receiver Location <sup>1</sup>	Total Project Operational Noise Level <sup>2</sup>	Measurement Location <sup>3</sup>	Reference Ambient Noise Levels <sup>4</sup>	Combined Project and Ambient <sup>5</sup>	Project Increase <sup>6</sup>	Increase Criteria <sup>7</sup>	Increase Criteria Exceeded? <sup>7</sup>
R1	54.7	L1	53.5	57.1	3.6	5.0	No
R2	50.0	L1	53.5	55.1	1.6	5.0	No
R3	48.0	L2	49.0	51.5	2.5	5.0	No
R4	49.8	L3	50.0	52.9	2.9	5.0	No
R5	52.1	L3	50.0	54.2	4.2	5.0	No
R6	53.3	L3	50.0	55.0	5.0	5.0	No

TABLE 9-4: DAYTIME PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTIONS

<sup>1</sup> See Exhibit 9-A for the sensitive receiver locations.

<sup>2</sup> Total Project operational noise levels as shown on Table 10-6.

<sup>3</sup> Reference noise level measurement locations as shown on Exhibit 5-A.

<sup>4</sup> Observed daytime ambient noise levels as shown on Table 5-1.

<sup>5</sup> Represents the combined ambient conditions plus the Project activities.

<sup>6</sup> The noise level increase expected with the addition of the proposed Project activities.

<sup>7</sup> Significance Criteria as defined in Section 4.

## 9.7 MSHCP NOISE LEVELS

The Multiple Species Habitat Conservation Plan (MSHCP) adopted by the Western Riverside County Regional Conservation Authority (18) requires that noise generating land uses affecting the MSHCP Conservation Area shall incorporate setbacks, berms or walls to minimize the effects of noise on MSHCP Conservation Area resources pursuant to applicable rules, regulations, and guidelines related to land use noise standards. For planning purposes, wildlife within the MSHCP Conservation Area should not be subject to noise that would exceed residential noise standards. Since the proposed JS 63 MX development will include noise generating motocross activities, operation noise levels have been calculated at the Project boundaries in order to estimate the Project related noise levels within the adjacent MSHCP conservation areas.

To minimize the effects of noise on the nearby MSHCP Conservation Areas, this analysis relies on the 65 dBA  $L_{eq}$  exterior noise level limit identified by Policy N 4.1 of the General Plan. As shown on Exhibit 9-B, five MSHCP receiver locations are used to calculate the Project operational noise levels at the Project site boundaries. The five MSHCP receivers were placed at the Project site boundaries to estimate the highest Project motocross noise levels within the nearby MSHCP conservation areas. This approach reflects the setback buffers shown on the Project site plan that places the MX Tracks at distances ranging from 50 to 150 feet. Appendix 9.3 includes the detailed CadnaA noise prediction model MSHCP calculations for the Project operational noise levels presented in this section.





EXHIBIT 9-B: MSHCP OPERATIONAL NOISE SOURCE AND RECEIVER LOCATIONS



Receiver Location <sup>1</sup>	Project Operational Noise Levels (dBA Leq) <sup>2</sup>	Noise Level Standards (dBA Leq) <sup>3</sup>	Standards Exceeded? <sup>4</sup>
R1	59.7	65	No
R2	63.0	65	No
R3	60.1	65	No
R4	61.2	65	No
R5	62.2	65	No

TABLE 9-5: MSCHP OPERATIONAL NOISE LEVEL COMPLIANCE

<sup>1</sup> See Exhibit 9-B for the MSHCP noise receiver locations at the Project site boundaries.

<sup>2</sup> Proposed Project operational (motocross) noise levels are included in Appendix 9.3.

<sup>3</sup> Exterior noise level standards for residential land use (Noise Element Policy N 4.1).

<sup>4</sup> Do the estimated Project operational noise source activities exceed the daytime noise level standards?

Table 9-5 presents a summary of the estimated MSHCP noise levels at each of the five noise receiver locations. As shown on Table 9-5, the Project-related noise levels are expected to range from 59.7 to 63.0 dBA  $L_{eq}$ . The analysis shows that the Project-related operational motocross noise levels will satisfy the 65 dBA  $L_{eq}$  exterior noise level threshold identified for the proposed MSHCP Conservation Areas. Accordingly, the Project's noise impacts to the adjacent MSHCP Conservation Area would be *less than significant*.



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# **10 CONSTRUCTION IMPACTS**

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations in relation to the 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 are expected to occur in the following stages:

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

## **10.2** CONSTRUCTION REFERENCE NOISE LEVELS

To describe peak construction noise activities, this construction noise analysis was prepared using reference noise level measurements published in the Update of Noise Database for Prediction of Noise on Construction and Open Sites by the Department for Environment, Food and Rural Affairs (DEFRA). (19). The DEFRA database provides the most recent and comprehensive source of reference construction noise levels. Table 10-1 provides a summary of the DEFRA construction reference noise level measurements expressed in hourly average dBA Leq using the estimated FHWA Roadway Construction Noise Model (RCNM) usage factors (20) to describe the typical construction activities for each stage of Project construction.





EXHIBIT 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS

LEGEND:

Construction Activity Receiver Locations

- Distance from receiver to Project site boundary (in feet)

N

Construction Stage	Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>eq</sub> ) <sup>1</sup>	Highest Reference Noise Level (dBA Leq)	
<b>C</b> <sup>11</sup>	Crawler Tractors	77		
Site	Hauling Trucks	71	77	
reparation	Rubber Tired Dozers	71		
	Graders	79		
Grading	Excavators	64		
	Compactors	67		
	Cranes	67		
Construction	Tractors	72	72	
	Welders	65		
	Pavers	70		
Paving	Paving Equipment	69	70	
	Rollers	69		
	Cranes	67		
Architectural	Air Compressors	67	67	
coating	Generator Sets	67	1	

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

<sup>1</sup> Update of Noise Database for Prediction of Noise on Construction and Open Sites by the Department for Environment, Food and Rural Affairs (DEFRA) expressed in hourly average L<sub>eq</sub> based on estimated usage factors from the FHWA Roadway Construction Noise Model (RCNM).

### **10.3** CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 10-2, the construction noise levels are expected to range from 50.1 to 69.5 dBA  $L_{eq}$ , and the highest construction levels are expected to range from 62.1 to 69.5 dBA  $L_{eq}$  at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

The construction noise analysis presents a conservative approach with the highest noise-levelproducing 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 Noise Levels (dBA Leq)							
Receiver Location <sup>1</sup>	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels <sup>2</sup>		
R1	67.5	69.5	62.5	60.5	57.5	69.5		
R2	62.5	64.5	57.5	55.5	52.5	64.5		
R3	60.1	62.1	55.1	53.1	50.1	62.1		
R4	62.0	64.0	57.0	55.0	52.0	64.0		
R5	63.7	65.7	58.7	56.7	53.7	65.7		
R6	65.5	67.5	60.5	58.5	55.5	67.5		

#### TABLE 10-2: CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

<sup>1</sup>Noise receiver locations are shown on Exhibit 10-A.

<sup>2</sup> Construction noise level calculations based on distance from the construction activity, which is measured from the Project site boundary to the nearest receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

#### **10.4** CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA  $L_{eq}$  is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA  $L_{eq}$  significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise are considered *less than significant* at all receiver locations.

	TABLE 10-3:	<b>CONSTRUCTION NOIS</b>	E LEVEL (	COMPLIANCE
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<b>.</b> .	Construction Noise Levels (dBA Leq)					
Receiver Location <sup>1</sup>	Highest Construction Noise Levels <sup>2</sup>	Threshold <sup>3</sup>	Threshold Exceeded? <sup>4</sup>			
R1	69.5	80	No			
R2	64.5	80	No			
R3	62.1	80	No			
R4	64.0	80	No			
R5	65.7	80	No			
R6	67.5	80	No			

<sup>1</sup>Noise receiver locations are shown on Exhibit 10-A.

<sup>2</sup> Highest construction noise level calculations based on distance from the construction noise source activity to the nearest receiver locations as shown on Table 10-2.

<sup>3</sup> Construction noise level thresholds as shown on Table 4-1.

<sup>4</sup> Do the estimated Project construction noise levels exceed the construction noise level threshold?



# **10.5** CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (11) 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 10-4. 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. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: PPV<sub>equip</sub> = PPV<sub>ref</sub> x  $(25/D)^{1.5}$ 

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

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TABLE 10-4:	VIBRATION SOU	RCE LEVELS FOR	CONSTRUCTION	EQUIPIVIEINT

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Using the vibration source level of construction equipment provided on Table 10-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-5 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 530 to 2,104 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.000 to 0.001 in/sec RMS and will remain below the County of Riverside threshold of 0.01 in/sec RMS at all receiver locations, as shown on Table 10-5. Therefore, the Project-related vibration impacts are considered *less than significant* during the construction activities at the Project site.



	Distance		Receiver	Levels (in/	sec) RMS <sup>2</sup>			
Receiver <sup>1</sup>	to Const. Activity (Feet)	Small Bulldozer	Jack- hammer	Loaded Trucks	Large Bulldozer	Peak Vibration	(in/sec) RMS⁴	Exceeded? <sup>5</sup>
R1	530'	0.000	0.000	0.001	0.001	0.001	0.01	No
R2	1,225'	0.000	0.000	0.000	0.000	0.000	0.01	No
R3	2,104'	0.000	0.000	0.000	0.000	0.000	0.01	No
R4	1,753'	0.000	0.000	0.000	0.000	0.000	0.01	No
R5	1,303'	0.000	0.000	0.000	0.000	0.000	0.01	No
R6	709'	0.000	0.000	0.000	0.000	0.000	0.01	No

TABLE 10-5: PROJECT CONSTRUCTION VIBRATION LEVELS

<sup>1</sup>Receiver locations are shown on Exhibit 10-A.

<sup>2</sup> Based on the Vibration Source Levels of Construction Equipment included on Table 10-4. Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.

<sup>3</sup> Source: County of Riverside General Plan Noise Element, Policy N 16.3.

<sup>4</sup> Does the vibration level exceed the maximum acceptable vibration threshold?

Moreover, the impacts at the site of the nearest sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.



# **11 REFERENCES**

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- 20. FHWA. Roadway Construction Noise Model. January 2006.





# **12 CERTIFICATION**

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed JS 63 MX 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:

COUNTY OF RIVERSIDE NOISE ORDINANCE NO. 847



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#### ORDINANCE NO. 847 (AS AMENDED THROUGH 847.1) AN ORDINANCE OF THE COUNTY OF RIVERSIDE AMENDING ORDINANCE NO. 847 REGULATING NOISE

The Board of Supervisors of the County of Riverside Ordains as Follows:

Section 1. INTENT. At certain levels, sound becomes noise and may jeopardize the health, safety or general welfare of Riverside County residents and degrade their quality of life. Pursuant to its police power, the Board of Supervisors hereby declares that noise shall be regulated in the manner described herein. This ordinance is intended to establish countywide standards regulating noise. This ordinance is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act and no such thresholds are hereby established.

Section 2. EXEMPTIONS. Sound emanating from the following sources is exempt from the provisions of this ordinance:

- a. Facilities owned or operated by or for a governmental agency.
- b. Capital improvement projects of a governmental agency.
- c. The maintenance or repair of public properties.
- d. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile.
- e. Public or private schools and school-sponsored activities
- f. Agricultural operations on land designated Agriculture in the Riverside County General Plan, or land zoned A-1 (Light Agriculture), A-P (Light Agriculture With Poultry), A-2 (Heavy Agriculture), A-D (Agriculture-Dairy) or C/V (Citrus/Vineyard), provided such operations are carried out in a manner consistent with accepted industry standards. This exemption includes, without limitation, sound emanating from all equipment used during such operations, whether stationary or mobile.
- g. Wind Energy Conversion Systems (WECS), provided such systems comply with the WECS noise provisions of Riverside County Ordinance No. 348.
- h. Private construction projects located one-quarter (1/4) of a mile or more from an inhabited dwelling.
- i. Private construction projects located within one-quarter (1/4) of a mile from an inhabited dwelling, provided that:
  - 1. Construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September; and
  - 2. Construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May.

- j. Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7 a.m. and 8 p.m.
- k. Motor vehicles, other than off-highway vehicles. This exemption does not include sound emanating from motor vehicle sound systems
- I. Heating and air conditioning equipment.
- m. Safety, warning and alarm devices, including, but not limited to, house and car alarms, and other warning devices that are designed to protect the public health, safety, and welfare.
- n. The discharge of firearms consistent with all state laws.

<u>Section 3</u>. DEFINITIONS. As used in this ordinance, the following terms shall have the following meanings:

- a. <u>Audio Equipment</u>. A television, stereo, radio, tape player, compact disc player, mp3 player, I-POD or other similar device.
- b. <u>Decibel (dB)</u>. A unit for measuring the relative amplitude of a sound equal approximately to the smallest difference normally detectable by the human ear, the range of which includes approximately one hundred thirty (130) decibels on a scale beginning with zero decibels for the faintest detectable sound. Decibels are measured with a sound level meter using different methodologies as defined below:
  - 1. A-weighting (dBA) means the standard A-weighted frequency response of a sound level meter, which de-emphasizes low and high frequencies of sound in a manner similar to the human ear for moderate sounds.
  - 2. Maximum Sound level (L<sub>max</sub>) means the maximum sound level measured on a sound level meter.
- c. <u>Governmental Agency</u>. The United States, the State of California, Riverside County, any city within Riverside County, any special district within Riverside County or any combination of these agencies.
- d. <u>Land Use Permit</u>. A discretionary permit issued by Riverside County pursuant to Riverside County Ordinance No. 348.
- e. <u>Motor Vehicle</u>. A vehicle that is self-propelled.
- f. <u>Motor Vehicle Sound System</u>. A stereo, radio, tape player, compact disc player, mp3 player, I-POD or other similar device.
- g. <u>Noise</u>. Any loud, discordant or disagreeable sound.
- h. <u>Occupied Property</u>. Property upon which is located a residence, business or industrial or manufacturing use.
- i. <u>Off-Highway Vehicle</u>. A motor vehicle designed to travel over any terrain.
- j. <u>Public Property</u>. Property owned by a governmental agency or held open to the public, including, but not limited to, parks, streets, sidewalks, and alleys.

- k. <u>Public or Private School</u>. An institution conducting academic instruction at the preschool, elementary school, junior high school, high school, or college level.
- I. <u>Sensitive Receptor</u>. A land use that is identified as sensitive to noise in the Noise Element of the Riverside County General Plan, including, but not limited to, residences, schools, hospitals, churches, rest homes, cemeteries or public libraries.
- m. <u>Sound Level Meter</u>. 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.
- n. <u>Sound Amplifying Equipment</u>. A loudspeaker, microphone, megaphone or other similar device.

<u>Section 4.</u> GENERAL SOUND LEVEL STANDARDS. No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 1.

TABLE 1       SOUND LEVEL STANDARDS ( Db Lmax )						
GENERAL	GENERAL PLAN	GENERAL PLAN LAND		MAXIMUN	M DECIBEL VEL	
PLAN FOUNDATION COMPONENT	LAND USE DESIGNATION	USE DESIGNATION NAME	DENSITY	7am- 10pm	10pm- 7am	
	EDR	Estate Density Residential	2 AC	55	45	
	VLDR	Very Low density	1 AC	55	45	
	LDR	Low Density Residential	1/2 AC	55	45	
	MDR	Medium Density	25	55	45	
	MHDR	Medium High Density	58	55	45	
	HDR	High Density Residential	814	55	45	
	VHDR	Very High Density	14-20	55	45	
	H'TDR	Highest Density	20+	55	45	
	CR	Retail Commercial		65	55	
Community Development	СО	Office Commercial		65	55	
Development	СТ	Tourist Commercial		65	55	
	СС	Community Center		65	55	
	LI	Light Industrial		75	55	
	HI	Heavy Industrial		75	75	
	BP	Business Park		65	45	
	PF	Public Facility		65	45	
		Specific Plan-Residential		55	45	
	05	Specific Plan-		65	55	
	SP	Specific Plan-Light		75	55	
		Specific Plan-Heavy		75	75	
Rural	EDR	Estate Density	2 ac	55	45	
Community	VLDR	Very Low Density	1 ac	55	45	
	LDR	Low Density Residential	1/2 ac	55	45	
Rural	RR	Rural Residential	5 ac	45	45	
	RM	Rural Mountainous	10 ac	45	45	
	RD	Rural Desert	10 ac	45	45	
Agriculture	AG	Agriculture	10 AC	45	45	
	С	Conservation		45	45	
Open Space	СН	Conservation Habitat		45	45	
	REC	Recreation		45	45	
	RUR	Rural	20 AC	45	45	
	W	Watershed		45	45	
	MR	Mineral Resources		75	45	

Section 5. 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. of this ordinance. Sound level measurements shall be made with a sound level meter. Immediately before a measurement is made, the sound level meter shall be calibrated utilizing an acoustical calibrator meeting the standards of the American National Standards Institute. Following a sound level measurement, the calibration of the sound level meter shall be re-verified. Sound level meters and calibration equipment shall be certified annually.

Section 6. SPECIAL SOUND SOURCES STANDARDS. The general sound level standards set forth in Section 4. of this ordinance apply to sound emanating from all sources, including the following special sound sources, and the person creating, or allowing the creation of, the sound is subject to the requirements of that section. The following special sound sources are also subject to the following additional standards, the failure to comply with which constitute separate violations of this ordinance.

- a. Motor Vehicles.
  - 1. Off-Highway Vehicles.
    - i. 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.
    - 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 that 101 dBA if the vehicle was manufactured before January 1, 1986. For purposes of this subsection, emitted noise shall be measured a distance of twenty (20) inches from the vehicle tailpipe using test procedures established by the Society of Automotive Engineers under Standard J-1287.
    - 2. Sound Systems. No person shall operate a motor vehicle sound system, whether affixed to the vehicle or not, between the hours of 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 one hundred (100) feet from the vehicle.
- b. Power Tools and Equipment. No person shall operate any power tools or equipment between the hours of 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 one hundred (100) feet from the power tools or equipment.

- c. Audio Equipment. No person shall operate any audio equipment, whether portable or not, between the hours of 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 one hundred (100) feet from the equipment.
- d. Sound Amplifying Equipment and Live Music. No person shall install, use or operate sound amplifying equipment, or perform, or allow to be performed, live music unless such activities comply with the following requirements. To the extent that these requirements conflict with any conditions of approval attached to an underlying land use permit, these requirements shall control.
  - 1. Sound amplifying equipment or live music is prohibited between the hours of 10:00 p.m. and 8:00 a.m.
  - 2. Sound emanating from sound amplifying equipment or live music at any other time shall not be audible to the human ear at a distance greater than two hundred (200) feet from the equipment or music.

Section 7. EXCEPTIONS. Exceptions may be requested from the standards set forth in Sections 4. or 6. of this ordinance and may be characterized as construction-related, single event or continuous events exceptions.

- a. Application and Processing.
  - 1. Construction-Related Exceptions. An application for a construction-related exception shall be made to and considered by the Director of Building and Safety on forms provided by the Building and Safety Department and shall be accompanied by the appropriate filing fee. No public hearing is required.
  - 2. Single Event Exceptions. An application for a single event exception shall be made to and considered by the Planning Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. No public hearing is required.
  - 3. Continuous Events Exceptions. An application for a continuous events exception shall be made to the Planning Director on forms provided by the Planning Department and shall be accompanied by the appropriate filing fee. Upon receipt of an application for a continuous events exception, the Planning Director shall set the matter for public hearing before the Planning Commission, notice of which shall be given as provided in Section 18.26.c. of Riverside County Ordinance No. 348. Notwithstanding the above, an application for a
continuous events exception that is associated with an application for a land use permit shall be processed concurrently with the land use permit in the same manner that the land use permit is required to be processed.

- b. Requirements for Approval. The appropriate 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.
- The Director of Building and Safety's decision on an C. Appeals. application for a construction-related exception is considered final. The Planning Director's decision on an application for a single event exception is considered final. After making a decision on an application for a continuous events exception, the appropriate decision making body or officer shall mail notice of the decision to the applicant. Within ten (10) calendar days after the mailing of such notice, the applicant or an interested person may appeal the decision to the Board of Supervisors. Upon receipt of an appeal and payment of the appropriate appeal fee, the Clerk of the Board shall set the matter for hearing not less than five (5) days nor more than thirty (30) days thereafter and shall give written notice of the hearing in the same manner as notice of the hearing was given by the appropriate hearing officer or body. The Board of Supervisors shall render its decision within thirty (30) days after the appeal hearing is closed.
- d. Effect of a Pending Continuous Events Exception Application. For a period of one hundred and eighty (180) days from the effective date of this ordinance, no person creating any sound prohibited by this ordinance shall be considered in violation of this ordinance if the sound is related to a use that is operating pursuant to an approved land use permit, if an application for a continuous events exception has been filed to sanction the sound and if a decision on the application is pending.

Section 8. ENFORCEMENT. The Riverside County Sheriff and Code Enforcement shall have the primary responsibility for enforcing this ordinance; provided, however, the Sheriff and Code Enforcement may be assisted by the Public Health Department. Violations shall be prosecuted as described in Section 10. of this ordinance, but nothing in this ordinance shall prevent the Sheriff, Code Enforcement or the Department of Public Health from engaging in efforts to obtain voluntary compliance by means of warnings, notices, or educational programs. Section 9. DUTY TO COOPERATE. No person shall refuse to cooperate with, or obstruct, the enforcement officials identified in Section 8. of this ordinance when they are engaged in the process of enforcing the provisions of this ordinance. 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 ordinance.

Section 10. VIOLATIONS AND PENALTIES. Any person who violates any provision of this ordinance once or twice within a one hundred and eighty (180) day period shall be guilty of an infraction. Any person who violates any provision of this ordinance more than twice within a one hundred and eighty (180) day period shall be guilty of a misdemeanor. Each day a violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. Penalties shall not exceed the following amounts.

- a. For the first violation within a one hundred and eighty (180) day period the minimum mandatory fine shall be five hundred dollars (\$500).
- b. For the second violation within a one hundred and eighty (180) day period the minimum mandatory fine shall be seven hundred and fifty dollars (\$750).
- For any further violations within a one hundred and eighty (180) day period the minimum mandatory fine shall be one thousand dollars (\$1,000) or imprisonment in the County jail for a period not exceeding six (6) months, or both.

<u>Section 11</u>. SEVERABILITY. If any provision of this ordinance, or the application thereof to any person or circumstance, is held invalid, such invalidity shall not affect the remainder of the ordinance or the application of such provision(s) to other persons or circumstances.

Section 12. SAVINGS CLAUSE. The adoption of this ordinance shall not in any manner affect the prosecution of ordinance violations, which violations were committed prior to the effective date of this ordinance, nor be construed as a waiver of any permit, license, penalty or penal provisions applicable to such violations. The provisions of this ordinance, insofar as they are substantially the same as ordinance provisions previously adopted by Riverside County relating to the same subject matter, shall be construed as restatements and continuations, and not as new enactments.

Section 13. EFFECTIVE DATE. This ordinance shall take effect 30 days after its adoption.

Adopted: 847 Item 3.19 of 04/04/2006 (Eff: 05/04/2006) Amended: 847.1 Item 3.4 of 06/19/2007 (Eff: 07/19/2007) APPENDIX 5.1:

**STUDY AREA PHOTOS** 





## JN: 12374 Study Area Photos



33, 45' 11.300000", 117, 17' 14.450000"



L1\_E 33, 45' 11.260000", 117, 17' 14.530000"



33, 45' 11.220000", 117, 17' 14.390000"



L1\_S 33, 45' 11.250000", 117, 17' 14.580000"



L1\_W 33, 45' 11.430000", 117, 17' 14.580000"



L2 33, 45' 5.510000", 117, 16' 47.280000"

### JN: 12374 Study Area Photos



L2\_E 33, 45' 4.080000", 117, 16' 53.960000"



L2\_N 33, 45' 4.060000", 117, 16' 53.850000"



L2\_S





L3\_S 33, 44' 33.330000", 117, 17' 6.340000"



L3\_E 33, 44' 32.990000", 117, 17' 6.430000"

# JN: 12374 Study Area Photos



L3\_W ,



L4 33, 44' 32.970000", 117, 17' 21.560000"



L4\_N 33, 44' 33.220000", 117, 17' 21.420000"



L4\_S 33, 44' 33.220000", 117, 17' 21.260000"



APPENDIX 5.2:

**NOISE LEVEL MEASUREMENT WORKSHEETS** 





						24-Ho	ur Noise L	evel Meas	urement S	ummary						
Date: Project:	Tuesday, Ju Milestone N	ly 30, 2019 /IX Motorcycl	le Park	County	Location of Riverside	L1 - Located existing resi	l north of the dential hom	e Project site e and vacant	on Sharp Ro : land.	ad near	Meter:	Piccolo I			JN: Analyst:	12374 P. Mara
							Hourly L <sub>eq</sub> (	dBA Readings	(unadjusted)							
85.0	)															
₹ 80.0																
<b>a</b> 75.0 70.0	5															
ے 65.0 1 سے 60.0																
≥ 55.0								<mark>6 _</mark>	<mark>_ ون</mark> _ و							
<b>p</b> 50.0		3.5	4.7	7.1 6.8	6.2	8.5	- 4	56.	28	55.5	7.3	0.4	8.3	5.3	1.8	2.4
▲ 40.0 35.0	) – 4 –	4 4	4	4 4	4	4 4	<u>n</u>				- <mark>0</mark> - 4		4 4	4	4 4	4
	0	1 2	3	4 5	6	7 8	9 :	10 11	12 1	3 14	15 16	17	18 19	20	21 22	23
								Hour Be	eginning					_		
Timeframe	Hour	L <sub>eq</sub>	L max	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
	0	43.5	64.7	41.5	47.0	46.0	44.0	44.0	42.0	41.0	41.0	41.0	41.0	43.5	10.0	53.5
	1	43.5	53.5	41.5	48.0	47.0	45.0	44.0	44.0	41.0	41.0	41.0	41.0	43.5	10.0	53.5
Night	2	43.7	57.4	41.5	47.0	46.0	44.0	44.0	44.0	43.0	41.0	41.0	41.0	43.7	10.0	53.7
INIGHT	3 4	44.7 47 1	54.5 62.6	41.5 44 4	50.0 57.0	49.0 54.0	40.0	46.0	44.0	44.0	44.0	44.0	42.0	44.7 47 1	10.0	57.1
	5	46.8	61.1	44.4	55.0	53.0	49.0	48.0	46.0	44.0	44.0	44.0	44.0	46.8	10.0	56.8
	6	46.2	57.0	44.4	53.0	51.0	49.0	48.0	46.0	44.0	44.0	44.0	44.0	46.2	10.0	56.2
	7	48.6	67.8	43.9	60.0	57.0	52.0	49.0	46.0	44.0	44.0	44.0	44.0	48.6	0.0	48.6
	8	48.5	67.0	41.5	58.0	56.0	53.0	52.0	47.0	45.0	44.0	43.0	41.0	48.5	0.0	48.5
	9 10	54.0	69.9 71 E	41.5	63.0 67.0	62.0	60.0	58.0	54.0	48.0	41.0	41.0	41.0	54.0 56.0	0.0	54.0
	10	56.1	74.1	41.5	66.0	65.0	62.0	60.0	55.0	49.0	41.0	41.0	41.0	56.1	0.0	56.1
	12	58.9	73.2	41.5	68.0	67.0	65.0	63.0	59.0	53.0	43.0	41.0	41.0	58.9	0.0	58.9
Day	13	56.0	77.5	41.5	66.0	64.0	62.0	60.0	55.0	49.0	41.0	41.0	41.0	56.0	0.0	56.0
	14	55.5	72.7	41.5	65.0	63.0	61.0	59.0	55.0	51.0	42.0	41.0	41.0	55.5	0.0	55.5
	15	54.1	67.3	41.5	61.0	60.0	59.0	58.0	55.0	51.0	43.0	41.0	41.0	54.1	0.0	54.1
	16 17	47.3 50.4	62.7 74.6	41.5	57.0 58.0	55.0 57.0	53.0	51.0 54.0	46.0	42.0	41.0	41.0	41.0	47.3 50.4	0.0	47.3
	17	46.1	66.3	41.5	56.0	53.0	50.0	49.0	43.0	40.0	41.0	41.0	41.0	46.1	0.0	46.1
	19	48.3	69.7	41.5	62.0	58.0	53.0	50.0	42.0	41.0	41.0	41.0	41.0	48.3	5.0	53.3
Evening	20	42.3	61.9	41.5	48.0	45.0	44.0	42.0	41.0	41.0	41.0	41.0	41.0	42.3	5.0	47.3
	21	41.5	59.2	41.5	46.0	45.0	44.0	42.0	41.0	41.0	41.0	41.0	41.0	41.5	5.0	46.5
Night	22	41.8	58.2	41.5	46.0 47.0	45.0	44.0	44.0	41.0	41.0	41.0	41.0	41.0	41.8	10.0	51.8
Timeframe	Hour	L eq	L max	41.5 L min	47.0 L1%	40.0 L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	42.4	L eg (dBA)	J2.4
Davi	Min	46.1	62.7	41.5	56.0	53.0	50.0	49.0	43.0	41.0	41.0	41.0	41.0	24 110.00		Nichttingo
Day	Max	58.9	77.5	43.9	68.0	67.0	65.0	63.0	59.0	53.0	44.0	44.0	44.0	24-Hour	Daytime	Nighttime
Energy	Average	54.4	Ave	erage:	62.1	60.3	57.9	56.2	51.8	47.5	41.9	41.4	41.3	51.8	53.5	44.8
Evening	Min	41.5	59.2	41.5	46.0	45.0	44.0	42.0	41.0	41.0	41.0	41.0	41.0	24		
Energy	Average	48.3	69.7 Ave	erage:	52.0	49.3	47.0	44.7	42.0	41.0	41.0	41.0	41.0	24-	HOUF CNEL (C	IDAJ
NUL	Min	41.8	50.2	41.5	46.0	45.0	44.0	44.0	41.0	41.0	41.0	41.0	41.0	1		
Night	Max	47.1	64.7	44.4	57.0	54.0	49.0	48.0	46.0	44.0	44.0	44.0	44.0		<b>J4.Z</b>	
Energy	Average	44.8	Ave	erage:	50.0	48.6	46.1	45.6	43.8	42.6	42.3	42.3	42.1			



Date: Project:	Tuesday, Ju Milestone N	ly 30, 2019 MX Motorcyc	le Park	County	Location. of Riverside	24-Hou L2 - Located residential h	east of the loome.	evel Measu Project site n	urement S lear existing	ummary single-family	Meter:	Piccolo I			JN: Analyst:	12374 P. Mara
							Hourly L <sub>eq</sub> (	dBA Readings	(unadjusted)							
85 (	n															
<b>1 8 75.0</b> 70.0																
g 65.0																
→ 55.0																
<b>50.0 9</b> 45.0		4 0		·		<mark>7.8</mark>	4.	4. m		4	ი. ი.t	<u> </u>		<u> </u>	<u>m</u> <u>w</u>	6.
	0 - 4 -	- 4 4		- <u>Ω</u> <u>Ω</u> -	- 4	<u>N</u> 4	4	4 4	- <u>n</u>	4 - <u>1</u>	4 4	4	- <mark>20 4</mark> -	4	- <del>4</del> 4 -	
	0	1 2	3	4 5	6	7 8	9 1	10 11	12 1	.3 14	15 16	17	18 19	20	21 22	23
								Hour Be	eginning							
Timeframe	Hour	L <sub>eq</sub>	L max	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
	0	44.7	57.1	36.2	52.0	51.0	49.0	48.0	45.0	42.0	39.0	37.0	36.0	44.7	10.0	54.7
	1	45.4	61.4	36.2	55.0	53.0	50.0	48.0	45.0	42.0	39.0	39.0	36.0	45.4	10.0	55.4
Night	2	45.2	59.4	36.2	53.0	51.0	49.0	48.0	45.0	43.0	39.0	39.0	36.0	45.2	10.0	55.2
Night	3	47.7	59.1 67.6	40.7	56.0	54.0	52.0	51.0	47.0	45.0	43.0	42.0	41.0	47.7 51.0	10.0	57.7
	5	51.7	60.5	45.3	57.0	56.0	55.0	54.0	52.0	50.0	48.0	47.0	46.0	51.0	10.0	61.7
	6	48.1	58.3	43.2	55.0	54.0	52.0	51.0	48.0	46.0	45.0	44.0	44.0	48.1	10.0	58.1
	7	53.2	72.6	42.1	67.0	63.0	56.0	52.0	47.0	45.0	43.0	43.0	43.0	53.2	0.0	53.2
	8	47.8	64.0	39.0	58.0	55.0	52.0	50.0	46.0	44.0	42.0	41.0	40.0	47.8	0.0	47.8
	9	46.4	61.8	39.1	55.0	52.0	50.0	49.0	46.0	43.0	41.0	40.0	39.0	46.4	0.0	46.4
	10	47.4	59.2	38.2	53.0	52.0	52.0	49.0	47.0	44.0	39.0	40.0 39.0	39.0	47.4	0.0	47.4
	12	54.0	77.3	40.6	66.0	60.0	54.0	53.0	49.0	47.0	43.0	42.0	41.0	54.0	0.0	54.0
Day	13	47.4	64.9	36.2	55.0	54.0	53.0	51.0	46.0	44.0	41.0	40.0	39.0	47.4	0.0	47.4
	14	51.3	75.3	39.0	60.0	56.0	52.0	50.0	46.0	44.0	40.0	40.0	39.0	51.3	0.0	51.3
	15	44.0	58.5	38.7	52.0	50.0	48.0	46.0	44.0	42.0	39.0	39.0	39.0	44.0	0.0	44.0
	16	44.9	58.8	39.0 27.1	52.0	51.0	49.0 47.0	48.0	45.0	43.0	40.0	39.0	39.0	44.9	0.0	44.9
	17	42.7 52.4	76.4	36.2	50.0 62.0	49.0 57.0	47.0 53.0	40.0 51.0	42.0	41.0	39.0	39.0 39.0	38.0	42.7 52.4	0.0	42.7 52.4
	19	46.1	62.9	36.2	56.0	54.0	51.0	49.0	44.0	42.0	39.0	39.0	38.0	46.1	5.0	51.1
Evening	20	44.5	61.8	37.7	51.0	49.0	47.0	46.0	44.0	42.0	39.0	39.0	39.0	44.5	5.0	49.5
	21	44.3	61.3	36.2	51.0	50.0	48.0	47.0	44.0	42.0	39.0	39.0	38.0	44.3	5.0	49.3
Night	22	43.8	52.3	37.1	49.0 51.0	49.0	48.0	47.0	44.0	42.0	39.0	39.0	38.0	43.8	10.0	53.8
Timeframe	Hour	43.9 Lag	L may	50.2 L min	L1%	L2%	48.0 <b>L5%</b>	47.0 L8%	L25%	42.0 <b>L50%</b>	L90%	58.0 <b>L95%</b>	L99%	43.9	L <sub>ea</sub> (dBA)	53.9
Davi	Min	42.7	54.9	36.2	50.0	49.0	47.0	46.0	42.0	41.0	39.0	39.0	38.0	24 110.00		Nichttime
Day	Max	54.0	77.3	42.1	67.0	63.0	56.0	53.0	49.0	47.0	43.0	43.0	43.0	24-Hour	Daytime	Nighttime
Energy	Average	49.6	Ave	erage:	57.2	54.5	51.3	49.7	45.7	43.5	40.6	40.1	39.5	48.6	49.0	47.8
Evening	Min	44.3	61.3	36.2	51.0	49.0	47.0 51.0	46.0	44.0	42.0	39.0	39.0	38.0		Hour CNEL 4	
Energy	Average	45.0	Ave	erage:	52.7	51.0	48.7	47.3	44.0	42.0	39.0	39.0	38.3	24-	HOUR CNEL (U	
Nicht	Min	43.8	52.3	36.2	49.0	49.0	48.0	47.0	44.0	42.0	39.0	37.0	36.0			
Night	Max	51.7	67.6	45.3	57.0	56.0	55.0	54.0	52.0	50.0	48.0	47.0	46.0		<b>J4.J</b>	
Energy	Average	47.8	Ave	erage:	53.8	52.6	50.8	49.7	46.8	44.6	41.9	41.2	39.8			



						24-Ho	ur Noise <u>L</u>	evel Meas	urement S	ummary						
Date: Project:	Tuesday, Ju Milestone I	ily 30, 2019 MX Motorcy	cle Park	County	Location of Riverside	L3- Located Road near e	south of the existing resid	e project on F ential home.	Read Street a	nd Ethanac	Meter:	Piccolo II			JN: Analyst:	12374 P. Mara
							Hourly L <sub>eq</sub>	dBA Readings	(unadjusted)							
85.0	2															
<b>2</b> 80.0																
<b>ق</b> 70.0																
60.0 <b>ٿ</b>																
50.0	j <u>m</u>	0 0	<u>ہ</u>	N 00	o	N M	<mark>:</mark>	<mark>00 4</mark>	<b>00</b>	N 0	ុ ភ្ ភ្	<mark>.</mark> И	9	<u>N</u>	<b>N</b> 00	0
<b>±</b> 45.0	9 4 4	44	47.	51	23	49	24	20 20	2 <mark>1</mark>	4 4 5 4	48 48	48	50 48		44	44
35.0	) ++	1 2	3	1 5	6	7 8		10 11	12 1	3 1/	15 16	5 17	18 10	20	21 22	23
	0	1 2	5	4 5	0	/ 0		Hour B	eginning	15 14	15 10	, 1,	10 15	20	21 22	25
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>eq</sub>
	0	46.3	58.1	36.1	53.5	52.7	51.5	50.6	47.2	44.2	38.9	37.9	37.0	46.3	10.0	56.3
	1	44.0	55.7	35.3	52.1	51.2	49.5	48.1	44.5	41.6	37.6	37.0	36.0	44.0	10.0	54.0
Nicht	2	43.3	59.8	33.9	51.8	50.4	48.4	46.9	43.6	40.9	36.2	35.6	34.9	43.3	10.0	53.3
Night	3	47.5	60.2	36.6	54.9	53.0	51.7	50.7	48.3	46.1	40.0	38.7	37.2	47.5 51.2	10.0	57.5 61.2
	5	51.8	61.7	45.0	57.5	56.6	55.4	54.7	52.2	50.7	47.8	47.0	46.0	51.8	10.0	61.8
	6	53.6	73.0	45.7	58.9	57.8	56.4	55.8	54.2	52.5	49.3	48.3	47.1	53.6	10.0	63.6
	7	49.2	58.6	42.1	55.5	54.3	53.2	52.3	49.9	48.2	45.1	44.3	43.0	49.2	0.0	49.2
	8	49.3	64.8	39.7	61.3	58.8	54.2	51.6	47.6	45.3	42.8	42.3	41.5	49.3	0.0	49.3
	9 10	54.7	81.1 78.0	37.0	68.4 57.0	64.3 54.2	54.1 51.8	50.6 50.4	46.6 47.2	43.9 44 3	40.7 40.5	39.6 39.7	38.1	54.7 50.8	0.0	54.7
	10	50.4	69.3	33.4	60.6	60.4	59.2	58.9	46.8	43.7	38.8	38.0	36.2	50.4	0.0	50.4
Dav	12	51.8	68.0	35.1	61.8	60.6	59.4	59.2	48.4	44.2	38.8	38.0	36.6	51.8	0.0	51.8
Day	13	47.2	63.0	37.0	55.5	53.8	51.4	50.3	47.5	45.3	41.4	40.5	38.7	47.2	0.0	47.2
	14	45.9	65.2	35.0	54.3	52.5	50.1	49.1	46.2	43.5	39.2	38.1	36.3	45.9	0.0	45.9
	15	48.9	71.0	35.9	61.0 59.5	57.6	52.4 52.4	50.5	47.4	44.6	40.0	39.2	37.5	48.9 48.9	0.0	48.9
	10	48.5	60.3	39.8	54.4	53.5	52.4	51.5	49.3	47.6	44.3	43.4	41.5	48.5	0.0	48.5
	18	48.6	72.6	37.8	54.7	51.0	48.5	47.6	45.5	43.9	41.1	40.5	39.3	48.6	0.0	48.6
	19	50.7	70.4	39.1	62.0	58.7	54.4	52.4	48.7	46.5	43.3	42.6	41.1	50.7	5.0	55.7
Evening	20	50.2	77.6	40.0	58.4	55.5	52.9	51.6	49.1	47.2	44.5	43.6	42.3	50.2	5.0	55.2
	21	46.7	62.5 52.7	36.9	54.3 79.9	52.4 49.3	50.3 48.5	49.4	47.1	45.0	41.0	40.1	38.9	46.7	5.0	51.7
Night	22	44.0	53.7	36.2	50.2	49.2	48.0	47.3	44.9	43.0	39.3	38.6	37.5	44.0	10.0	54.0
Timeframe	Hour	L <sub>eq</sub>	L max	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%		L <sub>eq</sub> (dBA)	
Day	Min	45.9	58.6	33.4	54.3	51.0	48.5	47.6	45.5	43.5	38.8	38.0	36.2	24-Hour	Daytime	Nighttime
Enormy	Max	54.7	81.1	42.1	68.4	64.3	59.4	59.2	49.9	48.2	45.1	44.3	43.0			
	Min	46.7	62.5	36.9	58.7	52.4	53.2	49.4	47.4	44.8	41.1	40.2	38.9	49.7	50.0	49.0
Evening	Max	50.7	77.6	40.0	62.0	58.7	54.4	52.4	49.1	47.2	44.5	43.6	42.3	24	Hour CNEL (	dBA)
Energy	Average	49.5	Av	erage:	58.2	55.5	52.5	51.1	48.3	46.2	42.9	42.1	40.8			
Night	Min	43.3	52.7	33.9	49.9	49.2	48.0	46.9	43.6	40.9	36.2	35.6	34.9		55 8	
Energy	Max Average	53.6	73.0	45.7	58.9	57.8	56.4	55.8	54.2 48.2	52.5	49.3 41.8	48.3	47.1	-	55.0	
Line gy		-10.0		0. 480.		32.3	31.0	30.7	-0.2		71.0	-10.5				



						24-Ho	ur Noise L	evel Meas	urement S	Summary						
Date: Project:	Tuesday, Ju Milestone N	ly 30, 2019 /IX Motorcyc	cle Park	Count	Location y of Riverside	L4 - Located near existin	l on the sout g vacant land	hern bounda d.	iry of the Pro	oject site	Meter:	Piccolo I			JN: Analyst:	12374 P. Mara
							Hourly L <sub>eq</sub>	dBA Readings	(unadjusted)							
85.0	0															
₹ 80.0																
<b>B</b> 70.0	Ď 🗕 –––––––––––––––––––––––––––––––––––															
<u>ہوں ہو</u> 60.0																
<b>5</b> 55.0		0 0		4 4		0 0	4	0 8		ю <mark>о</mark>	0 4	·	N 8		4 00	
우 45.0 40.0	0 <b>8</b>	38. 37.	42.	43.43	46.	44 46.	- <mark>4</mark>	45.0	4 <mark>6</mark>	51.5	<mark>50.</mark>	<b>4</b> 04	49.	<b>4</b> <b>4</b>	39.4 40.:	40
35.0	0 ++	1 2	2		6	7 0	0 1	10 11	12 1	12 14	15 16	17	10 10	20	21 22	
	U	1 2	5	4 )	0	/ 0	9	Hour Be	eginning	15 14	15 10	) 1/	10 19	20	21 22	25
Timeframe	Hour	L <sub>ea</sub>	L max	L <sub>min</sub>	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L <sub>eq</sub>	Adj.	Adj. L <sub>ea</sub>
	0	38.8	53.5	36.0	48.0	47.0	44.0	41.0	36.0	36.0	36.0	36.0	36.0	38.8	10.0	48.8
	1	38.6	52.2	36.0	48.0	46.0	42.0	41.0	36.0	36.0	36.0	36.0	36.0	38.6	10.0	48.6
Night	2	37.6	51.4	36.0	45.0	44.0	40.0	39.0	36.0	36.0	36.0	36.0	36.0	37.6	10.0	47.6
Night	3 4	42.7	59.7 66.3	36.0	55.0	49.0	45.0	44.0	41.0	39.0 41.0	36.0 40.0	36.0	36.0	42.7	10.0	52.7
	5	48.1	64.9	38.7	60.0	58.0	52.0	50.0	46.0	43.0	40.0	39.0	39.0	48.1	10.0	58.1
	6	46.6	63.1	38.9	57.0	55.0	51.0	49.0	45.0	41.0	40.0	39.0	39.0	46.6	10.0	56.6
	7	44.0	57.8	38.7	53.0	52.0	49.0	47.0	42.0	40.0	39.0 26.0	39.0 26.0	39.0 36.0	44.0	0.0	44.0
	8 9	46.2	58.1	36.0	57.0	55.0	48.0	49.0 46.0	43.0	39.0 39.0	36.0	36.0	36.0	40.2	0.0	40.2
	10	45.0	61.1	36.0	57.0	55.0	50.0	49.0	43.0	37.0	36.0	36.0	36.0	45.0	0.0	45.0
	11	42.8	58.4	36.0	52.0	51.0	48.0	47.0	42.0	38.0	36.0	36.0	36.0	42.8	0.0	42.8
Day	12	49.0	76.9	36.0	59.0	56.0	53.0	51.0	45.0	41.0	36.0	36.0	36.0	49.0	0.0	49.0
	13	43.5 51.3	75.3	36.0	54.0 62.0	52.0	48.0 52.0	47.0	41.0	37.0	36.0	36.0	36.0	43.5 51.3	0.0	43.5 51.3
	15	50.0	80.7	36.0	58.0	54.0	49.0	47.0	40.0	37.0	36.0	36.0	36.0	50.0	0.0	50.0
	16	42.4	70.9	36.0	52.0	50.0	47.0	45.0	39.0	36.0	36.0	36.0	36.0	42.4	0.0	42.4
	17	40.3	69.7	36.0	48.0	47.0	44.0	43.0	37.0	36.0	36.0	36.0	36.0	40.3	0.0	40.3
	18	49.7	73.8	36.0	60.0	57.0	53.0	49.0	42.0	40.0	36.0	36.0	36.0	49.7	5.0	49.7
Evening	20	42.1	64.3	36.0	50.0	48.0	45.0	43.0	39.0	38.0	36.0	36.0	36.0	42.1	5.0	47.1
	21	39.4	52.2	36.0	49.0	47.0	45.0	43.0	36.0	36.0	36.0	36.0	36.0	39.4	5.0	44.4
Night	22	40.3	52.7	36.0	49.0	48.0	46.0	45.0	39.0	36.0	36.0	36.0	36.0	40.3	10.0	50.3
Timeframe	Hour	40.7	<b>L</b> max	50.0 L min	L1%	49.0 L2%	46.0 <b>L5%</b>	45.0 <b>L8%</b>	39.0 <b>L25%</b>	<b>L50%</b>	50.0 <b>L90%</b>	<b>L95%</b>	56.0 <b>L99%</b>	40.7	L eq (dBA)	50.7
Dav	Min	40.3	57.8	36.0	48.0	47.0	44.0	43.0	37.0	36.0	36.0	36.0	36.0	24 Hour	Dautimo	Nighttimo
Day	Max	51.3	80.7	38.7	62.0	58.0	53.0	51.0	45.0	41.0	39.0	39.0	39.0	24-11001	Daytime	Nignttime
Energy	Average	46.9	Ave	erage:	55.2	53.1	49.4	47.5	41.6	38.1	36.3	36.3	36.3	45.7	46.7	43.3
Evening	Max	49.1	71.6	36.0	49.0 60.0	57.0	43.0 51.0	49.0	43.0	40.0	36.0	36.0	36.0	24	Hour CNEL (	dBA)
Energy	Average	45.5	Ave	erage:	53.0	50.7	47.0	45.0	39.3	38.0	36.0	36.0	36.0			
Night	Min	37.6	51.4	36.0	45.0	44.0	40.0	39.0	36.0	36.0	36.0	36.0	36.0		50 8	
Energy	Max Average	48.1	66.3 Ave	38.9 erage:	60.0 51.6	58.0 49.7	52.0 45.9	50.0	46.0	43.0	40.0	39.0	39.0		30.0	
2110169		10.0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		31.0	13.1	.3.3	1.1.5	1 10.1	30.2	37.5	37.0	37.0			



APPENDIX 7.1:

**OFF-SITE TRAFFIC NOISE CONTOURS** 





	FH	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	N MOI	DEL			
Scenar Road Nam Road Segmei	io: Existing ie: SR-74 nt: n/o Theda	St.				Project N Job Nur	lame: J mber: 1	IS 63 12374	MX		
SITE	SPECIFIC IN	NPUT DATA				NC	DISE N	IODE	L INPUT	s	
Highway Data				S	ite Con	ditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	26,059 vehicle	s				1	Autos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	(xles):	15		
Peak H	lour Volume:	2,009 vehicle	s		He	avy Truck	s (3+ A	(xles):	15		
Ve	hicle Speed:	60 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	48 feet		F	Veh	icleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						Au	itos:	77.5%	14.0%	10.5%	6 92.00%
Bai	rrier Height:	0.0 feet			М	edium Tru	cks:	48.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			1	Heavy Tru	cks:	48.0%	2.0%	50.0%	5.00%
Centerline Dis	st. to Barrier:	64.0 feet		N	oise Sr	ource Elev	vations	: (in fe	pet)		
Centerline Dist.	to Observer:	64.0 feet			0.00 00	Autos	0.0	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2.2	97			
Observer Height (	Above Pad):	5.0 feet			Heav	/v Trucks:	8.0	006	Grade Ad	iustmen	t: 0.0
Pa	ad Elevation:	0.0 feet							,		
Roa	ad Elevation:	0.0 feet		Li	ane Eq	uivalent L	Distanc	e (in i	feet)		
	Road Grade:	0.0%				Autos:	59.5	540			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	59.3	391			
	Right View:	90.0 degre	es		Heav	y Trucks:	59.4	106			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	73.22	-0.42		-1.24		-1.20		-4.70	0.0	000	0.000
Medium Trucks:	83.68	-15.29		-1.22		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	87.33	-13.07		-1.23		-1.20		-5.31	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	/ Le	eq Eve	ening	Leq N	ight		Ldn	C	NEL
Autos:	70	).4	69.6		68.2		62.2		70.6	6	71.2
Medium Trucks:	66	3.0	63.1		55.3		64.6		70.7	,	70.7
Heavy Trucks:	Heavy Trucks: 71.8 69.0						70.4		76.6	6	76.6
Vehicle Noise:	74	1.8	72.8		69.2		71.9		78.4	Ļ	78.5
Centerline Distant	ce to Noise C	ontour (in feet	)	_			_				
				70 dł	BA	65 dE	BA	6	60 dBA	55	5 dBA
		-	Ldn:	231		498	3		1,073	2	,311
		C	VEL:	236	ō	509	)		1,096	2	,361

Scenario: E: Road Name: SI Road Segment: s/ SITE SPEC Highway Data Average Daily Traffi Peak Hour Peor Peak Hour Peor Peak Hour Vehicle Near/Far Lane Di Site Data	xisting R-74 o Theda SI CIFIC INF ic (Adt): 29 entage: /olume: 2 Speed: istance:	t. PUT DATA 9,216 vehicles 7.71% 2,253 vehicles	3		Site Con	Project Na Job Nun NO	ame: J: nber: 1: ISE M	5 63 M 2374 ODEI		8	
SITE SPE Highway Data Average Daily Traff Peak Hour Perc Peak Hour Vehicle Near/Far Lane D Site Data	CIFIC INF ic (Adt): 29 entage: /olume: 20 Speed: istance:	9,216 vehicles 7.71% 2,253 vehicles	5		Site Con	NO ditions (H	ISE M	ODEL	INPUT:	5	
Highway Data Average Daily Traffi Peak Hour Verc Peak Hour V Vehicle Near/Far Lane Di Site Data	ic (Adt): 29 entage: /olume: 2 Speed: istance:	9,216 vehicles 7.71% 2,253 vehicles	5		Site Con	ditions (H	ord - 1			-	
Average Daily Traffi Peak Hour Perc Peak Hour V Vehicle Near/Far Lane D Site Data	ic (Adt): 29 entage: /olume: 2 Speed: istance:	9,216 vehicles 7.71% 2,253 vehicles	5			4140110 (11	aru = r	<i>0, So</i>	ft = 15)		
Peak Hour Perc Peak Hour V Vehicle Near/Far Lane Di Site Data	entage: /olume: 2 Speed: istance:	7.71% 2,253 vehicles					Α	utos:	15		
Peak Hour \ Vehicle Near/Far Lane Di Site Data	/olume: 2 Speed: istance:	2,253 vehicles			Me	dium Truci	ks (2 A)	des):	15		
Vehicle Near/Far Lane Di Site Data	Speed: istance:	CO much	5		He	avy Trucks	s (3+ A)	des):	15		
Near/Far Lane Di Site Data	istance:	oo mpn			Vehicle I	<i>lix</i>					
Site Data		48 feet			Veh	cleType	L	ay 🛛	Evening	Night	Daily
Barriar						Au	os: 7	7.5%	14.0%	10.5%	92.00%
Ddirier	Heiaht:	0.0 feet			Me	edium Truc	ks: 4	8.0%	2.0%	50.0%	3.00%
Barrier Type (0-Wall, 1	-Berm):	0.0			ŀ	leavy Truc	:ks: 4	8.0%	2.0%	50.0%	5.00%
Centerline Dist. to	Barrier:	64.0 feet		H	Noiso Se	urco Elov	ations	(in fo	of		
Centerline Dist. to Ol	bserver:	64.0 feet		ť	10/30 00	Autor	0.00	0	017		
Barrier Distance to Ol	bserver:	0.0 feet			Modiu	n Trucke:	2.20	70			
Observer Height (Abov	/e Pad):	5.0 feet			Heer	n Trucks.	2.23	20	Grado Ad	ustmont	0.0
Pad El	evation:	0.0 feet			neav	y mucks.	0.00	00	onduc Auj	usunoni.	0.0
Road El	evation:	0.0 feet			Lane Eq	ivalent D	istance	e (in f	eet)		
Road	Grade:	0.0%				Autos:	59.5	40			
Le	ft View:	-90.0 degree	s		Mediur	n Trucks:	59.3	91			
Rigi	ht View:	90.0 degree	s		Heav	y Trucks:	59.4	06			
FHWA Noise Model Ca	lculations										
VehicleType R	EMEL	Traffic Flow	Dist	tance	Finite	Road	Fresne	1 1	Barrier Att	en Beri	n Atten
Autos:	73.22	0.08		-1.2	4	-1.20	-	4.70	0.0	00	0.000
Medium Trucks:	83.68	-14.79		-1.2	2	-1.20		4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.57		-1.2	3	-1.20	-	5.31	0.0	00	0.000
Unmitigated Noise Lev	els (witho	ut Topo and	barrie	r atten	nuation)						
VehicleType Leq	Peak Hour	· Leq Day		Leq E	vening	Leq Ni	ght		Ldn	CI	IEL
Autos:	70.9	9	70.1		68.7		62.7		71.1		71.7
Medium Trucks:	66.	5 (	53.6		55.8		65.0		71.2		71.2
Heavy Trucks:	72.3	3 (	69.5		61.7		70.9		77.1		77.1
Vehicle Noise:	75.3	3	73.3		69.7		72.4		78.9	)	79.0
Centerline Distance to	Noise Co	ntour (in feet)	1	70	-10.4	05 -15			0.104		-10.4
				700	40	05 dB	м	0	159	55	
		~	Lun:	24	49 66	537		1	192	2,4	194
		Cr	VEL:	23	55	549			,103	2,5	140

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Scenario: Existing Road Name: SR-74 Road Segment: n/o Ethanac Rd. Project Name: JS 63 MX Job Number: 12374 SITE SPECIFIC INPUT DATA
Highway Data NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15) Autos: 15 Average Daily Traffic (Adt): 27,965 vehicles Peak Hour Percentage: 7.71% Peak Hour Volume: 2,156 vehicles Vehicle Speed: 60 mph Near/Far Lane Distance: 48 feet Medium Trucks (2 Axles): Heavy Trucks (3+ Axles): Vehicle Mix Vehicle Type Day Evening Night Daily Autos: 77.5% 14.0% 10.5% 92.00% Site Data Barrier Cer Cente Barrier Observe

one Data						10100.	11.07	0 14.070	10.070	52.0070
Ba	rrier Heiaht:	0.0 feet		М	edium Tr	ucks:	48.0%	5 2.0%	50.0%	3.00%
Barrier Type (0-V	Vall, 1-Berm):	0.0			Heavy Tr	ucks:	48.0%	5 2.0%	50.0%	5.00%
Centerline D	ist. to Barrier:	59.0 feet		Noise Su	ource El	evation	s (in f	eet)		
Centerline Dist.	to Observer:	59.0 feet			Autos	. 01	000	000		
Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucki	s. 0.	207			
Observer Height	(Above Pad):	5.0 feet		Hoo	a Trucks	5. Z.i	201	Grade Adi	iustmont	. 0.0
P	ad Elevation:	0.0 feet		i ica	ly mucks	s. 0.	000	Grade Adj	usunem	. 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%			Autos	s: 54.	129			
	Left View:	-90.0 degrees	6	Mediu	m Trucks	53.	966			
	Right View:	90.0 degrees	6	Hear	y Trucks	s: 53.	982			
FHWA Noise Mod	el Calculation	s							-	
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresr	iel	Barrier Atte	en Bei	m Atten
Autos:	73.22	-0.11	-0	).62	-1.20		-4.69	0.0	000	0.000
Medium Trucks:	83.68	-14.98	-0	.60	-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.76	-0	0.60	-1.20		-5.35	0.0	000	0.000
<b>Unmitigated Nois</b>	e Levels (with	out Topo and b	arrier att	enuation)						
VehicleType	Leg Peak Hou	Ir Leq Day	Leq	Evening	Leq I	Night		Ldn	C	NEL
Autos:	71	.3 7	0.5	69.1		63.1		71.5	5	72.2
Medium Trucks:	66	.9 6	4.1	56.3		65.5	5	71.6	6	71.7
Heavy Trucks:	72	.8 6	9.9	62.1		71.3	3	77.5	5	77.5
Vehicle Noise:	75	.7 7	3.7	70.1		72.8	3	79.3	3	79.4
Centerline Distan	ce to Noise Co	ontour (in feet)								
		,,	7	0 dBA	65 0	dBA		60 dBA	55	dBA
		L	dn:	246	52	29		1,141	2,	458
		CN	FL:	251	54	11		1.165	2	511

15 15

	FH	WA-RD-77-10	B HIGHW	VAY NO	DISE PI	REDICTIC	ON MODE	L			
Scenai Road Nan Road Segme	rio: Existing ne: SR-74 ent: s/o Ethana	ic Rd.				Project N Job Nu	lame: JS mber: 12	63 MX 374			
SITE	SPECIFIC II	VPUT DATA				NC	DISE MO	DEL INPU	JTS		-
Highway Data				S	ite Con	ditions (I	Hard = 10	, Soft = 15)			-
Average Daily	Traffic (Adt):	28,879 vehicle	s				Au	tos: 15			
Peak Hour	Percentage:	7.71%			Me	dium Truc	cks (2 Axl	es): 15			
Peak I	our Volume:	2,227 vehicle	s		He	avy Truck	is (3+ Axl	es): 15			
Ve	ehicle Speed:	60 mph		V	obielo I	Mix					
Near/Far La	ne Distance:	120 feet		V	Voh	icleType	De	Evenin	na Mi	iaht	Daily
Site Data				-	VCII	Δι	itos: 77	5% 14.0	9 / 1/ % 1/	0.5%	92.00%
one Data		0.0.6		_	M	edium Tru	nos. 11 icks: 48	.0% 2.0	% 50	0.0%	3.00%
Barrier Turne (0.1	rrier Height:	0.0 feet			F	leavy Tru	cks: 48	0% 2.0	% 50	0.0%	5.00%
Contorlino D	iat to Berrier	0.0 110.0 feet									
Contorlino Dist	to Obsonior:	110.0 feet		N	oise So	ource Ele	vations (	in feet)			
Barriar Distance	to Observer:	0.0 feet				Autos:	0.000	D			
Ohserver Height	(Above Pad):	5.0 feet			Mediu	m Trucks:	2.29	7			
P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.006	6 Grade	Adjust	ment:	0.0
Ro	ad Elevation:	0.0 feet		Li	ane Eq	uivalent I	Distance	(in feet)			
	Road Grade:	0.0%				Autos:	92.33	1			-
	Left View:	-90.0 deare	es		Mediu	m Trucks:	92.23	5			
	Right View:	90.0 degre	es		Heav	y Trucks:	92.24	4			
FHWA Noise Mod	el Calculatior	IS									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresnel	Barrier	Atten	Berr	n Atten
Autos:	73.22	0.03		-4.10		-1.20	-4.	78	0.000	-	0.000
Medium Trucks:	83.68	-14.84		-4.09		-1.20	-4.	88	0.000		0.000
Heavy Trucks:	87.33	-12.62		-4.09		-1.20	-5.	14	0.000		0.000
Unmitigated Nois	e Levels (with	nout Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y L	Leq Eve	ening	Leq N	light	Ldn		CN	IEL
Autos:	6	7.9	67.2		65.8		59.7	6	8.2		68.8
Medium Trucks:	6	3.6	60.7		52.9		62.1	6	8.3		68.3
Heavy Trucks:	6	9.4	66.6		58.8		68.0	7	4.1		74.2
Vehicle Noise:	7:	2.4	70.4		66.7		69.5	7	5.9		76.1
Centerline Distan	ce to Noise C	ontour (in fee	t)								
				70 dE	ЗA	65 di	BA	60 dBA		55 (	dBA
			Ldn:	274		590	)	1,272		2,7	′40
		C	NEL:	280	)	603	3	1,299		2,7	′99

#### Tuesday, January 21, 2020

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	FH\	NA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	N MOD	DEL			
Scenari Road Nam Road Segmer	io: Existing ie: SR-74 nt: n/o River R	td.				Project N Job Nur	ame: J nber: 1	S 63 2374	MX		
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODE	L INPUTS	5	
Highway Data				S	ite Con	ditions (H	lard = 1	10, Se	oft = 15)		
Average Daily	Traffic (Adt):	29,949 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,309 vehicle	s		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	60 mph		14	chiele	Mise					
Near/Far La	ne Distance:	120 feet			Voh	ioloTuno	1	2014	Evoning	Night	Daily
Site Data					Ven	Au	tos: 7	7.5%	14.0%	10.59	6 92.00%
Ba	wier Height	0.0 feet			М	edium Tru	cks: 4	18.0%	2.0%	50.0%	6 3.00%
Parriar Tupo (0.W	filer fileight.	0.0 1001				Heavy True	cks: 4	18.0%	2.0%	50.0%	6 5.00%
Centerline Dis	st. to Barrier:	110.0 feet									
Centerline Dist.	to Observer:	110.0 feet		N	oise So	burce Elev	ations	(in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height (	Above Pad):	5.0 feet			Mediu	m Trucks:	2.2	97	Our de Adi		
Pa	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	06	Grade Adj	ustmer	n: 0.0
Roa	ad Elevation:	0.0 feet		Li	ane Eq	uivalent D	istanc	e (in	feet)		
1	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	92.2	35			
	Right View:	90.0 degre	es		Heav	y Trucks:	92.2	44			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fresne	e/	Barrier Atte	en Be	erm Atten
Autos:	73.22	0.19		-4.10		-1.20	-	4.78	0.0	00	0.000
Medium Trucks:	83.68	-14.68		-4.09		-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.46		-4.09		-1.20	-	5.14	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Hou	ur Leq Daj	/ Le	eq Eve	ening	Leq Ni	ght		Ldn	(	CNEL
Autos:	68	3.1	67.3		65.9		59.9		68.4		69.0
Medium Trucks:	63	3.7	60.9		53.1		62.3		68.4		68.5
Heavy Trucks:	Heavy Trucks: 69.6 6						68.1		74.3		74.3
Vehicle Noise:	72	70.5		66.9		69.6		76.1		76.2	
Centerline Distance	ce to Noise Co	ontour (in feet	)								
				70 dł	BA	65 dE	BA		60 dBA	5	5 dBA
			Ldn:	281	I	605			1,303	2	2,808
		С	NEL:	287	7	618			1,331	2	2,868

	FHV	VA-RD-77-108 H	IIGHW.	AY NC		REDICTIO					
Scenari	o: Existing					Project Na	ame: J	S 63 I	ЛХ		
Road Nam	e: SR-74					Job Nun	nber: 1	2374			
Road Segmer	at: s/o River R	d.									
SITE	SPECIFIC IN	PUT DATA				NO	ISE M	ODE		S	
Highway Data				S	ite Con	ditions (H	ard =	10, Sc	ft = 15)		
Average Daily	Traffic (Adt): 2	9,404 vehicles					A	lutos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truck	ks (2 A	xles):	15		
Peak H	our Volume:	2,267 vehicles			He	avy Trucks	; (3+ A	xles):	15		
Vel	nicle Speed:	60 mph		V	ehicle I	<i>lix</i>					
Near/Far Lar	ne Distance:	120 feet			Vehi	cleType	l	Day	Evening	Night	Daily
Site Data						Aut	os: 7	77.5%	14.0%	10.5%	92.00%
Bar	rier Height:	0.0 feet			Me	edium Truc	ks: 4	18.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Truc	ks: 4	18.0%	2.0%	50.0%	5.00%
Centerline Dis	t. to Barrier:	110.0 feet		N	oise So	urce Elev	ations	(in fe	et)		
Centerline Dist.	to Observer:	110.0 feet		-		Autos:	0.0	00			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks	2.2	97			
Observer Height (J	Above Pad):	5.0 feet			Heav	v Trucks:	8.0	06	Grade Ad	iustment	: 0.0
Pa	d Elevation:	0.0 feet				,					
Roa	d Elevation:	0.0 feet		Li	ane Equ	ivalent D	istanc	e (in f	eet)		
F	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degrees	5		Mediur	n Trucks:	92.2	35			
	Right View:	90.0 degrees	5		Heav	y Trucks:	92.2	44			
FHWA Noise Mode	Calculation	5		-							
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresne	el	Barrier Att	en Ber	m Atten
Autos:	73.22	0.11		-4.10		-1.20	-	4.78	0.0	000	0.000
Medium Trucks:	83.68	-14.76		-4.09		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.54		-4.09		-1.20	-	5.14	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and b	arrier a	attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Eve	ening	Leq Ni	ght		Ldn	CI	NEL
Autos:	68	.0 6	7.3		65.8		59.8		68.3	3	68.9
Medium Trucks:	63	.6 6	0.8		53.0		62.2		68.4	ļ	68.4
Heavy Trucks:	69	.5 6	6.6		58.9		68.1		74.2	2	74.3
Vehicle Noise:	72	.4 7	0.5		66.8		69.6		76.0	)	76.2
Contorlino Diotono	e to Noise Co	ontour (in feet)	-	70 -1	24	05 -10			0 -0 4		-10.4
Centernine Distanc				(1) AF		65 dB	A	6	υαΒΑ	55	abA
Centernine Distanc				077	,	00 0D			007	~	770
Cemenine Distanc		L	dn:	277		598			1,287	2,	773

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Scenario: Existing Road Name: SR-74 Project Name: JS 63 MX Job Number: 12374 Road Segment: s/o Meadowbrook Av SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15) Highway Data Autos: Average Daily Traffic (Adt): 33,060 vehicles 15 Peak Hour Percentage: 7.71% Medium Trucks (2 Axles): 15 Peak Hour Volume: 2,549 vehicles Heavy Trucks (3+ Axles): 15 Vehicle Speed: 60 mph Vehicle Mix Near/Far Lane Distance: 120 feet pe Day Evening Night Daily Autos: 77.5% 14.0% 10.5% 92.00% VehicleType Site Data Medium Trucks: 48.0% 2.0% 50.0% 3.00% Barrier Height: Barrier Type (0-Wall, 1-Berm): 0.0 feet 0.0 Heavy Trucks: 48.0% 2.0% 50.0% 5.00% Centerline Dist. to Barrier: Centerline Dist. to Observer: 110.0 feet Noise Source Elevations (in feet) 110.0 feet 0.000 Autos: Barrier Distance to Observer: 0.0 feet Medium Trucks: 2.297 Observer Height (Above Pad): 5.0 feet Heavy Trucks: 8.006 Grade Adjustment: 0.0 Pad Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Elevation: 0.0 feet Autos: Medium Trucks: Road Grade: 0.0% 92.331 92.235 Left View: -90.0 degrees Right View: 90.0 degrees Heavy Trucks: 92.244 FHWA Noise Model Calculations VehicleType REMEL Autos: 73.22 Traffic Flow Distance Finite Road Fresnel Barrier Atten Berm Atten -4.78 0.000 0.00 0.61 -4.10 0.000 Medium Trucks: 83.68 -14.25 -4.09 -1.20 -4.88 0.000 0.000 Heavy Trucks: 87.33 -12.03 -4.09 -1.20 -5.14 0.000 0.000 Unmitigated Noise Levels (without Topo and barrier attenuation) 
 VehicleType
 Leq Peak Hour
 Leq Day
 Leq Evening

 Autos:
 68.5
 67.8
 66.4
 Leq Night 60.3 Ldn CNEL 69.4 68.8 68.9 74.7 Medium Trucks: 64.1 61.3 53.5 62.7 68.9 Heavy Trucks: 70.0 67.1 59.4 68.6 74.8 Vehicle Noise: 73.0 76.7 71.0 67.3 70.1 76.5 Centerline Distance to Noise Contour (in feet) 60 dBA 70 dBA 65 dBA 55 dBA Ldn: 300 646 1,392 2,999 1,422 CNEL: 306 660 3,063

		A-RD-77-1001	IIGHW/			LDICTIO						
Scenar	io: Existing					Project N	ame:	JS 63	MX			
Road Nam	ne: Ethanac Rd.					Job Nur	nber:	12374				
Road Segme	nt: w/o SR-74											
SITE	SPECIFIC INI	PUT DATA				NO	ISE	MODE	L INPU	TS		
Highway Data				S	ite Con	ditions (H	lard =	= 10, S	oft = 15)			
Average Daily	Traffic (Adt):	162 vehicles						Autos.	15			
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2	Axles).	15			
Peak H	lour Volume:	12 vehicles			He	avy Truck	s (3+.	Axles).	: 15			
Ve	hicle Speed:	40 mph		v	ohicle I	Aix						
Near/Far La	ne Distance:	12 feet		F	Vehi	cleType		Day	Evening	Nic	aht	Daily
Site Data						Au	tos:	75.5%	6 14.09	6 10	.5%	97.42%
Ba	rrier Height	0.0 feet			Me	dium Tru	cks:	48.9%	6 2.29	6 48	.9%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			F	leavy Tru	cks:	47.3%	5.4%	6 47	.3%	0.74%
Centerline Di	st. to Barrier:	37.0 feet			loise So	urce Flev	ation	ns (in f	eet)			
Centerline Dist.	to Observer:	37.0 feet		F	0.00 00	Autos:	0	000	000			
Barrier Distance	to Observer:	0.0 feet			Modiur	n Trucke	2	207				
Observer Height	(Above Pad):	5.0 feet			Hoav	v Trucke	8	006	Grade A	diustr	nent <sup>.</sup>	0.0
P	ad Elevation:	0.0 feet			neav	y mucho.	0.	.000	0,000,	ajuou		0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivalent D	listan	ice (in	feet)			
	Road Grade:	0.0%				Autos:	36	.851				
	Left View:	-90.0 degrees	6		Mediur	n Trucks:	36	.610				
	Right View:	90.0 degrees	6		Heav	y Trucks:	36	.634				
FHWA Noise Mod	el Calculations	:										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fres	nel	Barrier A	tten	Berr	n Atten
Autos:	66.51	-20.47		1.88		-1.20		-4.56	(	0.000		0.000
Medium Trucks:	77.72	-37.71		1.93		-1.20		-4.87	(	0.000		0.000
Heavy Trucks:	82.99	-41.67		1.92		-1.20		-5.61	(	0.000		0.000
Unmitigated Noise	e Levels (witho	ut Topo and b	arrier a	tenı	uation)							-
VehicleType	Leq Peak Hour	r Leq Day	Le	q Ev	ening	Leq Ni	ght		Ldn		CN	IEL
Autos:	46.	7 4	5.8		44.5		38.	5	46	3.9		47.6
Medium Trucks:	40.	7 3	8.0		30.5		39.	2	4	i.4		45.4
Heavy Trucks:	42.	1 3	9.1		35.7		40.	4	46	i.6		46.7
Vehicle Noise:	48.	7 4	7.2		45.2		44.	2	5	1.1		51.4
Centerline Distant	ce to Noise Co	ntour (in feet)										
				70 d	BA	65 dE	3A		60 dBA		55	dBA
		L	dn:	2		4			9		2	.0
		CN	EL:	2		5			10		2	.1

Tuesday, January 21, 2020

Tuesday, January 21, 2020

	FH	WA-RD-77-108	HIGHW	AY N	DISE PI	REDICTIO	N MOI	DEL			
Scenar Road Narr Road Segme	io: E+P ne: SR-74 nt: n/o Theda	St.				Project N Job Nur	'ame: J nber: 1	IS 63 2374	MX		
SITE	SPECIFIC IN	NPUT DATA				NC	ISE N	IODE	L INPUTS	5	
Highway Data				S	ite Con	ditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	26,248 vehicle	s				1	Autos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,024 vehicle	s		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	60 mph		L.	ohiclo	Mix					
Near/Far La	ne Distance:	48 feet			Voh	icleTvne		Dav	Evening	Night	Daily
Site Data					von	Au	tos:	77.5%	14.0%	10.5%	92.00%
Ba	rrier Height	0.0 feet			М	edium Tru	cks:	48.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	/all_1-Berm):	0.0			1	Heavy Tru	cks:	48.0%	2.0%	50.0%	5.00%
Centerline Di	st. to Barrier:	64.0 feet		-							
Centerline Dist.	to Observer:	64.0 feet		N	oise So	burce Elev	ations		eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	000			
Observer Height	(Above Pad):	5.0 feet			Mediu	m Trucks:	2.2	97	Crada Adi		
P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	106	Grade Adj	usunem	. 0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent D	Distanc	e (in	feet)		
	Road Grade:	0.0%				Autos:	59.5	540			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	59.3	891			
	Right View:	90.0 degre	es		Heav	y Trucks:	59.4	106			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Bei	rm Atten
Autos:	73.22	-0.39		-1.24		-1.20		-4.70	0.0	00	0.000
Medium Trucks:	83.68	-15.25		-1.22		-1.20		4.88	0.0	00	0.000
Heavy Trucks:	87.33	-13.04		-1.23		-1.20		-5.31	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ L	eq Ev	ening	Leq N	ight		Ldn	С	NEL
Autos:	70	).4	69.6		68.2		62.2		70.7		71.3
Medium Trucks:	66	3.0	63.2		55.4		64.6		70.7		70.8
Heavy Trucks:	Heavy Trucks: 71.9 69.0						70.4		76.6	;	76.6
Vehicle Noise:	74	1.8	72.8		69.2		71.9		78.4	Ļ	78.5
Centerline Distant	ce to Noise C	ontour (in fee	)								
				70 d	BA	65 dE	BA	6	60 dBA	55	dBA
			Ldn:	232	2	500	)		1,078	2	323
		С	NEL:	23	7	511			1,101	2	372

	FHV	VA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTIO	N MOD	EL			
Scenari Road Nam	o: E+P e: SR-74					Project N Job Nun	ame: JS nber: 12	63 M 2374	ЛХ		
Road Segmer	nt: s/o Theda S	St.									
SITE S	SPECIFIC IN	PUT DATA				NO	ISE M	ODEI		S	
Highway Data				S	ite Con	ditions (H	ard = 1	0, So	ft = 15)		
Average Daily	Traffic (Adt): 2	9,426 vehicles	6				A	utos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truci	ks (2 A)	(les):	15		
Peak H	our Volume:	2,269 vehicles	6		He	avy Trucks	s (3+ Ax	les):	15		
Vel	hicle Speed:	60 mph		V	ehicle I	Mix					
Near/Far Lar	ne Distance:	48 feet			Veh	icleType	E	ay	Evening	Night	Daily
Site Data						Au	tos: 7	7.5%	14.0%	10.5%	92.00%
Bar	rier Heiaht:	0.0 feet			Me	edium Truc	:ks: 4	8.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all. 1-Berm):	0.0			ŀ	leavy Truc	:ks: 4	8.0%	2.0%	50.0%	5.00%
Centerline Dis	t. to Barrier:	64.0 feet			oloo Ce	uree Elev	ationa	lin fo	<b>c</b> .4)		
Centerline Dist.	to Observer:	64.0 feet		/	use sc	Autoou	auons		el)		
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucks:	2.20	70			
Observer Height (J	Above Pad):	5.0 feet			Hoon	a Trucks:	2.23	10	Grade Ad	iustment	0.0
Pa	d Elevation:	0.0 feet			Tieav	y muchs.	0.00	0	0/440 / 14	dounoni.	0.0
Roa	d Elevation:	0.0 feet		L	ane Eq	uivalent D	istance	e (in f	eet)		
F	Road Grade:	0.0%				Autos:	59.54	10			
	Left View:	-90.0 degree	s		Mediur	m Trucks:	59.39	91			
	Right View:	90.0 degree	es		Heav	y Trucks:	59.40	)6			
FHWA Noise Mode	Calculation:	5		-							
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	1 1	Barrier Att	en Ber	m Atten
Autos:	73.22	0.11		-1.24		-1.20	-4	1.70	0.0	000	0.000
Medium Trucks:	83.68	-14.76		-1.22		-1.20	-4	1.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.54		-1.23		-1.20	-{	5.31	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	L	.eq Eve	ening	Leq Ni	ght		Ldn	CI	VEL
Autos:	70	.9	70.1		68.7		62.7		71.1		71.8
Medium Trucks:	66	.5	63.7		55.9		65.1		71.2	2	71.3
Heavy Trucks:	12	.4	69.5		61.7		70.9		//.1		//.1
Vehicle Noise:	75	.3	73.3		69.7		72.4		78.9	)	79.0
		ntour (in feet	)								
Centerline Distanc	e to Noise Co	intour (in root)		70 4	34	65 40		6	ΩdRΔ	55	ana
Centerline Distanc	e to Noise Co	intour (in root)	I dn:	70 dl	BA	65 dB	A	6	0 dBA	55	<i>dBA</i> 506
Centerline Distanc	e to Noise Co	<u></u>	Ldn:	70 dl 251	BA I	65 dB 540	A	6	0 dBA 1,163 1 188	2,	<i>dBA</i> 506 560

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL Scenario: E+P Road Name: SR-74 Road Segment: n/o Ethanac Rd. Project Name: JS 63 MX Job Number: 12374 NOISE MODEL INPUTS Site Conditions (Hard = 10, Soft = 15) Autos: 15 SITE SPECIFIC INPUT DATA Highway Data Average Daily Traffic (Adt): 28,175 vehicles Peak Hour Percentage: 7.71% Medium Trucks (2 Axles): 15 Peak Hour Volume: 2,172 vehicles Vehicle Speed: 60 mph Heavy Trucks (3+ Axles): 15 Vehicle Mix 
 Ucle Mix
 Day
 Evening
 Night
 Daily

 VehicleType
 Day
 Evening
 Night
 Daily

 Autos:
 77.5%
 14.0%
 10.5%
 92.00%

 Medium Trucks:
 48.0%
 2.0%
 50.0%
 3.00%

 Heavy Trucks:
 48.0%
 2.0%
 50.0%
 5.00%
 Near/Far Lane Distance: 48 feet Site Data Barrier Height: Barrier Type (0-Wall, 1-Berm): 0.0 feet 0.0 59.0 feet 59.0 feet Centerline Dist. to Barrier: Centerline Dist. to Observer: Noise Source Elevations (in feet) Autos: 0.000 Medium Trucks: 2.297 Heavy Trucks: 8.006 Barrier Distance to Observer: Observer Height (Above Pad): 0.0 feet 5.0 feet Grade Adjustment: 0.0 Pad Elevation: 0.0 feet Lane Equivalent Distance (in feet) Road Elevation: 0.0 feet Autos: 54.129 Medium Trucks: 53.966 Road Grade: 0.0% -90.0 degrees Left View: Right View: 90.0 degrees Heavy Trucks: 53.982

FHWA Noise Mod	lel Calculation	s					
VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	73.22	-0.08	-0.62	-1.20	-4.69	0.000	0.000
Medium Trucks:	83.68	-14.95	-0.60	-1.20	-4.88	0.000	0.000
Heavy Trucks:	87.33	-12.73	-0.60	-1.20	-5.35	0.000	0.000
Unmitigated Nois	e Levels (with	out Topo and b	arrier attenu	ation)			
VehicleType	Leq Peak Hou	ır Leq Day	Leq Eve	ening Leq	Night	Ldn	CNEL
Autos:	71	.3 7	0.6	69.1	63.1	71.6	72.2
Medium Trucks:	66	.9 6	4.1	56.3	65.5	71.7	71.7
Heavy Trucks:	72	.8 6	9.9	62.2	71.4	77.5	77.6
Vehicle Noise:	75	.7 7	3.8	70.1	72.9	79.3	79.5
Centerline Distan	ce to Noise Co	ontour (in feet)					
			70 dł	BA 65	i dBA	60 dBA	55 dBA
		L	dn: 247	' 5	532	1,146	2,470
		CN	EL: 252	2 5	544	1,171	2,523

	FR	WA-RD-77-108	HIGHV	VATIN	DISE PR	REDICI		EL				
Scena	rio: E+P					Project	Name: J	S 63 I	ΛX			
Road Nar	ne: SR-74					Job N	lumber: 1	2374				
Road Segme	ent: s/o Ethana	ic Rd.										
SITE	SPECIFIC II	NPUT DATA				Ν	IOISE M	ODE		s		
Highway Data				S	ite Con	ditions	(Hard = 1	10, So	ft = 15)			
Average Daily	Traffic (Adt):	29,089 vehicle	s				A	utos:	15			
Peak Hou	r Percentage:	7.71%			Me	dium Tr	ucks (2 A	xles):	15			
Peak I	Hour Volume:	2,243 vehicle	s		He	avy Tru	cks (3+ A.	xles):	15			
Ve	ehicle Speed:	60 mph		V	ohiclo I	Niv						-
Near/Far La	ane Distance:	120 feet		v	Veh	icleTvne		Dav	Evening	Niaht	Daily	-
Site Data				-		0.01300	Autos: 7	77.5%	14.0%	10.59	% 92.00%	1
Be	wier Height	0.0 feet			Me	edium T	rucks: 4	18.0%	2.0%	50.09	% 3.00%	10
Parriar Type (0.1	Vall 1 Porm):	0.0 leet			F	leavv T	rucks: 4	18.0%	2.0%	50.09	% 5.00%	6
Centerline D	ist to Barrier	110.0 feet		-								_
Centerline Dist.	to Observer:	110.0 feet		N	loise Sc	ource El	evations	(in fe	et)			_
Barrier Distance	to Observer:	0.0 feet				Auto	s: 0.0	00				
Observer Height	(Above Pad):	5.0 feet			Mediui	n Truck	s: 2.2	97				
F	ad Elevation:	0.0 feet			Heav	y Truck	s: 8.0	06	Grade Ad	ustmei	nt: 0.0	
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalen	Distanc	e (in f	eet)			Ī
	Road Grade:	0.0%				Auto	s: 92.3	31				Ī
	Left View:	-90.0 degre	es		Mediur	n Truck	s: 92.2	35				
	Right View:	90.0 degre	es		Heav	y Truck	s: 92.2	44				
FHWA Noise Mod	lel Calculatior	is										-
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el i	Barrier Att	en Be	erm Atten	Ī
Autos:	73.22	0.06		-4.10		-1.20	-	4.78	0.0	000	0.00	C
Medium Trucks:	83.68	-14.81		-4.09		-1.20	-	4.88	0.0	000	0.00	C
Heavy Trucks:	87.33	-12.59		-4.09		-1.20	-	5.14	0.0	000	0.00	С
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)						-	
VehicleType	Leq Peak Ho	ur Leq Da	V 1	Leq Ev	ening	Leq	Night		Ldn	(	CNEL	
Autos:	6	8.0	67.2		65.8		59.8		68.2	2	68.	g
Medium Trucks:	6	3.6	60.7		53.0		62.2		68.3	3	68.	3
Heavy Trucks:	6	9.4	66.6		58.8		68.0		74.2	2	74.	2
Vehicle Noise:	73	2.4	70.4		66.8		69.5		76.0	)	76.	1
Centerline Distan	ce to Noise C	ontour (in fee	!)									
				70 di	BA	65	dBA	6	0 dBA	5	5 dBA	
			Ldn:	275	5	5	93		1,278	1	2,754	
		C	NEL:	281	1	6	06		1,306		2,813	

Tuesday, January 21, 2020

Tuesday, January 21, 2020

	FH	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIC	N MOE	DEL			
Scenar Road Narr Road Segme	io: E+P ne: SR-74 nt: n/o River F	łd.				Project N Job Nui	lame: J mber: 1	S 63 M 2374	МХ		
SITE	SPECIFIC IN	NPUT DATA				NC	DISE N	ODE		s	
Highway Data				Si	ite Con	ditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	30,159 vehicles	6				A	utos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,325 vehicles	6		He	avy Truck	's (3+ A	xles):	15		
Ve	hicle Speed:	60 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	120 feet		-	Veh	icleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						AL	itos:	7.5%	14.0%	10.5%	92.00%
Ba	rrier Height	0.0 feet			М	edium Tru	cks: 4	48.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	/all, 1-Berm):	0.0			1	Heavy Tru	cks: 4	18.0%	2.0%	50.0%	5.00%
Centerline Di	st. to Barrier:	110.0 feet		N	nisa Sr	ource Ele	vations	(in fe	of)		
Centerline Dist.	to Observer:	110.0 feet			0/30 00	Autos:	0.0	00			
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucke	2.2	97			
Observer Height	Above Pad):	5.0 feet			Heav	n Trucks:	8.0	06	Grade Adi	iustmen	t: 0.0
P	ad Elevation:	0.0 feet			mour	<i>y maono.</i>	0.0				
Ro	ad Elevation:	0.0 feet		La	ane Eq	uivalent L	Distanc	e (in f	eet)		
	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degree	es		Mediu	m Trucks:	92.2	35			
	Right View:	90.0 degree	es		Heav	y Trucks:	92.2	44			
FHWA Noise Mod	el Calculation	s		-							
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el i	Barrier Atte	en Be	rm Atten
Autos:	73.22	0.22		-4.10		-1.20		4.78	0.0	000	0.000
Medium Trucks:	83.68	-14.65		-4.09		-1.20		4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.43		-4.09		-1.20		5.14	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	' Le	eq Eve	ening	Leq N	ight		Ldn	C	NEL
Autos:	68	3.1	67.4		66.0		59.9		68.4	ł	69.0
Medium Trucks:	63	3.7	60.9		53.1		62.3		68.5	5	68.5
Heavy Trucks:	69	9.6	66.8		59.0		68.2		74.3	}	74.4
Vehicle Noise:	72	2.6	70.6		66.9		69.7		76.1		76.3
Centerline Distant	ce to Noise C	ontour (in feet	)								
				70 dE	BA	65 dl	BA	6	0 dBA	55	i dBA
			Ldn:	282	2	608	3		1,309	2	,821
		Ci	VEL:	288	3	621			1,337	2	,881

	FHV	VA-RD-77-108	HIGH	IWAY N	OISE PF	REDICTIO	N MOL	DEL			
Scenari	io: E+P					Project N	ame: J	S 63 I	ЛХ		
Road Nam	ie: SR-74					Job Nun	nber: 1	2374			
Road Segmer	nt: s/o River R	d.									
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	IODE		s	
Highway Data				5	Site Con	ditions (H	ard =	10, Sc	ft = 15)		
Average Daily	Traffic (Adt): 2	29,614 vehicle	s				A	lutos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truci	ks (2 A	xles):	15		
Peak H	lour Volume:	2,283 vehicle	s		He	avy Trucks	s (3+ A	xles):	15		
Ve	hicle Speed:	60 mph		1	/ehicle	Nix					
Near/Far La	ne Distance:	120 feet		F	Veh	icleType	1	Day	Evening	Night	Daily
Site Data						Au	tos: T	77.5%	14.0%	10.5%	92.00%
Bai	rrier Height	0.0 feet			Me	edium Truc	ks: 4	18.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Truc	ks: 4	18.0%	2.0%	50.0%	5.00%
Centerline Dis	st. to Barrier:	110.0 feet			Voise Sc	urce Elev	ations	(in fe	et)		
Centerline Dist.	to Observer:	110.0 feet				Autos:	0.0	00			
Barrier Distance	to Observer:	0.0 feet			Modiu	n Trucke	2.2	97			
Observer Height (	Above Pad):	5.0 feet			Heav	v Trucke	8.0	06	Grade Ad	iustment	:00
Pa	ad Elevation:	0.0 feet			near	y mucho.	0.0	00			0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent D	istanc	e (in f	eet)		
I	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degree	es		Mediur	n Trucks:	92.2	35			
	Right View:	90.0 degree	es		Heav	y Trucks:	92.2	44			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresne	el	Barrier Att	en Ber	m Atten
Autos:	73.22	0.14		-4.10	)	-1.20	-	4.78	0.0	000	0.000
Medium Trucks:	83.68	-14.73		-4.09	9	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.51		-4.09	9	-1.20	-	5.14	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	er atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	1	Leq Ev	rening	Leq Ni	ght		Ldn	CI	VEL
Autos:	68	.1	67.3		65.9		59.9		68.3	3	68.9
Medium Trucks:	63	.7	60.8		53.0		62.2		68.4	1	68.4
Heavy Trucks:	69	.5	66.7		58.9		68.1		74.3	3	74.3
Vehicle Noise:	72	.5	70.5		66.9		69.6		76.1	1	76.2
Centerline Distance	ce to Noise Co	ontour (in feet	)	70		05.15					10.4
			L	70 0	IBA	65 dB	А	6	U dBA	55	aBA 707
			Lan:	27	э	600			1,293	2,	181
		~		~~~	<b>C</b>	010					

Tuesday, January 21, 2020

			_					_		_	_	
	FHW	VA-RD-77-108 I	HIGH	IWAY N	IOISE PI	REDICTIO	ON MO	DEL				
Scenar	io: E+P					Project I	Vame:	JS 63	MX			
Road Nam	ie: SR-74					Job Nu	mber:	12374				
Road Segme	nt: s/o Meadow	/brook Av.										
SITE	SPECIFIC IN	PUT DATA				N	DISE I	NODE	L INPU	TS		
Highway Data					Site Con	ditions (	Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt): 3	3,249 vehicles						Autos.	: 15			
Peak Hour	Percentage:	7.71%			Me	dium Tru	cks (2 /	Axles)	: 15			
Peak H	lour Volume:	2,564 vehicles			He	avy Truck	ks (3+ /	Axles)	: 15			
Ve	hicle Speed:	60 mph			Vohiclo	liv						
Near/Far La	ne Distance:	120 feet		F	Venicle	cleTvpe	1	Dav	Evenin	a N	iaht	Dailv
Site Data						A	utos:	77.5%	6 14.09	6 1	0.5%	92.00%
Ba	rrier Height	0.0 feet			Me	edium Tru	icks:	48.0%	6 2.09	6 5	0.0%	3.00%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tr.	icks:	48.0%	6 2.09	65	0.0%	5.00%
Centerline Di	st. to Barrier:	110.0 feet			Noise So	ource Ele	vation	s (in f	eet)			
Centerline Dist.	to Observer:	110.0 feet		F		Autos	0	000				
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks	2	297				
Observer Height (	Above Pad):	5.0 feet			Heav	v Trucks	8	006	Grade	Adius	tment:	0.0
Pa	ad Elevation:	0.0 feet				,						
Roa	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distan	ce (in	feet)			
1	Road Grade:	0.0%				Autos.	92.	331				
	Left View:	-90.0 degree:	s		Mediu	n Trucks.	92.	235				
	Right View:	90.0 degree	S		Heav	y Trucks.	92.	244				
FHWA Noise Mode	el Calculations	5										
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fresr	nel	Barrier /	Atten	Ben	m Atten
Autos:	73.22	0.64		-4.1	0	-1.20		-4.78		0.000		0.000
Medium Trucks:	83.68	-14.23		-4.0	9	-1.20		-4.88		0.000		0.000
Heavy Trucks:	87.33	-12.01		-4.0	9	-1.20		-5.14		0.000		0.000
Unmitigated Noise	e Levels (witho	out Topo and k	arrie	er atten	uation)							
VehicleType	Leq Peak Hou	r Leq Day		Leq E	vening	Leq N	light		Ldn		CI	VEL
Autos:	68.	.6 6	7.8		66.4		60.4	1	6	8.8		69.4
Medium Trucks:	64.	.2 6	1.3		53.5		62.7	7	6	B.9		68.9
Heavy Trucks:	70.	.0 6	7.2		59.4		68.6	6	7	4.8		74.8
Vehicle Noise:	73.	.0 7	1.0		67.4		70.1	1	7	6.6		76.7
Centerline Distant	ce to Noise Co	ntour (in feet)										
				70 (	dBA	65 d	BA		60 dBA		55	dBA
		L	.dn:	30	01	64	9		1,397		3,0	010
		CN	EL:	30	08	66	3		1,427		3,0	)75

	FH\	NA-RD-77-108 H	IIGHWA	NOI Y	SE PF	REDICTIC	ON MO	DEL				
Scenar	io: E+P					Project N	lame: 、	JS 63	MX			
Road Nam	e: Ethanac Ro	d.				Job Nu	mber:	12374				
Road Segme	nt: w/o SR-74											
SITE	SPECIFIC IN	IPUT DATA				NC	DISE N	/ODE	L INPU	TS		
Highway Data				Site	e Con	ditions (H	Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	582 vehicles					,	Autos.	15			
Peak Hour	Percentage:	7.71%			Me	dium Truc	cks (2 A	Axles).	: 15			
Peak H	our Volume:	45 vehicles			He	avy Truck	(3+ A	Axles).	15			
Ve	hicle Speed:	40 mph		Vel	hicle I	Mix						
Near/Far La	ne Distance:	12 feet			Veh	icleTvpe		Dav	Evening	1 Ni	aht	Dailv
Site Data						AL	itos:	75.5%	6 14.09	6 1	0.5%	97.42%
Ba	rrier Height:	0.0 feet			Me	edium Tru	icks:	48.9%	6 2.29	6 4	8.9%	1.84%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy Tru	cks:	47.3%	5.4%	5 4 <sup>°</sup>	7.3%	0.74%
Centerline Di	st. to Barrier:	37.0 feet		No	ion Cr	uree Ele	votion	o (in f	0.041			
Centerline Dist.	to Observer:	37.0 feet		NO	ise sc	Autoor	vauon	s (III I	eel)			
Barrier Distance	to Observer:	0.0 feet			Modiu	AUIOS. m Trucko:	2.0	207				
Observer Height	(Above Pad):	5.0 feet			Hoon	a Trucks:	2.4	201	Grade	diust	mont	0.0
P	ad Elevation:	0.0 feet			neav	y mucks.	0.0	000	Glade /	ujusi	mont.	0.0
Ro	ad Elevation:	0.0 feet		Lai	ne Equ	uivalent L	Distand	ce (in	feet)			
	Road Grade:	0.0%				Autos:	36.	851				
	Left View:	-90.0 degrees	5		Mediur	m Trucks:	36.	610				
	Right View:	90.0 degrees	5		Heav	y Trucks:	36.	634				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	ce .	Finite	Road	Fresn	nel	Barrier A	tten	Berr	m Atten
Autos:	66.51	-14.92		1.88		-1.20		-4.56	(	1.000		0.000
Medium Trucks:	77.72	-32.16		1.93		-1.20		-4.87	(	1.000		0.000
Heavy Trucks:	82.99	-36.11		1.92		-1.20		-5.61	(	1.000		0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier at	ttenua	tion)						-	
VehicleType	Leq Peak Hou	ur Leq Day	Le	q Ever	ning	Leq N	light		Ldn		CN	IEL
Autos:	52	.3 5	1.4		50.1		44.1		52	£.5		53.1
Medium Trucks:	46	.3 4	3.5		36.0		44.8	3	50	1.9		51.0
Heavy Trucks:	47	.6 4	4.7		41.3		45.9	)	52	.1		52.2
Vehicle Noise:	54	.3 5	2.8		50.8		49.8	3	56	i.7		57.0
Centerline Distant	ce to Noise Co	ontour (in feet)										
			. L	70 dB/	۹	65 dl	BA		60 dBA		55	dBA
		L	an:	5		10			22		4	18
		CN	EL:	5		11			23		5	0

	FH\	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	N MOD	EL			
Scenar Road Narr Road Segme	io: EA ne: SR-74 nt: n/o Theda	St.				Project N Job Nur	lame: J mber: 1	S 63 I 2374	МХ		
SITE	SPECIFIC IN	NPUT DATA				NC	DISE M	ODE	L INPUTS	5	
Highway Data				S	ite Con	ditions (H	lard = 1	10, So	oft = 15)		
Average Daily	Traffic (Adt):	26,841 vehicle	s				Α	utos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A)	xles):	15		
Peak H	lour Volume:	2,069 vehicle	s		He	avy Truck	s (3+ A)	xles):	15		
Ve	hicle Speed:	60 mph		V	ohiclo	Mix					
Near/Far La	ne Distance:	48 feet		-	Veh	icleTyne	Γ	Dav	Evenina	Night	Daily
Site Data					von	Au	itos: 7	7.5%	14.0%	10.5%	92.00%
Ba	rrier Height	0.0 feet			М	edium Tru	cks: 4	8.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	(all 1-Berm):	0.0			1	Heavy Tru	cks: 4	8.0%	2.0%	50.0%	5.00%
Centerline Di	st. to Barrier:	64.0 feet			laiaa Cr	uree Elev	votiono	lin fe	a41		
Centerline Dist.	to Observer:	64.0 feet		N	UISE SC	Autoor	valions	00	el)		
Barrier Distance	to Observer:	0.0 feet			Madiu	Autos.	0.0	00			
Observer Height	Above Pad):	5.0 feet			Healu	n Trucks.	2.2	97	Grada Adi	ustmont	
P	ad Elevation:	0.0 feet			nea	ly mucks.	0.0	00	Grade Adj	usunom	. 0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent D	Distance	e (in f	eet)		
	Road Grade:	0.0%				Autos:	59.5	40			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	59.3	91			
	Right View:	90.0 degre	es		Heav	y Trucks:	59.4	06			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	ce	Finite	Road	Fresne	e/	Barrier Atte	en Bei	rm Atten
Autos:	73.22	-0.29		-1.24		-1.20	-	4.70	0.0	00	0.000
Medium Trucks:	83.68	-15.16		-1.22		-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.94		-1.23		-1.20	-	5.31	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Daj	/ Le	eq Eve	ening	Leq N	ight		Ldn	C	NEL
Autos:	70	0.5	69.7		68.3		62.3		70.8		71.4
Medium Trucks:	66	5.1	63.3		55.5		64.7		70.8		70.9
Heavy Trucks:	72	2.0	69.1		61.3		70.5		76.7		76.7
Vehicle Noise:	74	1.9	72.9		69.3		72.0		78.5		78.6
Centerline Distant	ce to Noise C	ontour (in feet	)								
				70 dl	BA	65 dE	BA	6	0 dBA	55	dBA
			Ldn:	236	6	508	3		1,094	2,	357
		С	NEL:	241	1	519	)		1,118	2,	408

	FHV	VA-RD-77-108	HIGH	WAY N	OISE PF	REDICTIO	N MOD	EL			
Scenar Road Narr Road Searre	io: EA ne: SR-74	St				Project N Job Nur	ame: J nber: 1	S 63 M 2374	их		
cite						NO	ICE M			r	
Highway Data	SPECIFIC IN	PUTDATA		5	Site Con	ditions (H	ard = 1	0. So	ft = 15	3	
Avorago Daily	Troffic (Adt):	R0 002 vohiclo	c				Δ	utos	15		
Average Daily Book Hour	Porcontago:	7 71%	5		Mo	dium Truc	ke (2 A	vlac).	15		
Peak Hour	Fercentage. Jour Volumo:	2.220 vohiclo	~		Ho	awy Truck	(3 μ Δ)	vlac).	15		
Ve	hicle Sneed:	60 mph	5		110	ary maon	10170		10		
Near/Far I a	ne Distance:	48 feet		1	/ehicle l	Nix					
1100//10/20	no Biotanoo.	10 1001			Vehi	cleType	E	Day	Evening	Night	Daily
Site Data						Au	tos: 7	7.5%	14.0%	10.5%	92.00%
Ba	rrier Height:	0.0 feet			Me	edium Truc	cks: 4	8.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Truc	cks: 4	8.0%	2.0%	50.0%	5.00%
Centerline Di	st. to Barrier:	64.0 feet		/	loise Sc	ource Elev	ations	(in fe	et)		
Centerline Dist.	to Observer:	64.0 feet		-		Autos:	0.0	00			
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks:	2.2	97			
Observer Height	Above Pad):	5.0 feet			Heav	v Trucks:	8.0	06	Grade Ad	justment.	0.0
P	ad Elevation:	0.0 feet		-							
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivalent D	istance	e (in f	eet)		
	Road Grade:	0.0%				Autos:	59.5	40			
	Left View:	-90.0 degree	es		Mediur	n Trucks:	59.3	91			
	Right View:	90.0 degree	es		Heav	y Trucks:	59.4	06			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresne	e/ .	Barrier Att	en Ber	m Atten
Autos:	73.22	0.21		-1.24	ļ.	-1.20	-	4.70	0.0	000	0.000
Medium Trucks:	83.68	-14.66		-1.22	2	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.44		-1.23	3	-1.20	-	5.31	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrie	r atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	/	Leq Ev	rening	Leq Ni	ght		Ldn	CI	VEL
Autos:	71	.0	70.2		68.8		62.8		71.2	2	71.9
Medium Trucks:	66	.6	63.7		56.0		65.2		71.3	3	71.4
Heavy Trucks:	72	.5	69.6		61.8		71.0		77.2	2	77.2
Vehicle Noise:	75	.4	73.4		69.8		72.5		79.0	)	79.1
Centerline Distant	ce to Noise Co	ontour (in feet	)	=0		05.15					10.4
				70 0	BA	65 dE	А	6	U dBA	55	aBA
		0	Lan:	25	4	548			1,181	2,	544
		Ci	VEL:	26	U	560			1,206	2,	298

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL	
Scenario: EA Project Name: JS 63 MX Road Name: SR-74 Job Number: 12374 Road Segment: n/o Ethanac Rd.	
SITE SPECIFIC INPUT DATA NOISE MODEL INPUTS	
Highway Data Site Conditions (Hard = 10, Soft = 15)	
Average Daily Traffic (Adt): 28,804 vehicles Autos: 15	
Peak Hour Percentage: 7.71% Medium Trucks (2 Axles): 15	
Peak Hour Volume: 2,221 vehicles Heavy Trucks (3+ Axles): 15	
Vehicle Speed: 60 mph	
Near/Far Lane Distance: 48 feet Vehicle Type Day Evening N	aht Dailv
Site Data         Autos:         77.5%         14.0%         1	0.5% 92.00%
Barrier Height: 0.0 feet Medium Trucks: 48.0% 2.0% 5	0.0% 3.00%
Barrier Type (0-Wall, 1-Berm): 0.0 Heavy Trucks: 48.0% 2.0% 5	0.0% 5.00%
Centerline Dist. to Barrier: 59.0 feet Noise Source Elevations (in feet)	
Centerline Dist. to Observer: 59.0 feet Autos: 0.000	
Barrier Distance to Observer: 0.0 feet Medium Trucks: 2.297	
Observer Height (Above Pad): 5.0 feet Heavy Trucks: 8.006 Grade Adjust	ment: 0.0
Pad Elevation: 0.0 feet	
Road Elevation: 0.0 feet Lane Equivalent Distance (in feet)	
Road Grade: 0.0% Autos: 54.129	
Left View: -90.0 degrees Medium Trucks: 53.966	
Right View: 90.0 degrees Heavy Trucks: 53.982	
FHWA Noise Model Calculations	
VehicleType REMEL Traffic Flow Distance Finite Road Fresnel Barrier Atten	Berm Atten
Autos: 73.22 0.02 -0.62 -1.20 -4.69 0.000	0.000
Medium Trucks: 83.68 -14.85 -0.60 -1.20 -4.88 0.000	0.000
Heavy Trucks: 87.33 -12.63 -0.60 -1.20 -5.35 0.000	0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)	
VehicleType Leq Peak Hour Leq Day Leq Evening Leq Night Ldn	CNEL
Autos: 71.4 70.6 69.2 63.2 71.7	72.3
Medium Trucks: 67.0 64.2 56.4 65.6 71.8	71.8
Heavy Trucks: 72.9 70.0 62.3 71.5 77.6	77.7
Vehicle Noise: 75.8 73.9 70.2 73.0 79.4	79.6
Centerline Distance to Noise Contour (in feet)	
70 dBA 65 dBA 60 dBA	55 dBA
Ldn: 251 540 1,163	2,507
CNEL: 256 552 1.188	2 560

	FHV	VA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTI		DEL			
Scenario Road Namo Road Segmen	o: EA e: SR-74 nt: s/o Ethanad	Rd.				Project Job N	Name: 、 umber: ·	JS 63 12374	MX		
SITE S	SPECIFIC IN	IPUT DATA				N	IOISE N	/IODE	L INPUTS	5	
Highway Data				S	ite Con	ditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt): 2	29,745 vehicles	6				,	Autos.	15		
Peak Hour	Percentage:	7.71%			Me	dium Tru	ucks (2 A	Axles).	15		
Peak He	our Volume:	2,293 vehicles	3		He	avy Truc	cks (3+ A	Axles).	15		
Vel	hicle Speed:	60 mph		V	ohicle I	Mix					
Near/Far Lar	ne Distance:	120 feet			Veh	icleTvpe		Dav	Evenina	Niaht	Daily
Site Data					1011	6101.jp0 /	Autos:	77.5%	6 14.0%	10.5%	6 92.00%
Par	rior Hoight:	0.0 foot			Me	edium Tr	rucks:	48.0%	6 2.0%	50.0%	6 3.00%
Barrier Type (0-Wa	all 1-Rerm) <sup>.</sup>	0.0 1001			ŀ	leavy Tr	rucks:	48.0%	6 2.0%	50.0%	5.00%
Centerline Dis	t. to Barrier:	110.0 feet						- // 4	41		
Centerline Dist. t	to Observer:	110.0 feet		N	oise so	ource El	evations	s (IN 1	eet)		
Barrier Distance t	to Observer:	0.0 feet			1 4 m all 1 m	Autos	s: 0.0	000			
Observer Height (/	Above Pad):	5.0 feet			Mediur	TI TIUCKS	S: Z.4	297	Grado Adi	ustmor	<i>t</i> · 0.0
Pa	d Elevation:	0.0 feet			neav	y muck	5. 0.0	000	Grade Auj	usunen	1. 0.0
Roa	d Elevation:	0.0 feet		L	ane Equ	uivalent	Distanc	ce (in	feet)		
F	Road Grade:	0.0%				Autos	s: 92.3	331			
	Left View:	-90.0 degree	s		Mediur	n Trucks	s: 92.2	235			
	Right View:	90.0 degree	es		Heav	y Truck	s: 92.1	244			
FHWA Noise Mode	Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	73.22	0.16		-4.10		-1.20		-4.78	0.0	00	0.000
Medium Trucks:	83.68	-14.71		-4.09		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.49		-4.09		-1.20		-5.14	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	' Le	eq Ev	ening	Leq	Night		Ldn	C	NEL
Autos:	68	.1	67.3		65.9		59.9	)	68.3	5	69.0
Medium Trucks:	63	.7	60.8		53.1		62.3		68.4		68.4
Heavy Trucks:	69	.5	66.7		58.9		68.1		74.3		74.3
Vehicle Noise:	72	.5	70.5		66.9		69.6	6	76.1		76.2
Centerline Distanc	e to Noise Co	ontour (in feet	)								
				70 di	BA	65 (	dBA		60 dBA	55	5 dBA
			Ldn:	279	9	60	02		1,297	2	,795
		CI	VEL:	286	6	61	15		1,325	2	,855

Tuesday, January 21, 2020

Tuesday, January 21, 2020

	FH\	NA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	N MOD	EL			
Scenari Road Nam Road Segmer	o: EA e: SR-74 nt: n/o River R	td.				Project N Job Nur	ame: J nber: 1	S 63 2374	MX		
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODE	L INPUTS	5	
Highway Data				Si	ite Con	ditions (H	lard = 1	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	30,847 vehicle	6				A	utos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	our Volume:	2,378 vehicle	5		He	avy Truck	s (3+ A	xles):	15		
Vei	hicle Speed:	60 mph		14	ohiolo	Mix					
Near/Far Lar	ne Distance:	120 feet			Voh	icleType	1	)av	Evenina	Niah	Daily
Site Data					Ven	Au	tos: 7	7.5%	14.0%	10.5	% 92.00%
Pa	rior Hoight:	0.0 foot			М	edium Tru	cks: 4	8.0%	2.0%	50.0	% 3.00%
Barrier Type (0-W	all 1-Berm)	0.0 1001			1	Heavy True	cks: 4	8.0%	2.0%	50.0	% 5.00%
Centerline Dis	all, 1 Berrier:	110.0 feet		-							
Centerline Dist.	to Observer:	110.0 feet		N	oise So	ource Elev	ations	(in fe	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height (	Above Pad):	5.0 feet			Mediu	m Trucks:	2.2	97	Our de Ad		-4-0.0
Pa	d Elevation:	0.0 feet			Heav	y Trucks:	8.0	06	Grade Adj	ustme	nt: 0.0
Roa	d Elevation:	0.0 feet		La	ane Eq	uivalent D	listanc	e (in :	feet)		
F	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	92.2	35			
	Right View:	90.0 degre	es		Heav	y Trucks:	92.2	44			
FHWA Noise Mode	Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresne	2	Barrier Atte	en B	erm Atten
Autos:	73.22	0.31		-4.10		-1.20		4.78	0.0	00	0.000
Medium Trucks:	83.68	-14.55		-4.09		-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.33		-4.09		-1.20	-	5.14	0.0	00	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Hou	ur Leq Day	Le	eq Eve	ening	Leq Ni	ight		Ldn		CNEL
Autos:	68	3.2	67.5		66.1		60.0		68.5	i	69.1
Medium Trucks:	63	3.8	61.0		53.2		62.4		68.6	i	68.6
Heavy Trucks:	69	9.7	66.8		59.1		68.3		74.4		74.5
Vehicle Noise:	72	2.7	70.7		67.0		69.8		76.2	2	76.4
Centerline Distance	e to Noise Co	ontour (in feet	)								
				70 dE	BA	65 dE	BA	e	60 dBA	1	55 dBA
			Ldn:	286	6	617			1,329		2,863
		C	VEL:	293	3	630			1,358		2,925

	FHV	VA-RD-77-108	HIGH	WAY NO	DISE PF	REDICTIO	N MOE	EL			
Scenar	io: EA					Project N	ame: J	S 63 I	лх		
Road Nam	ie: SR-74					Job Nur	nber: 1	2374			
Road Segme	nt: s/o River R	d.									
SITE	SPECIFIC IN	PUT DATA				NO	ISE M	ODE	L INPUT	s	
Highway Data				S	ite Con	ditions (H	lard = 1	10, Sc	ft = 15)		
Average Daily	Traffic (Adt): 3	30,286 vehicles	6				A	utos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,335 vehicles	5		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	60 mph		v	ehicle I	Nix					
Near/Far La	ne Distance:	120 feet			Vehi	icleType	l	Day	Evening	Night	Daily
Site Data						Au	tos: 1	7.5%	14.0%	10.5%	92.00%
Ba	rrier Height:	0.0 feet			Me	edium Truc	cks: 4	18.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Truc	cks: 4	18.0%	2.0%	50.0%	5.00%
Centerline Di	st. to Barrier:	110.0 feet		N	loise So	ource Flev	ations	(in fe	et)		
Centerline Dist.	to Observer:	110.0 feet		-		Autos:	0.0	00			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2.2	97			
Observer Height (	Above Pad):	5.0 feet			Heav	v Trucks:	8.0	06	Grade Ad	liustment	: 0.0
Pa	ad Elevation:	0.0 feet			mour	<i>y maono.</i>	0.0				
Road Elevation: 0.0 feet					ane Equ	uivalent D	istanc	e (in f	eet)		
1	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	92.2	35			
	Right View:	90.0 degree	es		Heav	y Trucks:	92.2	44			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresne	el 🛛	Barrier Att	en Ber	m Atten
Autos:	73.22	0.23		-4.10		-1.20	-	4.78	0.0	000	0.000
Medium Trucks:	83.68	-14.63		-4.09		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.41		-4.09		-1.20	-	5.14	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	r attenu	uation)						
VehicleType	Leq Peak Hou	r Leq Day		Leq Eve	ening	Leq Ni	ght		Ldn	CI	NEL
Autos:	68	.2	67.4		66.0		60.0		68.4	4	69.0
Medium Trucks:	63	.8	60.9		53.1		62.3		68.	5	68.5
Heavy Trucks:	69	.6	66.8		59.0		68.2		74.3	3	74.4
Vehicle Noise:	72	.6	70.6		67.0		69.7		76.3	2	76.3
Centerline Distant	ce to Noise Co	ontour (in feet)	)								
			L	70 di	BA	65 dE	3A	6	0 dBA	55	dBA
			Ldn:	283	3	609			1,313	2,	829
										_	

Tuesday, January 21, 2020

	FHW	/A-RD-77-108 F	IIGHWA	Y N	OISE PF	REDICTI	ON MC	DEL				
Scenari Road Nam Road Segmer	o: EA e: SR-74 nt: s/o Meadow	brook Av.				Project Job Ni	Name: umber:	JS 63 12374	MX			
SITE S	SPECIFIC IN	PUT DATA				N	OISE	MODE	L INP	UTS		
Highway Data				S	ite Con	ditions	(Hard =	= 10, Se	oft = 1	5)		
Average Daily	Traffic (Adt): 3	4,052 vehicles						Autos:	15			
Peak Hour	Percentage:	7.71%			Me	dium Tru	icks (2	Axles):	15			
Peak H	our Volume:	2,625 vehicles			He	avy Truc	ks (3+	Axles):	15			
Vei	hicle Speed:	60 mph		v	ohiclo I	Aiy .						
Near/Far Lar	ne Distance:	120 feet		-	Vehi	icleType		Day	Even	ing I	Vight	Daily
Site Data						A	utos:	77.5%	5 14.	0%	10.5%	92.00%
Bar	rier Height:	0.0 feet			Me	edium Tr	ucks:	48.0%	2.	0%	50.0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			F	leavy Tr	ucks:	48.0%	2.	0%	50.0%	5.00%
Centerline Dis	st. to Barrier:	110.0 feet		٨	loise Sc	urce El	evation	ns (in fi	eet)			
Centerline Dist.	to Observer:	110.0 feet		_	0.00 00	Autos	. 0	000				
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks	n. 0. n. 2	297				
Observer Height (.	Above Pad):	5.0 feet			Heav	v Trucks	. 2	006	Grade	Adiu:	stment	0.0
Pa	d Elevation:	0.0 feet			mour	y maone	. 0					
Roa	d Elevation:	0.0 feet		L	ane Equ	uivalent	Distan	ce (in	feet)			
F	Road Grade:	0.0%				Autos	: 92	.331				
	Left View:	-90.0 degrees	;		Mediur	n Trucks	s: 92	.235				
	Right View:	90.0 degrees			Heav	y Trucks	s: 92	.244				
FHWA Noise Mode	el Calculations	1										
VehicleType	REMEL	Traffic Flow	Distanc	се	Finite	Road	Fres	nel	Barrie	r Atter	Ber	m Atten
Autos:	73.22	0.74	-	4.10		-1.20		-4.78		0.00	0	0.000
Medium Trucks:	83.68	-14.12	-	4.09		-1.20		-4.88		0.00	0	0.000
Heavy Trucks:	87.33	-11.91	-	4.09		-1.20		-5.14		0.00	0	0.000
Unmitigated Noise	Levels (with	out Topo and b	arrier at	tenı	uation)							
VehicleType	Leq Peak Hou	r Leq Day	Lee	q Ev	ening	Leq I	Vight		Ldn		CI	VEL
Autos:	68.	7 6	7.9		66.5		60.	5		68.9		69.5
Medium Trucks:	64.	3 6	1.4		53.6		62.	8		69.0		69.0
Heavy Trucks:	70.	1 6	7.3		59.5		68.	7		74.9		74.9
Vehicle Noise:	73.	.1 7	1.1		67.5		70.	2		76.7		76.8
Centerline Distance	e to Noise Co	ntour (in feet)			-	05		1				10.4
				70 d	BA	65 0	IBA		SU dBA		55	dBA
		L	an:	306	0	65	99		1,420		3,	008
		CN	=L:	312	2	67	3		1,450		3,	124

	FNV	VA-RD-77-106	пібп	WATIN	JISE PI			DEL				
Scenar	io: EA					Project N	lame:	JS 63	MX			
Road Nam	e: Ethanac Ro	Ι.				Job Nu	mber:	12374				
Road Segme	nt: w/o SR-74											
SITE	SPECIFIC IN	IPUT DATA				NC	DISE	MODE	L INPU	гs		
Highway Data				S	ite Con	ditions (I	Hard =	: 10, S	oft = 15)	_		
Average Daily	Traffic (Adt):	167 vehicles						Autos.	15			
Peak Hour	Percentage:	7.71%			Me	dium Truc	cks (2	Axles).	15			
Peak H	lour Volume:	13 vehicles			He	avy Truck	(3+	Axles).	15			
Ve	hicle Speed:	40 mph		v	ehicle I	Mix						
Near/Far La	ne Distance:	12 feet		-	Veh	icleType		Day	Evening	Nig	ght	Daily
Site Data						AL	itos:	75.5%	6 14.0%	5 10	).5%	97.42%
Ba	rrier Height	0.0 feet			Me	edium Tru	icks:	48.9%	6 2.2%	48	8.9%	1.84%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tru	cks:	47.3%	6 5.4%	47	7.3%	0.74%
Centerline Di	st. to Barrier:	37.0 feet		A	oise Sc	ource Ele	vation	s (in f	eet)			
Centerline Dist.	to Observer:	37.0 feet			0.00 00	Autos	0	000	000			
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucks	2	207				
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks	8	006	Grade A	diustr	nent:	0.0
P	Pad Elevation: 0.0 feet						0.			-,		
Ro	Road Elevation: 0.0 feet						Distan	ce (in	feet)			
	Road Grade:	0.0%				Autos:	36	851				
	Left View:	-90.0 degree	s		Mediur	m Trucks:	36	610				
	Right View:	90.0 degree	s		Heav	y Trucks:	36	634				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fres	nel	Barrier A	tten	Bern	n Atten
Autos:	66.51	-20.34		1.88		-1.20		-4.56	C	.000		0.000
Medium Trucks:	77.72	-37.58		1.93		-1.20		-4.87	C	.000		0.000
Heavy Trucks:	82.99	-41.54		1.92		-1.20		-5.61	C	.000		0.000
Unmitigated Noise	e Levels (with	out Topo and I	barrie	er attenu	ation)							-
VehicleType	Leq Peak Hou	r Leq Day		Leq Ev	ening	Leq N	light		Ldn		CN	IEL
Autos:	46	.9 4	46.0		44.7		38.	5	47	.1		47.7
Medium Trucks:	40	.9 3	38.1		30.6		39.	3	45	.5		45.6
Heavy Trucks:	42	.2 3	39.3		35.9		40.	5	46	.7		46.8
Vehicle Noise:	48	.9 4	17.4		45.3		44.	3	51	.3		51.5
Centerline Distant	ce to Noise Co	ontour (in feet)								-		
				70 di	BA	65 d	BA		60 dBA		55 0	JBA
		1	dn:	2		4			10		2	1
		CA	IEL:	2		5			10		2	2

Tuesday, January 21, 2020

	FH\	NA-RD-77-108	HIGHWA	Y NO	DISE PE	REDICTIC	ON MOI	DEL				
Scenar Road Nan Road Segme	io: EAP ne: SR-74 nt: n/o Theda	St.				Project N Job Nu	lame: 、 mber: 1	JS 63 12374	MX			
SITE	SPECIFIC IN	IPUT DATA				NC	DISE N	IODE	L INPUT	s		
Highway Data				S	ite Con	ditions (F	lard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	27,030 vehicle	s					Autos.	15			
Peak Hour	Percentage:	7.71%			Me	dium Truc	:ks (2 A	(xles)	15			
Peak H	lour Volume:	2,084 vehicle	s		He	avy Truck	:s (3+ A	(xles)	15			
Ve	hicle Speed:	60 mph		V	ohiclo I	Mix						
Near/Far La	ne Distance:	48 feet			Veh	icleTyne		Dav	Evenina	Nia	ht	Daily
Site Data					ven	AL	itos:	77.5%	5 14.0%	10	.5%	92.00%
Ba	rrier Height	0.0 feet			Me	edium Tru	cks:	48.0%	5 2.0%	50	.0%	3.00%
Barrier Type (0-W	/all_1-Berm):	0.0			ŀ	Heavy Tru	cks:	48.0%	5 2.0%	50	.0%	5.00%
Centerline Di	st. to Barrier:	64.0 feet			0.							
Centerline Dist.	to Observer:	64.0 feet		N	oise sc	ource Ele	vations	s (IN 1	eet)			
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	000				
Observer Height	(Above Pad):	5.0 feet			wealu	m Trucks:	2.4	297	Grada Ac	liucto	ont.	
P	Pad Elevation: 0.0 feet					y Trucks:	8.0	006	Grade Ad	ijusui	ient.	0.0
Ro	Road Elevation: 0.0 feet						Distand	ce (in	feet)			
	Road Grade:	0.0%				Autos:	59.5	540				
	Left View:	-90.0 degre	es		Mediu	m Trucks:	59.3	391				
	Right View:	90.0 degre	es		Heav	y Trucks:	59.4	406				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier At	ten	Bern	n Atten
Autos:	73.22	-0.26		1.24		-1.20		-4.70	0.	000		0.000
Medium Trucks:	83.68	-15.13		1.22		-1.20		-4.88	0.	000		0.000
Heavy Trucks:	87.33	-12.91		1.23		-1.20		-5.31	0.	000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	ttenu	ation)							
VehicleType	Leq Peak Hou	ur Leq Day	/ Le	q Eve	ening	Leq N	light		Ldn		CN	EL
Autos:	70	0.5	69.8		68.3		62.3		70.	8		71.4
Medium Trucks:	66	5.1	63.3		55.5		64.7		70.	9		70.9
Heavy Trucks:	72	2.0	69.1		61.4		70.6		76.	7		76.8
Vehicle Noise:	74	1.9	73.0		69.3		72.1		78.	5		78.7
Centerline Distan	ce to Noise Co	ontour (in feet	)									
				70 dł	BA	65 di	BA		60 dBA		55 c	!BA
			Ldn:	237	7	510	)		1,099		2,3	68
	CNEL:					521			1,123		2,4	19

	FHV	VA-RD-77-108	HIGHW	AY NO	ISE PR	EDICTIO	N MOD	EL			
Scenari	io: EAP					Project N	ame: J	5 63 N	ЛX		
Road Nam	ie: SR-74					Job Nun	nber: 12	2374			
Road Segmer	nt: s/o Theda S	St.									
SITE	SPECIFIC IN	PUT DATA				NO	ISE M	ODEI		S	
Highway Data				Sit	te Con	ditions (H	ard = 1	0, So	ft = 15)		
Average Daily	Traffic (Adt): 3	80,303 vehicles					Α	utos:	15		
Peak Hour	Percentage:	7.71%			Med	dium Truci	ks (2 A)	des):	15		
Peak H	lour Volume:	2,336 vehicles	;		Hea	avy Trucks	s (3+ A)	des):	15		
Vei	hicle Speed:	60 mph		Ve	hicle N	lix					
Near/Far Lai	ne Distance:	48 feet			Vehi	cleType	L	Day	Evening	Night	Daily
Site Data						Au	tos: 7	7.5%	14.0%	10.5%	92.00%
Bai	rrier Height	0.0 feet			Ме	dium Truc	:ks: 4	8.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all. 1-Berm):	0.0			H	leavy Truc	: ks: 4	8.0%	2.0%	50.0%	5.00%
Centerline Dis	st. to Barrier:	64.0 feet		A/-	- C-	uree El	otion -	lin f-	o4)		
Centerline Dist.	to Observer:	64.0 feet		NC	use so	urce Elev	ations	(In fe	ei)		
Barrier Distance	to Observer:	0.0 feet			Marthum	Autos:	0.00	JU 7			
Observer Height (	Above Pad):	5.0 feet			Mealur	n Trucks:	2.2	97	Grado Adi	iustmont	
Pa	ad Elevation:	0.0 feet			Heav	y Trucks:	8.00	90	Graue Auj	usunen.	0.0
Roa	ad Elevation:		La	ne Equ	ivalent D	istance	e (in f	eet)			
ŀ	Road Grade: 0.0%					Autos:	59.5	40			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	59.3	91			
	Right View:	90.0 degree	s		Heav	y Trucks:	59.4	06			
FHWA Noise Mode	el Calculation:	5									
VehicleType	REMEL	Traffic Flow	Distan	ice	Finite	Road	Fresne	1 1	Barrier Atte	en Ber	m Atten
Autos:	73.22	0.24		-1.24		-1.20	-	4.70	0.0	000	0.000
Medium Trucks:	83.68	-14.63		-1.22		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:				1 0 0					0.0	000	0.000
, , , ,	87.33	-12.41		-1.23		-1.20	-	5.31	0.0		
Unmitigated Noise	87.33 e Levels (with	-12.41 out Topo and	barrier a	ttenua	ation)	-1.20	4	5.31	0.0		
Unmitigated Noise VehicleType	87.33 E Levels (with Leq Peak Hou	-12.41 Dut Topo and I r Leq Day	barrier a	-1.23 httenua eq Eve	ation) ning	-1.20 Leq Ni	-: ght	5.31	Ldn	CI	VEL
Unmitigated Noise VehicleType Autos:	87.33 E Levels (without Leq Peak Hout 71	-12.41 out Topo and r Leq Day .0	barrier a	ettenua eq Eve	ation) ning 68.8	-1.20 Leq Ni	 ght 62.8	5.31	Ldn 71.3	C/	VEL 71.9
Unmitigated Noise VehicleType Autos: Medium Trucks:	87.33 E Levels (without Leg Peak Hout 71 66	-12.41	<i>barrier a</i> <i>Le</i> 70.2 63.8	-1.23 attenua eq Eve	ation) ning 68.8 56.0	-1.20 Leq Ni	 ght 62.8 65.2	5.31	Ldn 71.3 71.4	C/	VEL 71.9 71.4
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	87.33 E Levels (without Leg Peak Hout 71 66 72	-12.41  out Topo and  r Leq Day 0 .0 .5 .6 .5 .5 .6 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5	barrier a Le 70.2 63.8 69.6	-1.23 attenua eq Eve	ation) ning 68.8 56.0 61.9	-1.20 Leq Ni	ght 62.8 65.2 71.1	5.31	Ldn 71.3 71.4 77.2	C/ C/	VEL 71.9 71.4 77.3
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	87.33 2 Levels (without Leq Peak Hout 71 66 72 75	-12.41 <b>Dut Topo and</b> r Leq Day 0 6 5 4	barrier a Le 70.2 63.8 69.6 73.5	-1.23 attenua eq Eve	ation) ning 68.8 56.0 61.9 69.8	-1.20 Leq Ni	ght 62.8 65.2 71.1 72.6	5.31	Ldn 71.3 71.4 77.2 79.0	<i>CI</i> 3 4 2	NEL 71.9 71.4 77.3 79.2
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	87.33 2 Levels (without Leq Peak Hout 71 66 72 75 ce to Noise Co	-12.41 out Topo and i r Leq Day 0 .6 .5 .4 .5 .6 .4 .5 .6 .6 .6 .6 .6 .6 .6 .6 .6 .6	barrier a 20.2 53.8 59.6 73.5	eq Eve	ation) ning 68.8 56.0 61.9 69.8	-1.20 Leq Ni	ght 62.8 65.2 71.1 72.6	5.37	Ldn 71.3 71.4 77.2 79.0	CI CI CI	VEL 71.9 71.4 77.3 79.2
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	87.33 2 Levels (with Leq Peak Hou 71 66 72 75 ce to Noise Co	-12.41 <b>out Topo and</b> r Leq Day .0 .6 .5 .4 ontour (in feet)	barrier a 202 202 202 202 202 202 202 20	70 dB	ation) ning 68.8 56.0 61.9 69.8	-1.20 Leq Nig 65 dB	ght 62.8 65.2 71.1 72.6	6	Ldn 71.3 71.4 77.2 79.0 0 dBA	CI CI CI CI CI CI CI CI CI CI CI CI CI C	VEL 71.9 71.4 77.3 79.2 dBA
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	87.33 a Levels (with Leq Peak Hou 71 66 72 75 ce to Noise Co	-12.41 <b>Dut Topo and</b> r Leq Day 0 5 4 <b>Dut Topo and</b> 1 1 1 1 1 1 1 1 1	barrier a	-1.23 ttenua eq Eve 70 dB 256	ation) ning 68.8 56.0 61.9 69.8 84	-1.20 Leq Nig 65 dE	-: ght 62.8 65.2 71.1 72.6	6	Ldn 71.3 71.4 77.2 79.0 0 dBA	Cr Cr Cr Cr Cr Cr Cr Cr Cr Cr	VEL 71.9 71.4 77.3 79.2 dBA 556

Tuesday, January 21, 2020

	FHV	VA-RD-77-108 H	IGHW.	AY NO	OISE PI	REDICT	ION MO	DEL				
Scenari	o: EAP					Project	Name:	JS 63 I	ЛХ			
Road Nam Road Segme	e: SR-74	Rd				JOD N	lumber:	12374				
Noau Seginer		, Nu.		-								
SITE S	SPECIFIC IN	PUT DATA			ite Con	N	IOISE I	MODE		UTS		
Highway Data				3	nte Con	antions	(Hard =	10, 50	m = 15	)		
Average Daily	Traffic (Adt): 2	29,014 vehicles				-11		Autos:	15			
Peak Hour	Percentage:	7.71%			Me Ho	aium Tri avvi Triji	UCKS (2 ) oko (2 )	Axies):	15			
reak n	biolo Spood	2,237 verticies			ne	avy mu	UNS (3+)	члюз).	15			
Noar/Ear La	nicie Speeu.	48 foot		ν	'ehicle l	Mix						
iveai/i ai Lai	le Distance.	40 1661			Veh	icleType	9	Day	Evenii	ng Ni	ght	Daily
Site Data							Autos:	77.5%	14.0	)% 10	0.5%	92.00%
Bai	rier Height:	0.0 feet			Me	edium I	rucks:	48.0%	2.0	)% 50	J.0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy I	rucks:	48.0%	2.0	)% 50	0.0%	5.00%
Centerline Dis	st. to Barrier:	59.0 feet		Ν	loise So	ource El	levation	s (in fe	et)			
Centerline Dist.	to Observer:	59.0 feet				Auto	s: 0.	000				
Barrier Distance	Deserver Height (Above Pad): 5.0 feet					m Truck	s: 2.	297				
Observer Height (	Observer Height (Above Pad): 5.0 teet						s: 8.	006	Grade	Adjust	ment:	0.0
Pa	ad Elevation:			ano Ea	uivalon	t Dicton	co (in f	(oot)				
Roa	ad Elevation:	0.0 feet		-	ane Ly	Auto		120	eel)			
,	Road Grade:	0.0%			Modiu	m Truck	8. 04. o <sup>.</sup> 53	066				
	Lent View:	-90.0 degrees			Heau	n Truck	8. 00. e <sup>.</sup> 53	900				
		JU.U GUGICUS			nour	) ///doi/	0. 00.	002				
VehicleType	REMEI	Traffic Flow	Distar	ice	Finite	Road	Fresi	nel	Barrier	Atten	Berr	n Atten
Autos:	73.22	0.05	Biotar	-0.62	1 11110	-1.20	1100	-4.69	Dannor	0.000	2011	0.000
Medium Trucks:	83.68	-14.82		-0.60		-1.20		-4.88		0.000		0.000
Heavy Trucks:	87.33	-12.60		-0.60		-1.20		-5.35		0.000		0.000
Unmitigated Noise	Levels (with	out Topo and b	arrier a	ttenu	uation)							
VehicleType	Leq Peak Hou	r Leq Day	Le	eq Ev	ening	Leq	Night		Ldn		C٨	IEL
Autos:	71.	.4 70	).7		69.3		63.2	2		71.7		72.3
Medium Trucks:	67.	.1 64	1.2		56.4		65.6	3	1	71.8		71.8
Heavy Trucks:	72	.9 70	).1		62.3		71.	5		77.7		77.7
Vehicle Noise:	75	.9 73	3.9		70.2		73.0	C		79.5		79.6
Centerline Distance	e to Noise Co	ntour (in feet)										
				70 d	BA	65	dBA	6	i0 dBA		55 (	dBA
		L	dn:	252	2	5	43		1,169		2,5	519
		CN	EL:	25	7	5	54		1,194		2,5	573

	FUN	A-RD-77-100 HIG				ODEL			
Scenar	io: EAP				Project Name	: JS 63	MX		
Road Nan	ne: SR-74				Job Number	: 12374	Ļ		
Road Segme	nt: s/o Ethanac	Rd.							
SITE	SPECIFIC IN	PUT DATA			NOISE	MODE	EL INPUT	s	
Highway Data				Site Con	ditions (Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt): 2	9,955 vehicles				Autos	: 15		
Peak Hour	Percentage:	7.71%		Me	dium Trucks (2	? Axles)	: 15		
Peak F	lour Volume:	2,310 vehicles		He	avy Trucks (3-	Axles)	: 15		
Ve	hicle Speed:	60 mph	-	Vehicle I	Mix				-
Near/Far La	ne Distance:	120 feet	-	Veh	icleType	Day	Evening	Night	Daily
Site Data					Autos:	77.5%	6 14.0%	10.5%	92.00%
Ba	rrier Height:	0.0 feet		Me	edium Trucks:	48.0%	6 2.0%	50.0%	3.00%
Barrier Type (0-V	/all, 1-Berm):	0.0		ŀ	leavy Trucks:	48.0%	6 2.0%	50.0%	5.00%
Centerline Di	st. to Barrier:	110.0 feet		Noise Sc	ource Elevatio	ns (in t	feet)		
Centerline Dist.	to Observer:	110.0 feet	-		Autos:	0.000	,		
Barrier Distance	to Observer:	0.0 feet		Mediur	n Trucks:	2.297			
Observer Height	(Above Pad):	5.0 feet		Heav	y Trucks:	B.006	Grade Ad	justment	t: 0.0
P	ad Elevation:	0.0 feet	-		-		6		
Ro	ad Elevation:	0.0 feet		Lane Equ	uivalent Dista	nce (in	reet)		
	Road Grade:	0.0%			Autos: 9	2.331			
	Left View:	-90.0 degrees		Mediui	n Trucks: 9	2.235			
	Right View:	90.0 degrees		Heav	y Trucks: 9	2.244			
FHWA Noise Mod	el Calculations	5							
VehicleType	REMEL	Traffic Flow D	Distance	Finite	Road Fre	snel	Barrier Att	en Bei	m Atten
Autos:	73.22	0.19	-4.1	0	-1.20	-4.78	0.0	000	0.000
Medium Trucks:	83.68	-14.68	-4.0	9	-1.20	-4.88	0.0	)00	0.000
Heavy Trucks:	87.33	-12.46	-4.0	9	-1.20	-5.14	0.0	)00	0.000
Unmitigated Nois	e Levels (witho	out Topo and bar	rier atten	uation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq Night		Ldn	C	NEL
Autos:	68.	.1 67.3	3	65.9	59	9.9	68.4	ł	69.0
Medium Trucks:	63.	.7 60.9	)	53.1	62	2.3	68.4	ŀ	68.5
Heavy Trucks:	69.	.6 66.7	7	58.9	68	3.1	74.3	}	74.3
Vehicle Noise:	72.	.5 70.5	5	66.9	69	9.6	76.1	I	76.2
Centerline Distan	ce to Noise Co	ntour (in feet)							
			70 (	dBA	65 dBA		60 dBA	55	dBA
		Ldn	: 28	31	605		1,303	2,	808
		CNEL	: 28	57	618		1,331	2,	868

Tuesday, January 21, 2020

	FH	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	N MOE	DEL			
Scenar Road Nam Road Segmei	io: EAP le: SR-74 nt: n/o River F	łd.				Project N Job Nur	'ame: J nber: 1	S 63 2374	MX		
SITE	SPECIFIC IN	NPUT DATA				NC	ISE M	IODE	L INPUTS	5	
Highway Data				S	ite Con	ditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	31,057 vehicle	s				A	Autos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,394 vehicle	s		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	60 mph		V	ohiclo	Miv					
Near/Far La	ne Distance:	120 feet		v	Voh	violo Turno		Dav	Evoning	Night	Daily
Site Data					ven	Au	tos:	77.5%	14.0%	10.5%	92.00%
Pa	rrior Hoight:	0.0 foot			М	edium Tru	cks:	48.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all 1-Berm)	0.0 1001			1	Heavy Tru	cks: 4	48.0%	2.0%	50.0%	5.00%
Centerline Dis	st. to Barrier:	110.0 feet									
Centerline Dist.	to Observer:	110.0 feet		N	oise So	ource Elev	/ations	(In te	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height (	Above Pad):	5.0 feet			Mediu	m Trucks:	2.2	97	Crada Adi		
Pa	Pad Elevation: 0.0 feet					/y Trucks:	8.0	06	Grade Adji	usunem	. 0.0
Roa	Road Elevation: 0.0 feet					uivalent D	Distanc	e (in i	feet)		
	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	92.2	35			
	Right View:	90.0 degre	es		Heav	/y Trucks:	92.2	44			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fresn	e/	Barrier Atte	en Bei	rm Atten
Autos:	73.22	0.34		-4.10		-1.20		4.78	0.0	00	0.000
Medium Trucks:	83.68	-14.52		-4.09		-1.20		4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.31		-4.09		-1.20		5.14	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ Le	eq Eve	ening	Leq N	ight		Ldn	С	NEL
Autos:	68	3.3	67.5		66.1		60.1		68.5		69.1
Medium Trucks:	63	3.9	61.0		53.2		62.4		68.6		68.6
Heavy Trucks:	69	9.7	66.9		59.1		68.3		74.5		74.5
Vehicle Noise:	72	2.7	70.7		67.1		69.8		76.3		76.4
Centerline Distant	ce to Noise C	ontour (in fee	)								
				70 dl	BA	65 dE	BA	6	60 dBA	55	dBA
			Ldn:	288	3	620			1,335	2	876
		С	NEL:	294	1	633			1,364	2	938

	FHV	VA-RD-77-108	HIGHW		DISE PF	REDICTIO		EL _			
Scenari	o: EAP				Project N	ame: JS	63 1	лх			
Road Nam	e: SR-74					Job Nun	nber: 12	374			
Road Segmer	at: s/o River Ro	d.									
SITE	SPECIFIC IN	PUT DATA				NO	ISE M	DDE		S	
Highway Data				S	ite Con	ditions (H	ard = 1	0, Sc	ft = 15)		
Average Daily	Traffic (Adt): 3	30,496 vehicles					A	itos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truci	ks (2 Ax	les):	15		
Peak H	our Volume:	2,351 vehicles			He	avy Trucks	; (3+ Ax	les):	15		
Vei	hicle Speed:	60 mph		V	ehicle I	<i>Nix</i>					
Near/Far Lai	ne Distance:	120 feet		-	Vehi	cleType	D	ay	Evening	Night	Daily
Site Data						Au	os: 7	7.5%	14.0%	10.5%	92.00%
Bai	rier Heiaht <sup>.</sup>	0.0 feet			Me	edium Truc	ks: 4	8.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Truc	ks: 4	8.0%	2.0%	50.0%	5.00%
Centerline Dis	t. to Barrier:	110.0 feet		N	oise So	urce Elev	ations	(in fe	et)		
Centerline Dist.	to Observer:	110.0 feet			0.00 00	Autos:	0.00	0			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks	2.20	7			
Observer Height (	Above Pad):	5.0 feet			Heav	v Trucks:	8.00	16	Grade Ad	iustment	: 0.0
Pa	d Elevation:	0.0 feet			neav	y mucho.	0.00	.0	,		. 0.0
Roa	Road Elevation: 0.0 feet					ivalent D	istance	(in f	eet)		
F	Road Grade:	0.0%				Autos:	92.33	81			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	92.23	85			
	Right View:	90.0 degree	s		Heav	y Trucks:	92.24	4			
FHWA Noise Mode	Calculation:	5		-							
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne		Barrier Att	en Ber	m Atten
Autos:	73.22	0.26		-4.10		-1.20	-4	1.78	0.0	000	0.000
Medium Trucks:	83.68	-14.60		-4.09		-1.20	-4	1.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.38		-4.09		-1.20	-8	5.14	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	L	eq Eve	ening	Leq Ni	ght		Ldn	CI	NEL
Autos:	68	.2 (	57.4		66.0		60.0		68.4	ŀ	69.1
Medium Trucks:	63	.8 (	50.9		53.2		62.4		68.5	5	68.6
Heavy Trucks:	69	.6 (	6.8		59.0		68.2		74.4		74.4
Vehicle Noise:	72	.6	70.6		67.0		69.7		76.2	2	76.3
Centerline Distanc	e to Noise Co	ontour (in feet)		70 "	D4 1	05 15			0 -10 4		-10.4
				70 dl	BA	65 dB	А	6	U dBA	55	aBA
			also -	00.		010			1 0 4 0	~ ~	
			dn:	284	1	612			1,319	2,	842

Tuesday, January 21, 2020

	FHV	VA-RD-77-108 H	HIGHWA	y nois	SE PRE		IODEL				
Scenari Road Nam Road Segmer	io: EAP le: SR-74 nt: s/o Meadov	vbrook Av.			F	Project Nam Job Numbe	e: JS 63 r: 12374	MX			
SITE	SPECIFIC IN	PUT DATA				NOIS	E MODE	EL INPU	TS		
Highway Data				Site	Cond	itions (Harc	l = 10, S	oft = 15)			
Average Daily	Traffic (Adt): 3	34,241 vehicles					Autos	: 15			
Peak Hour	Percentage:	7.71%			Medi	ium Trucks (	2 Axles)	: 15			
Peak H	lour Volume:	2,640 vehicles			Heav	vy Trucks (3	+ Axles)	: 15			
Ve	hicle Speed:	60 mph		Veh	icle Mi	iy .					
Near/Far La	ne Distance:	120 feet		ven	Vehici	k leType	Day	Evening	Nig	ght	Daily
Site Data						Autos	77.5%	6 14.09	5 10	).5%	92.00%
Bai	rrier Height:	0.0 feet			Mea	lium Trucks	48.0%	6 2.0%	50	).0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			He	avy Trucks	48.0%	6 2.0%	50	).0%	5.00%
Centerline Dis	st. to Barrier:	110.0 feet		Nois	se Sou	rce Elevati	ons (in f	eet)			
Centerline Dist.	to Observer:	110.0 feet		non		Autos:	0.000	000			-
Barrier Distance	to Observer:	0.0 feet		M	ledium	Trucks:	2 297				
Observer Height (	Above Pad):	5.0 feet			Heavv	Trucks:	8.006	Grade A	diustr	ment:	0.0
Pa	ad Elevation:	0.0 feet			noury	maono.	0.000		.,		
Roa	ad Elevation:	0.0 feet		Lan	e Equi	valent Dist	ance (in	feet)			
1	Road Grade:	0.0%				Autos:	92.331				
	Left View:	-90.0 degrees	6	M	ledium	Trucks:	92.235				
	Right View:	90.0 degrees	6		Heavy	Trucks:	92.244				
FHWA Noise Mode	el Calculation:	s								-	
VehicleType	REMEL	Traffic Flow	Distanc	e F	inite R	load Fre	esnel	Barrier A	tten	Bern	n Atten
Autos:	73.22	0.77	-	4.10		-1.20	-4.78	0	.000		0.000
Medium Trucks:	83.68	-14.10	-	4.09		-1.20	-4.88	C	.000		0.000
Heavy Trucks:	87.33	-11.88	-	4.09		-1.20	-5.14	0	.000		0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier at	tenuat	ion)						
VehicleType	Leq Peak Hou	r Leq Day	Lee	q Eveni	ing	Leq Night		Ldn		CN	IEL
Autos:	68	.7 6	7.9		66.5	6	0.5	68	1.9		69.6
Medium Trucks:	64	.3 6	1.4		53.7	6	2.9	69	0.0		69.1
Heavy Trucks:	70	.2 6	7.3		59.5	6	8.7	74	.9		74.9
Vehicle Noise:	73	.1 7	1.1		67.5	7	0.2	76	5.7		76.8
Centerline Distance	ce to Noise Co	ontour (in feet)									
				70 dBA		65 dBA		60 dBA		55 0	:IBA
		L	dn:	307		661		1,425		3,0	70
		CN	EL:	314		676		1,456		3,1	36

	FH	WA-RD-77-108	HIGH	IWAT N	UISE PF	EDICTIO		DEL				
Scenar	io: EAP					Project N	ame:	JS 63	MX			
Road Nam	e: Ethanac Ro	d.				Job Nur	nber:	12374				
Road Segme	nt: w/o SR-74											
SITE	SPECIFIC IN	IPUT DATA				NO	ISE	MODE	L INP	UTS	-	
Highway Data				S	lite Con	ditions (H	lard =	: 10, S	oft = 15	)		
Average Daily	Traffic (Adt):	587 vehicle	S					Autos.	15			
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2	Axles).	15			
Peak H	lour Volume:	45 vehicle	5		He	avy Truck	s (3+	Axles).	15			
Ve	hicle Speed:	40 mph		v	ehicle I	<i>Nix</i>						
Near/Far La	ne Distance:	12 feet		-	Vehi	cleType		Day	Evenii	ng Ni	ght	Daily
Site Data						Au	tos:	75.5%	6 14.0	10% 10	J.5%	97.42%
Ba	rrier Height:	0.0 feet			Me	dium Tru	cks:	48.9%	6 2.2	2% 48	3.9%	1.84%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	leavy Tru	cks:	47.3%	6 5.4	% 47	7.3%	0.74%
Centerline Di	st. to Barrier:	37.0 feet			loise So	urce Elev	atior	s (in f	eet)			
Centerline Dist.	to Observer:	37.0 feet				Autos	0	000	,			
Barrier Distance	to Observer:	0.0 feet			Mediur	n Trucks:	2	297				
Observer Height (	Above Pad):	5.0 feet			Heav	v Trucks:	8	006	Grade	Adiust	ment:	0.0
Pa	Pad Elevation: 0.0 feet											
Roa	Road Elevation: 0.0 feet						listan	ce (in	feet)			
1	Road Grade:	0.0%				Autos:	36	.851				
	Left View:	-90.0 degree	es		Mediur	n Trucks:	36	.610				
	Right View:	90.0 degree	es		Heav	y Trucks:	36	.634				
FHWA Noise Mode	el Calculation	s									-	
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fres	nel	Barrier	Atten	Berr	n Atten
Autos:	66.51	-14.88		1.88		-1.20		-4.56		0.000		0.000
Medium Trucks:	77.72	-32.12		1.93		-1.20		-4.87		0.000		0.000
Heavy Trucks:	82.99	-36.08		1.92		-1.20		-5.61		0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and	barrie	er attenu	uation)							-
VehicleType	Leq Peak Hou	ur Leq Day	'	Leq Ev	ening	Leq Ni	ght		Ldn		C٨	IEL
Autos:	52	1.3	51.4		50.1		44.	1	:	52.5		53.2
Medium Trucks:	46	i.3	43.6		36.1		44.	8	:	51.0		51.0
Heavy Trucks:	47	.6	44.7		41.3		46.	0		52.2		52.3
Vehicle Noise:	54	.3	52.8		50.8		49.	8	:	56.7		57.0
Centerline Distant	ce to Noise Co	ontour (in feet	)								_	
				70 d	BA	65 dE	BA	1	60 dBA		55 (	:IBA
		-	Ldn:	5		10			22		4	8
		Ci	VEL:	5		11			23		5	0

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	FH	WA-RD-77-108	HIGHWA	NY NO	DISE PI	REDICTIO	N MOE	DEL			
Scenar Road Nam Road Segmei	io: EAC ne: SR-74 nt: n/o Theda	St.				Project N Job Nur	'ame: J nber: 1	S 63 2374	MX		
SITE	SPECIFIC IN	NPUT DATA				NC	ISE M	IODE	L INPUT	5	
Highway Data				S	ite Con	ditions (H	lard = 1	10, So	oft = 15)		
Average Daily	Traffic (Adt):	28,241 vehicle	s				A	Autos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,177 vehicle	s		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	60 mph		V	ohiclo	Mix					
Near/Far La	ne Distance:	48 feet			Voh	ioloTuno		Dav	Evoning	Night	Daily
Site Data				-	Ven	Au	tos: T	77.5%	14.0%	10.5%	92.00%
Ba	wier Height	0.0 feet			М	edium Tru	cks: 4	48.0%	2.0%	50.0%	3.00%
Barrior Tupo (0.14	(all 1 Porm):	0.0 leet			1	leavy Tru	cks: 4	48.0%	2.0%	50.0%	5.00%
Centerline Di	st to Barrier	64.0 feet									
Centerline Dist.	to Observer:	64.0 feet		N	oise So	burce Elev	ations	(in fe	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height (	Above Pad):	5.0 feet			Mediu	m Trucks:	2.2	97	~		
Pa	Pad Elevation: 0.0 feet					y Trucks:	8.0	06	Grade Adj	ustmen	t: 0.0
Roa	Road Elevation: 0.0 feet						listanc	e (in :	feet)		
	Road Grade:	0.0%				Autos:	59.5	640			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	59.3	91			
	Right View:	90.0 degre	es		Heav	y Trucks:	59.4	06			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresne	e/	Barrier Atte	en Be	rm Atten
Autos:	73.22	-0.07		1.24		-1.20		4.70	0.0	000	0.000
Medium Trucks:	83.68	-14.94		1.22		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.72		-1.23		-1.20	-	5.31	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ Le	q Eve	ening	Leq N	ight		Ldn	C	NEL
Autos:	70	).7	69.9		68.5		62.5		71.0	)	71.6
Medium Trucks:	66	3.3	63.5		55.7		64.9		71.1		71.1
Heavy Trucks:	72	2.2	69.3		61.6		70.8		76.9	)	76.9
Vehicle Noise:	75	5.1	73.2		69.5		72.2		78.7	7	78.9
Centerline Distant	ce to Noise C	ontour (in fee	)								
				70 dl	BA	65 dE	BA	e	60 dBA	55	i dBA
			Ldn:	244	1	525			1,132	2	,439
		С	NEL:	249	9	537			1,156	2	,491

	FHV	VA-RD-77-108	HIGHV	VAY NO	DISE PF	REDICTIO		EL _			
Scenari	o: EAC					Project N	ame: J	S 63 I	МХ		
Road Nam	e: SR-74					Job Nur	nber: 1	2374			
Road Segmer	nt: s/o Theda S	St.									
SITE	SPECIFIC IN	PUT DATA				NO	ISE M	ODE		s	
Highway Data				S	ite Con	ditions (H	lard = 1	10, Sc	oft = 15)		
Average Daily	Traffic (Adt):	31,643 vehicles	;				A	utos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	our Volume:	2,440 vehicles	;		He	avy Truck	s (3+ A	xles):	15		
Vel	nicle Speed:	60 mph		v	ehicle I	Nix					
Near/Far Lar	ne Distance:	48 feet			Vehi	icleType	l	Day	Evening	Night	Daily
Site Data						Au	tos: 1	7.5%	14.0%	10.5%	92.00%
Bar	rier Height	0.0 feet			Me	edium Tru	cks: 4	18.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all. 1-Berm):	0.0			ŀ	leavy Tru	cks: 4	18.0%	2.0%	50.0%	5.00%
Centerline Dis	t. to Barrier:	64.0 feet			laiaa Ca	uree Eler	ations	lin he	o.4)		
Centerline Dist.	to Observer:	64.0 feet		N	use su	Autoor	auons	00	el)		
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucke:	2.0	00			
Observer Height (J	Above Pad):	5.0 feet			Hear	II TTUCKS.	2.2	97 06	Grade Ad	liustmont	
Pa	d Elevation:	0.0 feet			neav	y mucks.	0.0	00	Olduc Au	justinent	0.0
Roa	d Elevation:	0.0 feet		L	ane Equ	uivalent D	listanc	e (in f	'eet)		
F	Road Grade:	0.0%				Autos:	59.5	40			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	59.3	91			
	Right View:	90.0 degree	s		Heav	y Trucks:	59.4	06			
FHWA Noise Mode	Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el 🛛	Barrier Att	en Ber	m Atten
Autos:	73.22	0.42		-1.24		-1.20	-	4.70	0.0	000	0.000
Medium Trucks:	83.68	-14.44		-1.22		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.22		-1.23		-1.20	-	5.31	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Hou	r Leq Day	· 1	Leq Ev	ening	Leq Ni	ght		Ldn	CI	VEL
Autos:	71	.2	70.4		69.0		63.0		71.8	5	72.1
Medium Trucks:	66	.8	54.0		56.2		65.4		71.8	5	71.6
Heavy Trucks:	72	.7	59.8		62.0		71.3		77.4	4	77.4
Vehicle Noise:	75	.6	73.6		70.0		72.7		79.2	2	79.3
Centerline Distanc	e to Noise Co	ontour (in feet)	1	70 -	04	05 -15			0 -10 4		-/0.4
			L dn:	70 di	DA	00 dE		6	1 221	1 55	00A 621
			Lun.	200	,	007			1,441	Ζ,	001
		0	151 .	260	2	570			1 2/7	2	697

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	FHW	/A-RD-77-108 HI	GHWAY	NOISE P	REDICTION	MODEL			
Scenari	o: EAC				Project Na	me: JS 63	MX		
Road Nam	e: SR-74	Pd			JOD NUM	ber: 1237	4		
Noau Seginer		Nu.							
SITE S	SPECIFIC IN	PUT DATA		04-0	NOI	SE MOD	EL INPUT	S	
Highway Data				Site Con	ditions (Ha	ard = 10, 3	50ft = 15)		
Average Daily	Traffic (Adt): 3	0,352 vehicles				Autos	s: 15		
Peak Hour	Percentage:	7.71%		Me	dium Truck	s (2 Axles	): 15		
Peak H	our volume:	2,340 vehicles		He	avy Trucks	(3+ Axles	): 15		
Ve	hicle Speed:	60 mph		Vehicle	Mix				
Near/Far La	ne Distance:	48 feet		Veh	icleType	Day	Evening	Night	Daily
Site Data					Auto	os: 77.5	% 14.0%	10.5	% 92.00%
Bai	rier Height:	0.0 feet		М	edium Truci	ks: 48.0	% 2.0%	50.0	% 3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			Heavy Truci	ks: 48.0	% 2.0%	50.0	% 5.00%
Centerline Dis	st. to Barrier:	59.0 feet		Noise Se	ource Eleva	ations (in	feet)		
Centerline Dist.	to Observer:	59.0 feet			Autos:	0.000			-
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297			
Observer Height (	Above Pad):	5.0 feet		Hear	vy Trucks:	8.006	Grade Ad	ljustme	nt: 0.0
Pa	ad Elevation:	0.0 feet		1 5	·	(1-	6		
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent Di	stance (Ir	reet)		
	Road Grade:	0.0%			Autos:	54.129			
	Left View:	-90.0 degrees		Mediu	m Trucks:	53.966			
	Right View:	90.0 degrees		Hear	y Trucks:	53.982			
FHWA Noise Mode	el Calculations								
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road I	Fresnel	Barrier At	ten B	erm Atten
Autos:	73.22	0.24	-0.	62	-1.20	-4.69	) 0.	000	0.000
Medium Trucks:	83.68	-14.62	-0.	60	-1.20	-4.88	30.	000	0.000
Heavy Trucks:	87.33	-12.40	-0.	60	-1.20	-5.38	o 0.	000	0.000
Unmitigated Noise	e Levels (witho	out Topo and ba	rrier atte	nuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Nig	ht	Ldn		CNEL
Autos:	71.	6 70.	.9	69.5		63.4	71.	9	72.5
Medium Trucks:	67.	3 64	.4	56.6		65.8	72.	0	72.0
Heavy Trucks:	73.	1 70.	.3	62.5		71.7	77.	8	77.9
Vehicle Noise:	76.	1 74	.1	70.4		73.2	79.	7	79.8
Centerline Distance	e to Noise Co	ntour (in feet)							
			70	) dBA	65 dB/	4	60 dBA	5	i5 dBA
		Ld	n: 2	260	559		1,205		2,596
		CNE	L: 2	265	571		1,231		2,651

Scenario: E/	AC					Project Nai	ne: JS 63	MX		
Road Name: SI	R-74					Job Numb	er: 12374	1		
Road Segment: s/	o Ethanac	Rd.								
SITE SPE	CIFIC INF	PUT DATA				NOI	SE MODI	EL INPUT	S	
Highway Data					Site Con	ditions (Ha	rd = 10, S	oft = 15)		
Average Daily Traffi	ic (Adt): 3	1,293 vehicles					Autos	: 15		
Peak Hour Perc	entage:	7.71%			Me	dium Trucks	(2 Axles)	: 15		
Peak Hour V	/olume:	2,413 vehicles			He	avy Trucks	(3+ Axles)	: 15		
Vehicle	Speed:	60 mph			Vehicle I	Mix				
Near/Far Lane Di	istance:	120 feet			Vehi	icleType	Day	Evening	Night	Daily
Site Data				-		Auto	s: 77.59	% 14.0%	10.5%	92.00%
Barrier	Hoiaht <sup>.</sup>	0.0 feet			Me	edium Truck	s: 48.09	% 2.0%	50.0%	3.00%
Barrier Type (0-Wall, 1	-Berm):	0.0			ŀ	leavy Truck	s: 48.09	% 2.0%	50.0%	5.00%
Centerline Dist. to	Barrier:	110.0 feet		-	Noise So	ource Eleva	tions (in	feet)		
Centerline Dist. to Ot	oserver:	110.0 feet		-	10.00 00	Autos:	0.000			
Barrier Distance to Ot	oserver:	0.0 feet			Mediur	n Trucks:	2 297			
Observer Height (Abov	e Pad):	5.0 feet			Heav	v Trucks:	8 006	Grade Ad	liustmen	t: 0.0
Pad Ele	evation:	0.0 feet			mour	<i>y maono.</i>	0.000		,	
Road Ele	evation:	0.0 feet		1	Lane Equ	uivalent Dis	tance (in	feet)		
Road	Grade:	0.0%				Autos:	92.331			
Le	ft View:	-90.0 degrees			Mediur	n Trucks:	92.235			
Righ	ht View:	90.0 degrees			Heav	y Trucks:	92.244			
FHWA Noise Model Ca	lculations									
VehicleType RI	EMEL	Traffic Flow	Dista	nce	Finite	Road F	resnel	Barrier At	ten Be	rm Atten
Autos:	73.22	0.38		-4.10	0	-1.20	-4.78	0.	000	0.000
Medium Trucks:	83.68	-14.49		-4.09	9	-1.20	-4.88	0.	000	0.000
Heavy Trucks:	87.33	-12.27		-4.09	9	-1.20	-5.14	0.	000	0.000
Unmitigated Noise Lev	els (witho	ut Topo and b	arrier	atten	uation)					
VehicleType Leq	Peak Hour	Leq Day	L	eq Ev	vening	Leq Nigl	nt	Ldn	C	NEL
Autos:	68.3	3 6	7.5		66.1		60.1	68.	6	69.2
Medium Trucks:	63.9	9 6	1.1		53.3		62.5	68.	6	68.7
Heavy Trucks:	69.8	3 66	5.9		59.1		68.3	74.	5	74.5
Vehicle Noise:	72.	7 70	0.7		67.1		69.8	76.	3	76.4
Centerline Distance to	Noise Cor	ntour (in feet)								
				70 c	'BA	65 dBA		60 dBA	55	i dBA
		L	dn:	28	39	623		1,342	2	,891
		CN	EL:	29	95	636		1,371	2	,953

Tuesday, January 21, 2020

	FH	WA-RD-77-108	HIGHW	AY NO	DISE PI	REDICTIO	N MOI	DEL			
Scenari Road Nam Road Segmer	io: EAC ie: SR-74 nt: n/o River F	łd.				Project N Job Nur	ame: 、 nber: 1	JS 63 12374	MX		
SITE	SPECIFIC IN	NPUT DATA				NC	ISE N	IODE	L INPUTS	5	
Highway Data				S	ite Con	ditions (H	lard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	31,937 vehicle	s				,	Autos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	(xles).	: 15		
Peak H	lour Volume:	2,462 vehicle	s		He	avy Truck	s (3+ A	(xles)	: 15		
Ve	hicle Speed:	60 mph		V	ahiala	Mix					
Near/Far La	ne Distance:	120 feet		v	Voh	iolo Tuno		Davi	Evening	Might	Daily
Site Data					ven	A	itos:	Day 77.5%	6 14.0%	10.5%	92.00%
One Data	wier Height	0.0 feet			М	edium Tru	cks:	48.0%	6 2.0%	50.0%	3.00%
Derrier Tune (0.14		0.0 leet				Heavv Tru	cks:	48.0%	6 2.0%	50.0%	5.00%
Centerline Dis	st. to Barrier:	110.0 feet				·					
Centerline Dist.	to Observer:	110.0 feet		N	loise So	ource Elev	/ations	s (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	000			
Observer Height (	Above Pad):	5.0 feet			Mediu	m Trucks:	2.2	297	Our de Ad		
Pa	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	006	Grade Adj	ustmen	t: 0.0
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent D	Distand	ce (in	feet)		
1	Road Grade:	0.0%				Autos:	92.3	331			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	92.2	235			
	Right View:	90.0 degre	es		Heav	/y Trucks:	92.2	244			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Atte	en Bei	rm Atten
Autos:	73.22	0.46		-4.10		-1.20		-4.78	0.0	00	0.000
Medium Trucks:	83.68	-14.40		-4.09		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.18		-4.09		-1.20		-5.14	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	/ Le	eq Eve	ening	Leq N	ight		Ldn	С	NEL
Autos:	68	3.4	67.6		66.2		60.2		68.6		69.3
Medium Trucks:	64	4.0	61.1		53.4		62.6		68.7		68.8
Heavy Trucks:	69	9.8	67.0		59.2		68.4		74.6	1	74.6
Vehicle Noise:	72	2.8	70.8		67.2		69.9	)	76.4		76.5
Centerline Distance	ce to Noise C	ontour (in fee	)								
				70 dl	BA	65 dE	BA	- 1	60 dBA	55	i dBA
			Ldn:	293	3	631			1,360	2	,931
		С	NEL:	299	Э	645			1,390	2	,994

	FHV	VA-RD-77-108	HIGH	NAY N	OISE PF	REDICTIO	N MOL	EL _			
Scenari	o: EAC					Project N	lame: J	S 63 I	ИX		
Road Nam	e: SR-74					Job Nui	nber: 1	2374			
Road Segmer	nt: s/o River R	d.									
SITES	SPECIFIC IN	PUT DATA				NC	ISE M	ODE		s	
Highway Data				S	lite Con	ditions (H	lard = 1	10, Sc	oft = 15)		
Average Daily	Traffic (Adt): 3	31,226 vehicle	6				A	utos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	our Volume:	2,408 vehicle	5		He	avy Truck	s (3+ A.	xles):	15		
Vel	nicle Speed:	60 mph		V	ehicle l	<i>lix</i>					
Near/Far Lar	ne Distance:	120 feet			Vehi	cleType	L	Day	Evening	Night	Daily
Site Data						Au	tos: 7	7.5%	14.0%	10.5%	92.00%
Bar	rier Height:	0.0 feet			Me	edium Tru	cks: 4	18.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all, 1-Berm):	0.0			F	łeavy Tru	cks: 4	18.0%	2.0%	50.0%	5.00%
Centerline Dis	t. to Barrier:	110.0 feet			loiso Sa	urco Elo	ations	(in fe	of)		
Centerline Dist.	to Observer:	110.0 feet		~	10/36 30	Autoor		00	el)		
Barrier Distance	to Observer:	0.0 feet			Modiu	n Trucks:	2.0	00			
Observer Height (J	Above Pad):	5.0 feet			Hear	n mucks.	2.2	97 06	Grade Ad	iustmont	
Pa	d Elevation:	0.0 feet			neav	y mucks.	0.0	00	Olduc Au	usunon	0.0
Roa	d Elevation:	0.0 feet		L	ane Equ	ivalent E	Distanc	e (in f	'eet)		
F	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degree	es		Mediur	n Trucks:	92.2	35			
	Right View:	90.0 degree	es		Heav	y Trucks:	92.2	44			
FHWA Noise Mode	Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el 🛛	Barrier Att	en Ber	m Atten
Autos:	73.22	0.37		-4.10	1	-1.20	-	4.78	0.0	000	0.000
Medium Trucks:	83.68	-14.50		-4.09	1	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.28		-4.09		-1.20	-	5.14	0.0	000	0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	r attenı	uation)						
VehicleType	Leq Peak Hou	r Leq Day	· .	Leq Ev	ening	Leq N	ight		Ldn	CI	VEL
Autos:	68	.3	67.5		66.1		60.1		68.5	5	69.2
Medium Trucks:	63	.9	61.0		53.3		62.5		68.6	- -	68.7
Heavy Trucks:	69	.8	66.9		59.1		68.3		74.3	>	74.5
Vehicle Noise:	72	.7	70.7		67.1		69.8		76.3	3	76.4
Centerline Distanc	e to Noise Co	ontour (in feet	)	70 d	DA	65 41	24	6	O dBA	55	dD A
			I dn	200	0	600 01		c	1 340	30	0,074 8.87
			Lun.	203	5	022			1,040	∠,	007
		0	VEL ·	20	5	625			1 360	2	010

 FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

 Scenario:
 EAC
 Project Name:
 S 63 MX

 Road Name:
 SR-74
 Job Number:
 12374

 Road Segment:
 s/o Meadowbrook Av.
 Site Seconditions (Hard = 10, Soft = Average Daily Traffic (Adt):
 34,694 vehicles
 Autos:
 1

SITE	SPECIFIC INF	PUT DATA				P	IOISE	MODE	L INPUT	s	
Highway Data				3	Site Con	ditions	(Hard :	= 10, Se	oft = 15)		
Average Daily	Traffic (Adt): 34	4,694 vehicles						Autos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Tr	ucks (2	Axles):	15		
Peak H	lour Volume:	2,675 vehicles			He	avy Tru	cks (3+	Axles):	15		
Ve	hicle Speed:	60 mph			Vohiclo	Niv					
Near/Far La	ne Distance:	120 feet		H	Venicie i Vehi	icleType	<b>.</b>	Dav	Evenina	Night	Daily
Site Data					1011	0.01.900	Autos:	77.5%	14.0%	10.5%	92.00%
Ba	rrier Height	0.0 feet			Me	edium T	rucks:	48.0%	2.0%	50.0%	3.00%
Barrier Type (0-V	Vall 1-Berm)	0.0 1001			F	leavy T	rucks:	48.0%	2.0%	50.0%	5.00%
Centerline Di	ist, to Barrier:	110.0 feet		-					41		
Centerline Dist.	to Observer:	110.0 feet		'	voise Sc	ource E	levatio	ns (in t	eet)		
Barrier Distance	to Observer:	0.0 feet				Auto	s: C	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediui	n Truck	:S: 2		Our de Ari		
P	ad Elevation:	0.0 feet			Heav	y Truck	:s: 8	.006	Grade Ad	justmen	E 0.0
Ro	ad Elevation:	0.0 feet		1	Lane Equ	uivalen	t Distar	nce (in	feet)		
	Road Grade:	0.0%				Auto	s: 92	2.331			
	Left View:	-90.0 degree	s		Mediur	n Truck	s: 92	2.235			
	Right View:	90.0 degree	s		Heav	y Truck	is: 92	2.244			
FHWA Noise Mod	el Calculations										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier Att	en Be	rm Atten
Autos:	73.22	0.82		-4.10	)	-1.20		-4.78	0.0	000	0.00
Medium Trucks:	83.68	-14.04		-4.09	9	-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	87.33	-11.82		-4.09	9	-1.20		-5.14	0.0	000	0.00
Unmitigated Nois	e Levels (witho	ut Topo and I	barrie	r atten	uation)						
VehicleType	Leq Peak Hour	Leq Day		Leg Ev	/ening	Leq	Night		Ldn	C	NEL
Autos:	68.7	76	6.88		66.6		60	.5	69.0	C	69.
Medium Trucks:	64.3	36	51.5		53.7		62	.9	69.1	1	69.
Heavy Trucks:	70.2	26	67.4		59.6		68	.8	74.9	Э	75.
Vehicle Noise:	73.2	2 7	71.2		67.5		70	.3	76.	7	76.
Centerline Distan	ce to Noise Cor	ntour (in feet)									
				70 c	1BA	65	dBA	(	60 dBA	55	i dBA
		l	dn:	31	0	6	67		1,437	3	,097
		CN	IEL:	31	6	6	82		1,468	3	,164

	FH	WA-RD-77-108	HIGHW	AY NO	DISE PI	KEDICTIC		DEL				
Scenar	io: EAC					Project N	lame:	JS 63	MX			
Road Nam	e: Ethanac R	d.				Job Nu	mber:	12374				
Road Segme	nt: w/o SR-74											
SITE	SPECIFIC II	NPUT DATA				N	DISE N	NODE	L INPU	TS		
Highway Data				S	ite Con	ditions (l	Hard =	10, Se	oft = 15)			
Average Daily	Traffic (Adt):	167 vehicles	6					Autos:	15			
Peak Hour	Percentage:	7.71%			Me	dium True	cks (2 /	Axles):	15			
Peak H	lour Volume:	13 vehicles	5		He	avy Truck	(3+ /	Axles):	15			
Ve	hicle Speed:	40 mph		v	ehicle l	Mix						
Near/Far La	ne Distance:	12 feet		-	Veh	icleTvpe		Dav	Evenin	a N	iaht	Dailv
Site Data						A	utos:	75.5%	14.09	<u>/</u> // 1	0.5%	97.42%
Ba	rrior Hoight	0.0 feet			M	edium Tru	icks:	48.9%	2.29	ω 4	8.9%	1.84%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy Tru	icks:	47.3%	5.49	ω 4	7.3%	0.74%
Centerline Di	st. to Barrier:	37.0 feet			laiaa Cr	uree Ele	votion	o (in f	0.041			
Centerline Dist.	to Observer:	37.0 feet		N	ioise so	Autoo	vation	s (IN 1)	eet)			
Barrier Distance	to Observer:	0.0 feet			Madiu	Autos.	0.0	207				
Observer Height	(Above Pad):	5.0 feet			Healu	Trucks.		297	Grado	Adius	Imont	
P	ad Elevation:	0.0 feet			neav	y muchs.	0.	000	Oldde /	Tujusi	inch.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent l	Distan	ce (in	feet)			
	Road Grade:	0.0%				Autos:	36.	851				
	Left View:	-90.0 degree	es		Mediu	m Trucks:	36.	610				
	Right View:	90.0 degree	es		Heav	y Trucks:	36.	634				
FHWA Noise Mod	el Calculation	IS										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresr	nel	Barrier /	Atten	Ber	m Atten
Autos:	66.51	-20.34		1.88		-1.20		-4.56		0.000		0.000
Medium Trucks:	77.72	-37.58		1.93		-1.20		-4.87		0.000		0.000
Heavy Trucks:	82.99	-41.54		1.92		-1.20		-5.61		0.000		0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	uation)							
VehicleType	Leq Peak Ho	ur Leq Day	L	eq Ev	ening	Leq N	light		Ldn		CI	VEL
Autos:	46	5.9	46.0		44.7		38.6	3	4	7.1		47.7
Medium Trucks:	40	).9	38.1		30.6		39.3	3	4	5.5		45.6
Heavy Trucks:	42	2.2	39.3		35.9		40.5	5	4	ô.7		46.8
Vehicle Noise:	48	3.9	47.4		45.3		44.3	3	5	1.3		51.5
Centerline Distant	ce to Noise C	ontour (in feet	)									
			∟	70 d	ВA	65 d	ВA	(	50 dBA		55	dBA
			Ldn:	2		4			10		2	21
		CI	VEL:	2		5			10		2	22

Tuesday, January 21, 2020

Tuesday, January 21, 2020

	FH	WA-RD-77-108	HIGHW	NY NO	OISE P	REDICTIO	N MOI	DEL			
Scenar Road Nam Road Segmei	io: EAPC le: SR-74 nt: n/o Theda	St.				Project N Job Nur	lame: J mber: 1	IS 63 2374	MX		
SITE	SPECIFIC IN	NPUT DATA				NC	DISE N	IODE	L INPUTS	5	
Highway Data				S	ite Cor	ditions (H	lard =	10, Se	oft = 15)		
Average Daily	Traffic (Adt):	28,430 vehicle	s				1	Autos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,192 vehicle	s		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	60 mph			ahiala	Miv					
Near/Far La	ne Distance:	48 feet		ľ	Voh	violo Turno		Dav	Evoning	Night	Daily
Site Data					Ven	Au	itos:	77.5%	5 14.0%	10.5%	92.00%
Pa	rrior Hoight:	0.0 foot			М	edium Tru	cks:	48.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all 1-Berm)	0.0 1001			1	Heavy Tru	cks:	48.0%	6 2.0%	50.0%	5.00%
Centerline Dis	st. to Barrier:	64.0 feet		-							
Centerline Dist.	to Observer:	64.0 feet		N	ioise S	burce Elev	vations		eet)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	000			
Observer Height (	Above Pad):	5.0 feet			Mediu	m Trucks:	2.2	97	Crada Adi		
Pa	ad Elevation:	0.0 feet			Hear	/y Trucks:	8.0	106	Grade Adj	usunem	. 0.0
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent D	Distanc	e (in	feet)		
	Road Grade:	0.0%				Autos:	59.5	540			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	59.3	891			
	Right View:	90.0 degre	es		Hear	vy Trucks:	59.4	106			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Atte	en Bei	rm Atten
Autos:	73.22	-0.04		-1.24		-1.20		4.70	0.0	00	0.000
Medium Trucks:	83.68	-14.91		1.22		-1.20		4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.69		-1.23		-1.20		-5.31	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenı	uation)						
VehicleType	Leq Peak Ho	ur Leq Daj	/ Le	q Ev	ening	Leq N	ight		Ldn	С	NEL
Autos:	70	).7	70.0		68.6		62.5		71.0		71.6
Medium Trucks:	66	3.4	63.5		55.7		64.9		71.1		71.1
Heavy Trucks:	72	2.2	69.4		61.6		70.8		76.9		77.0
Vehicle Noise:	75	5.2	73.2		69.5		72.3		78.7		78.9
Centerline Distant	ce to Noise C	ontour (in feet	)								
				70 d	BA	65 dE	BA		60 dBA	55	dBA
			Ldn:	24	5	528	3		1,137	2	449
		С	NEL:	250	0	539	)		1,161	2	,502

Scenario: Road Name: Road Segment: SITE SI	EAPC SR-74 s/o Theda S					Project Na	ame: JS	63 N	ЛX		
Road Segment:	s/o Theda S					Joh Nun	hor 13	374			
SITE SI		t.				300 Muli	IDCI. 12	.574			
	PECIFIC IN	PUT DATA				NO	ISE MO	DDEL		s	
Highway Data				4	Site Con	ditions (H	ard = 1	0, So	ft = 15)		
Average Daily Tr	raffic (Adt): 3	1,853 vehicles	6				AL	itos:	15		
Peak Hour P	ercentage:	7.71%			Me	dium Truck	(2 Ax	les):	15		
Peak Ho	ur Volume:	2,456 vehicles	6		He	avy Trucks	(3+ Ax	les):	15		
Vehi	cle Speed:	60 mph			Vehicle I	Aix					
Near/Far Lane	e Distance:	48 feet		F	Vehi	cleType	D	ay	Evening	Night	Daily
Site Data		-				Aut	os: 7	7.5%	14.0%	10.5%	92.00%
Rarri	ier Heiaht <sup>.</sup>	0.0 feet			Me	edium Truc	ks: 4	8.0%	2.0%	50.0%	3.00%
Barrier Type (0-Wai	II. 1-Berm):	0.0			F	leavy Truc	ks: 4	8.0%	2.0%	50.0%	5.00%
Centerline Dist.	to Barrier:	64.0 feet		-	N-1 0-		- 41	(Inc. 6 -	- 41		
Centerline Dist. to	Observer:	64.0 feet		-	voise so	urce Elev	ations	In re	et)		
Barrier Distance to	Observer:	0.0 feet			Modiu	Autos:	0.00	10			
Observer Height (A	bove Pad):	5.0 feet			Mediur	n Trucks:	2.28	6	Grada Ad	iustmont	0.0
Pad	Elevation:	0.0 feet			Heav	y Trucks:	8.00	Ø	Giaue Au	usunen.	0.0
Road	l Elevation:	0.0 feet		1	Lane Equ	ivalent D	istance	(in f	eet)		
Ro	oad Grade:	0.0%				Autos:	59.54	10			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	59.39	91			
F	Right View:	90.0 degree	s		Heav	y Trucks:	59.40	)6			
FHWA Noise Model	Calculations	;									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresnei		Barrier Att	en Ber	m Atten
Autos:	73.22	0.45		-1.2	4	-1.20	-4	1.70	0.0	000	0.000
Medium Trucks:	83.68	-14.41		-1.2	2	-1.20	-4	1.88	0.0	000	0.000
Heavy Trucks:	87.33	-12.20		-1.2	3	-1.20	-5	5.31	0.0	000	0.000
Unmitigated Noise I	Levels (witho	ut Topo and	barrie	er atten	uation)						
VehicleType L	eq Peak Hou	<ul> <li>Leq Day</li> </ul>		Leq E	vening	Leq Ni	ght		Ldn	CI	VEL
Autos:	71.	2	70.5		69.1		63.0		71.8	5	72.1
Medium Trucks:	66.	8 (	64.0		56.2		65.4		71.6	3	71.6
Heavy Trucks:	72.	7	69.9		62.1		71.3		77.4	1	77.5
Vehicle Noise:	75.	7	73.7		70.0		72.8		79.2	2	79.4
Centerline Distance	to Noise Co	ntour (in feet)	)	70.		ee de	4	6	0 dBA	55	dD A
			I dn'	700	M SA	560	~	1	1 226	35	342
			_un.	20		009			,220	2,0	J72
		~	IFI ·	27	70	5.90		- 1	1 253	2.0	200

FH	WA-RD-77-108 HIGI	HWAY N	IOISE PREDICTIO	ON MODEL		
Scenario: EAPC Road Name: SR-74 Road Segment: n/o Ethana	ac Rd.		Project I Job Nu	Name: JS 63 mber: 12374	MX 4	
SITE SPECIFIC I	NPUT DATA		N	DISE MOD	EL INPUTS	5
Highway Data		;	Site Conditions (	Hard = 10, S	Goft = 15)	
Average Daily Traffic (Adt):	30,562 vehicles			Autos	: 15	
Peak Hour Percentage:	7.71%		Medium Tru	CKS (2 AXIES)	1: 15	
Peak Hour Volume:	2,356 vehicles		Heavy Truck	(S (3+ Axies)	1: 15	
Vehicle Speed:	60 mph		Vehicle Mix			
Near/Far Lane Distance:	48 feet		VehicleType	Day	Evening	Night Daily
Site Data			A	utos: 77.5	% 14.0%	10.5% 92.00%
Barrier Height:	0.0 feet		Medium Tru	icks: 48.09	% 2.0%	50.0% 3.00%
Barrier Type (0-Wall, 1-Berm):	0.0		Heavy Tr.	icks: 48.09	% 2.0%	50.0% 5.00%
Centerline Dist. to Barrier:	59.0 feet	7	Noise Source Ele	vations (in	feet)	
Centerline Dist. to Observer:	59.0 feet		Autos.	0.000		
Barrier Distance to Observer:	0.0 feet		Medium Trucks	2.297		
Observer Height (Above Pad):	5.0 feet		Heavy Trucks	8.006	Grade Adju	ustment: 0.0
Pad Elevation:	0.0 feet	H				
Road Elevation:	0.0 feet	4	Lane Equivalent	Distance (in	feet)	
Road Grade:	0.0%		Autos.	54.129		
Left View:	-90.0 degrees		Medium Trucks	53.966		
Right View:	90.0 degrees		Heavy Trucks.	53.982		
FHWA Noise Model Calculation	าร					
VehicleType REMEL	Traffic Flow Di	stance	Finite Road	Fresnel	Barrier Atte	en Berm Atten
Autos: 73.22	2 0.27	-0.6	2 -1.20	-4.69	0.0	00 0.000
Medium Trucks: 83.68	3 -14.59	-0.6	0 -1.20	-4.88	0.0	00 0.000
Heavy Trucks: 87.33	-12.37	-0.6	0 -1.20	-5.35	0.0	00 0.000
Unmitigated Noise Levels (with	hout Topo and barri	ier atten	uation)			
VehicleType Leq Peak Ho	ur Leq Day	Leq E	vening Leq N	light	Ldn	CNEL
Autos: 7	1.7 70.9		69.5	63.5	71.9	72.6
Medium Trucks: 6	7.3 64.4		56.7	65.9	72.0	72.1
Heavy Trucks: 7	3.1 70.3		62.5	71.7	77.9	77.9
Vehicle Noise: 7	6.1 74.1		70.5	73.2	79.7	79.8
Centerline Distance to Noise C	contour (in feet)					
		70 0	dBA 65 d	BA	60 dBA	55 dBA
	Ldn:	26	51 56	2	1,210	2,608

	FH	WA-RD-77-10	B HIGHV	AY NO	DISE PI	REDICTI	ON MODE	ΞL			
Scenar Road Narr Road Segme	io: EAPC ne: SR-74 nt: s/o Ethana	ac Rd.				Project Job N	Name: JS umber: 12	63 M) 374	<		
SITE	SPECIFIC II	NPUT DATA				N	OISE MO	DDEL	INPUTS		
Highway Data				S	ite Con	ditions	(Hard = 10	), Soft	= 15)		
Average Daily	Traffic (Adt):	31,503 vehicle	es				AL	itos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Tru	icks (2 Ax	les):	15		
Peak H	lour Volume:	2,429 vehicle	es		He	avy Truc	ks (3+ Ax	les):	15		
Ve	hicle Speed:	60 mph		V	ohiclo I	Mix					
Near/Far La	ne Distance:	120 feet			Veh	icleTvne	D	av F	venina	Niaht	Daily
Site Data					1011	A	utos: 7	7.5%	14.0%	10.5%	92.00%
Pa	rrior Hoight:	0.0 foot			M	edium Tr	ucks: 48	3.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	/all 1-Rerm)	0.0 1001			ŀ	leavy Tr	ucks: 48	3.0%	2.0%	50.0%	5.00%
Centerline Di	st. to Barrier:	110.0 feet						() K	4		
Centerline Dist.	to Observer:	110.0 feet		N	oise So	burce El	evations (	in fee	9		-
Barrier Distance	to Observer:	0.0 feet				Autos	. 0.00	7			
Observer Height	Above Pad):	5.0 feet			Mediu	TT TTUCKS	5: 2.29	, , ,	rado Adiu	istmont	
P	ad Elevation:	0.0 feet			neav	y mucks	5. 0.00	0 0	Taue Auju	isunen.	. 0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distance	(in fee	ət)		
	Road Grade:	0.0%				Autos	s: 92.33	1			
	Left View:	-90.0 degre	es		Mediu	m Trucks	s: 92.23	5			
	Right View:	90.0 degre	es		Heav	ry Trucks	s: 92.24	4			
FHWA Noise Mod	el Calculation	15							-		
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresnel	Ba	arrier Atte	n Ber	m Atten
Autos:	73.22	2 0.41		-4.10		-1.20	-4	.78	0.00	00	0.000
Medium Trucks:	83.68	-14.46	6	-4.09		-1.20	-4	.88	0.00	00	0.000
Heavy Trucks:	87.33	-12.24	ł	-4.09		-1.20	-5	.14	0.00	00	0.000
Unmitigated Noise	e Levels (with	hout Topo and	l barrier	attenu	ation)				-		-
VehicleType	Leq Peak Ho	ur Leq Da	y L	eq Eve	ening	Leq I	Night	L	dn	CI	NEL
Autos:	6	8.3	67.6		66.1		60.1		68.6		69.2
Medium Trucks:	6	3.9	61.1		53.3		62.5		68.7		68.7
Heavy Trucks:	6	9.8	66.9		59.2		68.4		74.5		74.6
Vehicle Noise:	7.	2.7	70.8		67.1		69.9		76.3		76.5
Centerline Distan	ce to Noise C	ontour (in fee	t)								
				70 dl	BA	65 0	1BA	60	dBA	55	dBA
			Ldn:	290	)	62	26	1,	348	2,	904
		C	NEL:	297	r	63	59	1,3	511	2,	966

#### Tuesday, January 21, 2020

Tuesday, January 21, 2020

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	FH	WA-RD-77-108	HIGHWA	NY NO	DISE PI	REDICTIO	N MOI	DEL			
Scenari Road Nam Road Segmer	io: EAPC le: SR-74 nt: n/o River F	łd.				Project N Job Nur	lame: J mber: 1	S 63 2374	MX		
SITE	SPECIFIC IN	NPUT DATA				NC	DISE N	IODE	L INPUTS	5	
Highway Data				S	ite Con	ditions (H	lard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	32,147 vehicle	s				1	Autos:	15		
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	2,479 vehicle	s		He	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	60 mph		V	ohiclo	Mix					
Near/Far La	ne Distance:	120 feet			Voh	icleType		Dav	Evening	Night	Daily
Site Data					VCII	Au	itos:	77.5%	5 14.0%	10.5%	92.00%
Bai	rrior Hoight	0.0 feet			М	edium Tru	cks:	48.0%	2.0%	50.0%	3.00%
Barrier Type (0-W	all 1-Berm)	0.0			1	Heavy Tru	cks:	48.0%	2.0%	50.0%	5.00%
Centerline Dis	st. to Barrier:	110.0 feet			laina Cr	ouroo Elos	votions	link	0.04)		
Centerline Dist.	to Observer:	110.0 feet		N	Uise St	Juice Eler	valions		eel)		
Barrier Distance	to Observer:	0.0 feet			Madiu	Autos.	0.0	00			
Observer Height (	Above Pad):	5.0 feet			Healu	ni Trucks.	2.2	.97	Grada Adi	ilstmon	
Pá	ad Elevation:	0.0 feet			nea	ly mucks.	0.0	00	Grade Adj	usunem	. 0.0
Roa	ad Elevation:	0.0 feet		Li	ane Eq	uivalent D	Distanc	e (in	feet)		
1	Road Grade:	0.0%				Autos:	92.3	31			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	92.2	35			
	Right View:	90.0 degre	es		Heav	/y Trucks:	92.2	44			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	e/	Barrier Atte	en Bei	rm Atten
Autos:	73.22	0.49		4.10		-1.20		4.78	0.0	00	0.000
Medium Trucks:	83.68	-14.37		4.09		-1.20		4.88	0.0	00	0.000
Heavy Trucks:	87.33	-12.16		4.09		-1.20		5.14	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier a	ttenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Day	ν Le	q Eve	ening	Leq N	ight		Ldn	С	NEL
Autos:	68	3.4	67.6		66.2		60.2		68.7		69.3
Medium Trucks:	64	1.0	61.2		53.4		62.6		68.7		68.8
Heavy Trucks:	69	9.9	67.0		59.2		68.5		74.6	i	74.6
Vehicle Noise:	72	2.8	70.9		67.2		69.9		76.4		76.6
Centerline Distance	ce to Noise C	ontour (in feet	)								
				70 dł	BA	65 dE	BA		60 dBA	55	dBA
			Ldn:	294	1	634	Ļ		1,366	2	943
		C	NEL:	301		648	3		1,396	3,	,007

	FHV	VA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTIO		EL _					
Scenari	o: EAPC					Project N	ame: J	S 63 I	ЛХ				
Road Name: SR-74					Job Number: 12374								
Road Segmer	nt: s/o River R	d.											
SITE	SITE SPECIFIC INPUT DATA						ISE M	ODE		s			
Highway Data				S	ite Con	ditions (H	lard = 1	10, Sc	ft = 15)				
Average Daily	Traffic (Adt):	31,436 vehicles					A	utos:	15				
Peak Hour	Percentage:	7.71%			Me	dium Truc	ks (2 A	xles):	15				
Peak H	our Volume:	2,424 vehicles			He	avy Truck	s (3+ A.	xles):	15				
Vel	hicle Speed:	60 mph		V	Vehicle Mix								
Near/Far Lar	ne Distance:	120 feet		-	Vehi	cleType	Ĺ	Day	Evening	Night	Daily		
Site Data						Au	tos: ī	7.5%	14.0%	10.5%	92.00%		
Bar	rier Height	0.0 feet			Me	dium Tru	cks: 4	18.0%	2.0%	50.0%	3.00%		
Barrier Type (0-Wall, 1-Berm): 0.0					Heavy Trucks: 48.0% 2.0% 50.0%						5.00%		
Centerline Dis	t. to Barrier:	110.0 feet		M	oiso Sa	urco Elos	ations	(in fe	(of)				
Centerline Dist.	to Observer:	110.0 feet		14	0136 30	Autor:	0.0	00	en				
Barrier Distance	to Observer:	0.0 feet			Modiu	n Trucke:	2.0	00					
Observer Height (J	Above Pad):	5.0 feet			Hoov	v Trucko:	2.2	06	Grade Ad	iustment	. 0 0		
Pa	d Elevation:	0.0 feet			neav	y mucks.	0.0	00	0/000 / 10	aounoni	0.0		
Road Elevation: 0.0 feet				Li	Lane Equivalent Distance (in feet)								
Road Grade: 0.0%					Autos: 92.331								
	Left View:	-90.0 degree	s		Mediur	n Trucks:	92.2	35					
	Right View:	90.0 degree	s		Heav	y Trucks:	92.2	44					
FHWA Noise Mode	Calculation	5											
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresne	el 🛛	Barrier Att	en Ber	m Atten		
Autos:	73.22	0.40		-4.10		-1.20	-	4.78	0.0	000	0.000		
Medium Trucks:	83.68	-14.47		-4.09		-1.20	-	4.88	0.0	000	0.000		
Heavy Trucks:	Heavy Trucks: 87.33 -12.25		-4.09		-1.20	-	5.14	0.0	000	0.000			
Unmitigated Noise	Levels (with	out Topo and	barrier	attenu	ation)								
VehicleType	Leq Peak Hou	r Leq Day	L	eq Eve	ening	Leq Ni	ght		Ldn	CI	VEL		
Autos:	68	.3 (	67.5		66.1		60.1		68.6	6	69.2		
Medium Trucks:	63	63.9 61.1		53.3		62.5			68.7		68.7		
Heavy Trucks: 69.8		.8 (	66.9		59.1	60.0			74.5		74.5		
Vehicle Noise:	72	.7	/0.8		67.1		69.8		76.3	3	76.5		
Centerline Distanc	e to Noise Co	ontour (in feet)		70 d	24	ee de	24	6	0 dBA	55	dD A		
				70 dE	)/i	05 dE	2/1	c	UUDA	35	000		
			dn.	200		625			1 246	~ ~ ~ ~			
		~	Ldn:	290	)	625			1,346 1 375	2,9	900		

Tuesday, January 21, 2020

	FHV	VA-RD-77-108 I	HIGH	WAY N	IOISE PF	REDICTIC	ON MO	DEL				
Scenari	o: EAPC					Project N	lame:	JS 63	MX			
Road Nam	e: SR-74					Job Nu	mber:	12374				
Road Segmer	nt: s/o Meadow	/brook Av.										
SITE	SITE SPECIFIC INPUT DATA					NC	DISE	NODE	L INPU	JTS		
Highway Data				5	Site Con	ditions (I	lard =	10, S	oft = 15)			
Average Daily	Traffic (Adt): 3	4,883 vehicles						Autos.	15			
Peak Hour	Percentage:	7.71%			Me	dium Truc	:ks (2 )	Axles)	15			
Peak H	our Volume:	2,689 vehicles			He	avy Truck	:s (3+7	Axles)	15			
Ve	hicle Speed:	60 mph		-	Vehicle I	Mix						
Near/Far La	ne Distance:	120 feet		H	Vehi	cleType		Day	Evenin	g N	ight	Daily
Site Data						AL	itos:	77.5%	6 14.0	% 1	0.5%	92.00%
Bai	rier Height:	0.0 feet			Me	edium Tru	cks:	48.0%	5 2.0 <sup>4</sup>	% 5	0.0%	3.00%
Barrier Type (0-W	all. 1-Berm):	0.0			ŀ	leavy Tru	cks:	48.0%	5 2.0 <sup>4</sup>	% 5	0.0%	5.00%
Centerline Dis	st. to Barrier:	110.0 feet		-	Noise Sc	urce Ele	vation	s (in f	oot)			
Centerline Dist.	to Observer:	110.0 feet		ŕ	10/30 00	Autos:	0	000	001			
Barrier Distance	to Observer:	0.0 feet			Modiu	n Trucke	2	207				
Observer Height (	Above Pad):	5.0 feet			Hoay	v Trucks:	2.	006	Grade	Adius	ment <sup>.</sup>	0.0
Pa	ad Elevation:	0.0 feet		L	near	y muons.	0.	000	endde i	lajaoi		0.0
Roa	ad Elevation:	0.0 feet		1	Lane Equ	uivalent I	Distan	ce (in	feet)			
1	Road Grade:	0.0%				Autos:	92.	331				
	Left View:	-90.0 degrees	s		Mediur	n Trucks:	92.	235				
	Right View:	90.0 degree	S		Heav	y Trucks:	92.	244				
FHWA Noise Mode	el Calculations	5										
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresr	nel	Barrier .	Atten	Berr	m Atten
Autos:	73.22	0.85		-4.10	D	-1.20		-4.78		0.000		0.000
Medium Trucks:	83.68	-14.02		-4.09	9	-1.20		-4.88		0.000		0.000
Heavy Trucks:	87.33	-11.80		-4.09	9	-1.20		-5.14		0.000		0.000
Unmitigated Noise	Levels (with	out Topo and b	oarrie	r atten	uation)							
VehicleType	Leq Peak Hou	r Leq Day		Leq Ev	/ening	Leq N	light		Ldn		CI	IEL
Autos:	68.	.8 6	8.0		66.6		60.6	6	6	9.0		69.7
Medium Trucks:	64	.4 6	1.5		53.7		63.0	)	6	9.1		69.1
Heavy Trucks:	70.	.2 6	7.4		59.6		68.8	3	7	5.0		75.0
Vehicle Noise:	73	.2 7	1.2		67.6		70.3	3	7	6.8		76.9
Centerline Distance	e to Noise Co	ntour (in feet)										
				70 c	'BA	65 di	BA		60 dBA		55	dBA
		L	.dn:	31	1	670	)		1,443		3,1	108
		CN	EL:	31	8	684	1		1,474		3,1	75

Scenario: EAPC Road Name: Ethana Rd. Road Segment: wio SR-74         Project Name: JS 63 MX Job Number: 12374           SITE SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt):         587 vehicles         Autos: 15           Peak Hour Percentage:         7.71%         Medium Trucks (2 Axles): 15           Vehicle Speed:         40 mph         Vehicle Mix           Vehicle Speed:         40 mph         Vehicle Mix           Barrier Height:         0.0 feet         Autos: 75.5%         14.0%         10.5%         97.42           Barrier Height:         0.0 feet         Autos: 0.000         Medium Trucks: 48.9%         2.2%         48.9%         1.84           Barrier Height:         0.0 feet         Autos: 0.000         Medium Trucks: 2.297         Heavy Trucks: 36.610         Heavy Trucks: 36.610           Barrier Ateight View:         90.0 degrees         Medium Trucks: 36.610         Heavy Trucks: 36.610         Heavy Trucks: 36.610         0.00           Pad Elevation:         0.0 feet         Heavy Trucks: 36.610         Heavy Truck				JIIWATI		LEDICTION	MODEL							
Road Name:         Liste Speek         Job Number:         12374           Highway Data         Site Conditions (Hard = 10, Soft = 15)         Autos:         15           Average Daily Traffic (Adl):         587 vehicles         Autos:         15           Peak Hour Porenates:         7.71%         Medium Trucks (2 Avles):         15           Peak Hour Volume:         45 vehicles         Heavy Trucks (3 + Axles):         15           Vehicle Speed:         40 mph         Vehicle Type         Day         Evening         Night         Daily           Site Data         12 feet         Vehicle Mix         Vehicle Mix         Vehicle Mix         0.05%         97.42           Barrier Height:         0.0 feet         Autos:         75.5%         14.0%         10.5%         97.42           Barrier Distance to Observer:         37.0 feet         Autos:         75.5%         14.0%         10.5%         97.42           Centerline Dist. to Barrier         37.0 feet         Moles Source Elevations (In feet)         Vehicle Type         Autos:         0.00         15         14.0%         0.00         10.5%         97.42           Road Grade:         0.0%         Autos:         36.651         Heavy Trucks:         36.651         Heavy Trucks:         3	Scenar		Project Name: JS 63 MX											
Road Segment: wijo SR-74           SITE SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)         Aurage Daily Traffic (Adt): 587 vehicles           Average Daily Traffic (Adt):         587 vehicles         Autos:         15           Peak Hour Percentage:         7.71%         Medium Trucks (2 Axles):         15           Vehicle Speed:         40 mph         Neavi/Far Lane Distance:         12 feet         Vehicle Type         Day         Evening         Night         Daily           Site Data         Autos:: 75.5%         14.0%         10.5%         97.4           Barrier Type (0-Wall, 1-Berm):         0.0         Centerline Dist. to Doserver:         37.0 feet         Medium Trucks:: 47.3%         5.4%         47.3%         0.74           Barrier Type (0-Wall, 1-Berm):         0.0         feet         Medium Trucks:: 48.9%         2.2%         48.9%         1.2%         Medium Trucks:: 48.9%         2.2%         48.9%         0.2%         0.74           Barrier Type (0-Wall, 1-Berm):         0.0 feet         Autos:: 0.0 feet         Medium Trucks:: 48.0%         0.4%         0.4%         0.74           Road Elevation:         0.0 feet         Autos:: 36.631         Heavy Trucks:: 3	Road Narr	Road Name: Ethanac Rd.				Job Number: 12374								
SITE SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)            Average Daily Traffic (Adi):         587 vehicles         Autrace: 15            Peak Hour Percentage:         7.71%         Medium Trucks (2 Axles):         15           Peak Hour Volume:         45 vehicles         Medium Trucks (3 + Axles):         15           Vehicle Speed:         40 mph          Vehicle Speed:         Night         Daily         Night         Daily<	Road Segme	nt: w/o SR-74												
Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt):         Site Conditions (Hard = 10, Soft = 15)           Autos:         15           Autos:         15           Peak Hour Volume:         45 vehicles           Vehicle Speed:         40 mph           Vehicle Speed:         40 mph           Vehicle Speed:         40 mph           Vehicle Speed:         Adv or ph           Vehicle Speed:         40 mph           Vehicle Mix         Vehicle Mix           Barrier Height:         0.0         Vehicle Type         Day         Evening         Night         Day           Vehicle Type         Canterine Dist. to Barrier:         3.0         Vehicle Type         Vehicle Type         Ve	SITE	SPECIFIC IN	PUT DATA			NOIS	E MODI	EL INPUT	s					
Average Daily Terffic (Adt):         S87 vehicles         Autos:         15           Peak Hour Vercentage:         7.71%         Medium Trucks (2 Axles):         15           Peak Hour Vercentage:         7.71%         Medium Trucks (2 Axles):         15           Vehicle Speed:         40 mph         Vehicle Mix         Vehicle Mix           Site Data         Autos:         75.5%         14.0%         0.0%         97.42           Barrier Height:         0.0 feet         Medium Trucks:         Autos:         75.5%         14.0%         0.5%         77.4%           Barrier Type (0-Wall, 1-Berm):         0.0         Centerline Dist: to Barrier:         37.0 feet         Moise Source Elevations (in feet)         Centerline Dist: to Deserver:         0.0 feet         Medium Trucks:         2.297           Observer Height (Move Pad):         5.0 feet         Autos:         36.610         Heavy Trucks:         36.610           Road Grade:         0.0%         Efft View:         90.0 degrees         Finite Road         Fresnel         Barrier Atten         Berrier Atten           Robad Grade:         0.40         65.1         -14.88         1.88         -1.20         -4.66         0.000         0.0           Medium Trucks:         82.99         -36.08	Highway Data				Site Con	ditions (Har	rd = 10, S	oft = 15)						
Peak Hour Procentage:         7.71%         Medium Trucks (2 Akles):         15           Peak Hour Volume:         45 vehicles         Heavy Trucks (2 Akles):         15           Vehicle Speed:         40 mph         Near/Far Lane Distance:         12 feet         Vehicle Mix         Near/Far Lane Distance:         Night         Daily         Keavy Trucks (3 + Akles):         15           Site Data         Autos:         75.5%         14(0%)         10.5%         97.4         Medium Trucks:         48.9%         2.2%         48.9%         1.8%         1.2%         1.8%         1.8%         1.8%         1.2% <td>Average Daily</td> <td>Traffic (Adt):</td> <td>587 vehicles</td> <td></td> <td></td> <td></td> <td>Autos</td> <td>: 15</td> <td></td> <td></td>	Average Daily	Traffic (Adt):	587 vehicles				Autos	: 15						
Peak Hour Volume:         45 vehicles         Heavy Trucks (3 + Axles):         15           Vehicle Speed:         40 mph         Vehicle Mix         Vehicle Mix         Vehicle Mix           Site Data         Autos:         75.5%         14.0%         10.5%         97.42           Barrier Height:         0.0 feet         Autos:         75.5%         14.0%         10.5%         97.42           Barrier Height:         0.0 feet         Autos:         75.5%         14.0%         10.5%         97.42           Barrier Height:         0.0 feet         Autos:         75.5%         14.0%         10.5%         97.42           Centerline Dist. to Barrier:         37.0 feet         Autos:         0.000         Heavy Trucks:         48.9%         2.2%         48.9%         1.84           Observer Height (Above Pad):         5.0 feet         Modelum Trucks:         8.006         Grade Adjustment:         0.0           Road Grade:         0.0%         Autos:         36.610         Heavy Trucks:	Peak Hour	Percentage:	7.71%		Medium Trucks (2 Axles): 15									
Vehicle Speed: 40 mph           Near/Far Lane Distance:         12 feet         Vehicle Mix           Vehicle Mix         Vehicle Mix           Site Data         Day         Evening         Night         Dail           Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         1.84           Barrier Type (0-Wall, 1-Berm):         0.0         Medium Trucks:         47.3%         5.4%         47.3%         0.74           Centerline Dist to Observer:         0.0 feet         Moise Source Elevations (in feet)         Autos:         0.000         Medium Trucks:         42.97         Wehicle Mix           Pad Elevation:         0.0 feet         Moise Source Elevations (in feet)         Autos:         0.00         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Medium Trucks:         36.610         Heavy Trucks:         36.610           Road Grade:         0.0%         Eint Ivew:         90.0 degrees         Finite Road         Fresnel         Barrier Atten         Berrier Atten           WehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berrier Atten           Medium Trucks:         86.61<	Peak F	lour Volume:	45 vehicles		Heavy Trucks (3+ Axles): 15									
Near/Far Lane Distance:         12 feet         VanideType         Day         Evening         Night         Daily           Site Data         Autos:         75.5%         14.0%         10.5%         97.4%         1.8	Ve	hicle Speed:	40 mph	ŀ	Vehicle Mix									
Site Data         Autos:         75.5%         14.0%         10.5%         97.42           Barrier Type (Walt). +Berri):         0.0         0	Near/Far La	ne Distance:	12 feet	ŀ	Veh	icleType	Day	Evening	Night	Daily				
Barrier Height:         0.0 feet         Medium Trucks:         48.9%         2.2%         48.9%         1.84           Barrier Type (0-Wall, 1-Berm):         0.0         0         Heavy Trucks:         47.3%         5.4%         47.3%         0.74           Centerline Dist. to Deserver:         37.0 feet         Autos:         0.000         Moise Source Elevations (in feet)         Autos:         0.000           Barrier Distance to Observer:         0.0 feet         Autos:         0.800         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Road Grade:         0.0%         Autos:         36.610           Left View:         -90.0 degrees         Medium Trucks:         36.610         Heavy Trucks:         36.610           FHWA Noise Model Calculations         VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         65.1         -14.88         1.88         -1.20         -4.66         0.000         0.0           Medium Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.0           Medium Trucks:         82.3         51.4         50.1         4	Site Data			Autos	s: 75.5%	6 14.0%	10.5%	97.42%						
Barrier Type [0-Wall, 1-Berm]:         0.0         Heavy Trucks:         47.3%         5.4%         47.3%         0.74           Centerline Dist. to Barrier:         37.0 feet         Noise Source Elevations (in feet)         Autos:         0.00           Barrier Distance to Observer:         0.0 feet         Autos:         0.00         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Autos:         0.00         Medium Trucks:         2.297           Road Elevation:         0.0 feet         Autos:         36.851         Medium Trucks:         2.297           Road Grade:         0.0%         Autos:         36.851         Medium Trucks:         36.610           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten           Medium Trucks:         82.99         -36.08         1.92         -4.26         0.000         0.0           Umitigated Moise         Leep View:         92.0         Leep Viewing         Leep Night         Left         CNEL           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         56.71	Ba	rrier Height	0.0 feet		М	edium Truck	s: 48.99	6 2.2%	48.9%	1.84%				
Centerline Dist. to Barrier:         37.0 feet           Centerline Dist. to Observer:         37.0 feet           Barrier Distance to Observer:         0.0 feet           Dbserver Height (Above Pad):         5.0 feet           Pad Elevation:         0.0 feet           Road Elevation:         0.0 feet           Road Grade:         0.0%           Left View:         -90.0 degrees           Right View:         90.0 degrees           WehicleType         REMEL           VehicleType         REMEL           Autos:         66.51           -14.88         1.86           Autos:         82.99           -36.08         1.92           Autos:         52.3           51.4         50.1           Medium Trucks:         70.00           Medium Trucks:         70.00           Medium Trucks:         70.00           Medium Trucks:         70.00           Untitigated Noise Levels (without Topo and barrier attenuation)         VehicleType           VehicleType         Leq Day         Leq Evening           Autos:         52.3         51.4           50.1         44.1         52.5           Medium Trucks:         46.3	Barrier Type (0-W	/all, 1-Berm):	0.0		1	Heavy Truck	s: 47.39	6 5.4%	47.3%	0.74%				
Centerline Dist. to Observer:         37.0 feet         Autos::         0.000           Barrier Distance to Observer:         0.0 feet         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Right View:         90.0 degrees         Medium Trucks:         36.651         Heavy Trucks:         36.610           Heavy Trucks:         66.51         -14.88         1.88         -1.20         -4.66         0.000         0.0           Medium Trucks:         77.7         -32.12         1.93         -1.20         -5.61         0.000         0.0           Medium Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.0           Unititigated Noise Levels (without Topo and barrier attenuation)         Ueq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL         5.5           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55           Medium Trucks:         47.6         44.7         41.3         46.0         52.2 <td>Centerline Di</td> <td>st. to Barrier:</td> <td>37.0 feet</td> <td>-</td> <td>Noise Sc</td> <td>ource Elevai</td> <td>ions (in</td> <td>feet)</td> <td></td> <td></td>	Centerline Di	st. to Barrier:	37.0 feet	-	Noise Sc	ource Elevai	ions (in	feet)						
Barrier Distance to Observer:         0.0 feet         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Medium Trucks:         2.297           Pad Elevation:         0.0 feet         Heavy Trucks:         8.006         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Left View:         90.0 degrees         Autos:         36.81           FHWA Noise Model Calculations         0.0 degrees         Fresnel         Barrier Atten         Berm Atten           Autos:         66.51         -14.88         1.88         -1.20         -4.56         0.000         0.0           Medium Trucks:         77.72         -32.12         1.93         -1.20         -5.61         0.000         0.0           Medium Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.0           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leq Peak How         Leq Day         Leq Right         Ldn         CNEL           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55	Centerline Dist.	to Observer:	37.0 feet	ŀ	Autos: 0.000									
Observer Height (Above Pad):         5.0 feet         Instant Notes:         Last:         Instant Notes:         Instant Notes: <thinstant n<="" td=""><td>Barrier Distance</td><td>to Observer:</td><td>0.0 feet</td><td></td><td colspan="9">Medium Trucks: 2,297</td></thinstant>	Barrier Distance	to Observer:	0.0 feet		Medium Trucks: 2,297									
Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Glevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Autos:         36.851           Left View:         -90.0 degrees         Medium Trucks:         36.610           Heavy Trucks:         36.651         Heavy Trucks:         36.634           FHWA Noise Model Calculations         VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bermin Atten           Autos::         66.51         -14.88         1.88         -1.20         -4.66         0.000         0.0           Medium Trucks::         77.7         -32.12         1.93         -1.20         -5.61         0.000         0.0           Unnitigated Noise Levels (without Topo and barrier attenuation)         Use Concertainty         CNEL         CNEL         5.61         0.55         55           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55           Medium Trucks:         47.6         44.7         41.3         46.0         52.2         55           Medium Trucks:         46.3         56.8         5	Observer Height (Above Pad): 5.0 feet				Heavy Trucks: 8,006 Grade Adjustment: 0.0									
Road Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Autos: 36.651           Left View:         -90.0 degrees         Medium Trucks: 36.610           Right View:         90.0 degrees         Heavy Trucks: 36.634           FHWA Noise Model Calculations         Finite Road         Fresnel         Barrier Atten           Autos:         66.51         -14.88         1.88         -1.20         -4.56         0.000         0.0           Medium Trucks:         77.72         -32.12         1.93         -1.20         -4.87         0.000         0.0           Medium Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.0           Unnitigated Noise Levels (without Topo and barrier attenuation)         Vehicle Type         Leq Peak How         Leq Pay         Leq Right         Ldn         CNEL           Vehicle Noise:         52.3         51.4         50.1         44.1         52.5         55           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55           Medium Trucks:         54.3         52.8         50.8         49.8         56.7         55	P	ad Elevation:	0.0 feet											
Road Grade:         0.0%         Autos:         36.851           Left View:         -90.0 degrees         Medium Trucks:         36.610           Right View:         90.0 degrees         Heavy Trucks:         36.634           FHWA Noise Model Calculations         France         Finite Road         Fresnel         Barrier Atten         Berm Atte           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atte           Autos:         66.51         -14.88         1.80         -1.20         -4.56         0.000         0.00           Medium Trucks:         77.72         -32.12         1.93         -1.20         -5.61         0.000         0.00           Heavy Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.00           Ummitigated Noise Levels (without Topo and barrier attenuation)         Uencite Vehicle Type         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         52.3         51.4         50.1         44.1         52.5         52           Medium Trucks:         47.6         44.7         41.3         46.0	Ro	Road Elevation: 0.0 feet				Lane Equivalent Distance (in feet)								
Left View:         -90.0 degrees         Medium Trucks:         36.610 Heavy Trucks:         36.610 36.634           FHWA Noise Model Calculations         VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bernier Atten           Autos:         66.51         -14.88         1.88         -1.20         -4.65         0.000         0.0           Medium Trucks:         77.7         -32.12         1.93         -1.20         -5.61         0.000         0.0           Unnitigated Noise Levels (without Topo and barrier attenuation)         -         -         -         0.000         0.0           Unnitigated Noise Levels (without Topo and barrier attenuation)         -         -         -         6.63         5.5           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55           Medium Trucks:         47.6         44.7         41.3         46.0         52.2         52           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55           Centerline Distance to Noise Contour (in feet)         -         70 dBA         65 dBA         60 dBA         55 dBA           C		Road Grade:	0.0%			Autos:	36.851							
Right View:         90.0 degrees         Heavy Trucks:         36.634           FHWA Noise Model Calculations         EAML         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berman Atten           Autos:         66.51         -14.88         1.88         -1.20         -4.56         0.000         0.0           Medium Trucks:         77.72         -32.12         1.93         -1.20         -4.67         0.000         0.0           Unnitigated Noise Levels (without Topo and barrier attenuation)         -1.20         -5.61         0.000         0.0           Vehicle/type         Leg Peak Hour         Leg Day         Leg Devinig         Leg Night         Ldn         CNEL           Vehicle/type         L47.64         43.6         36.1         44.1         52.5         55           Medium Trucks:         47.6         44.7         41.3         46.0         52.2         55           Medium Trucks:         47.6         44.7         41.3         46.0         52.2         55           Vehicle/type         54.3         52.8         50.8         49.8         56.7         55           Vehicle/type         54.3         52.8         50.8         49.8 <td></td> <td colspan="4">Left View: -90.0 degrees</td> <td colspan="9">Medium Trucks: 36.610</td>		Left View: -90.0 degrees				Medium Trucks: 36.610								
FHWA Noise Model Calculations           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         66.51         -14.88         1.88         -1.20         -4.56         0.000         0.0           Medium Trucks:         77.72         -32.12         1.93         -1.20         -4.87         0.000         0.0           Heavy Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.0           Unmitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak How         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         52.3         51.4         50.1         44.1         52.5         55           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55           Heavy Trucks:         54.3         52.8         50.8         49.8         56.7         55           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA <td></td> <td>Right View:</td> <td>90.0 degrees</td> <td></td> <td>Heav</td> <td>/y Trucks:</td> <td>36.634</td> <td></td> <td></td> <td></td>		Right View:	90.0 degrees		Heav	/y Trucks:	36.634							
VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         66.51         -14.88         1.88         -1.20         -4.56         0.000         0.0           Medium Trucks:         77.72         -32.12         1.93         -1.20         -4.87         0.000         0.0           Heavy Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.0           Ummitgated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         52.3         51.4         50.1         44.1         52.5         52           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55           Heavy Trucks:         47.6         44.7         41.3         46.0         52.2         52           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55           Centertline Distance to Noise Contour (in feet)         10         22         48         CNEL:         5         <	FHWA Noise Mod	el Calculation	5	1										
Autos:         66.51         -14.88         1.88         -1.20         -4.56         0.000         0.00           Medium Trucks:         77.72         -32.12         1.93         -1.20         -4.87         0.000         0.00           Heavy Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.00           Unitigated Noise Levels (without Topo and barrier attenuation)         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         52.3         51.4         50.1         44.1         52.5         55           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         52           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         5         10         22         48           CNEL:         5         11         23         50	VehicleType	REMEL	Traffic Flow	Distance	Finite	Road F	resnel	Barrier Att	en Ber	m Atten				
Medium Trucks:         77.72         -32.12         1.93         -1.20         -4.87         0.000         0.00           Heavy Trucks:         82.99         -36.08         1.92         -1.20         -56.61         0.000         0.0           Unnitigated Noise Levels (without Topo and barrier attenuation)         -         -         -56.61         0.000         0.0           VehiceType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         52.3         51.4         50.1         44.1         52.5         55.           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         57.           Heavy Trucks:         47.6         44.7         41.3         46.0         52.2         55.           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         57.           Centerline Distance to Noise Contour (in feet)         -         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         5         10         22         48         60.1         20.1	Autos:	66.51	-14.88	1.8	8	-1.20	-4.56	0.0	000	0.000				
Heavy Trucks:         82.99         -36.08         1.92         -1.20         -5.61         0.000         0.0           Unmitigated Noise Levels (without Topo and barrier attenuation)         Uence         0.00         0.00           VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         52.3         51.4         50.1         44.1         52.5         55.           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55.7           Heavy Trucks:         47.6         44.7         41.3         46.0         52.2         55.2           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55.7           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         5         10         22         48           CNEL:         5         11         23         50	Medium Trucks:	77.72	-32.12	1.9	3	-1.20	-4.87	0.0	)00	0.000				
Unmitigated Noise Levels (without Topo and barrier attenuation)         Leq Reak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         52.3         51.4         50.1         44.1         52.5         55.           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         55.           Heavy Trucks:         47.6         44.7         41.3         46.0         52.2         55.           Vehicle Noise:         55.3         52.8         50.8         49.8         56.7         55.           Centerline Distance to Noise Contour (in feet)	Heavy Trucks:	82.99	-36.08	1.9	2	-1.20	-5.61	0.0	)00	0.000				
VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         52.3         51.4         50.1         44.1         52.5         55.7           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         57.7           Heavy Trucks:         47.6         44.7         41.3         46.0         52.2         55.7           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55.7           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         5         10         22         48           CNEL:         5         11         23         50	Unmitigated Noise	e Levels (with	out Topo and bar	rier atter	nuation)					-				
Autos:         52.3         51.4         50.1         44.1         52.5         55.           Medium Trucks:         46.3         43.6         36.1         44.8         51.0         57.           Heavy Trucks:         47.6         44.7         13.3         46.0         52.2         52.           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         57.           Conterline Distance to Noise Contour (in feet)           Image: Context (in feet)         Image: Context (in feet)         S5.0         10         22         48.           CNEL:         5         11         23         50         5	VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq Nigh	t	Ldn	C	NEL				
Medium Trucks:         46.3         43.6         36.1         44.8         51.0         57           Heavy Trucks:         47.6         44.7         41.3         46.0         52.2         52           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55           Centerline Distance to Noise:         Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         5         10         22         48           CNEL:         5         11         23         50	Autos:	52	.3 51.4	4	50.1		44.1	52.5	5	53.2				
Heavy Trucks:         47.6         44.7         41.3         46.0         52.2         55.7           Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         55.7           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         5         10         22         48           CNEL:         5         11         23         50	Medium Trucks:	Medium Trucks: 46.3 43.6		6	36.1		44.8	51.0		51.0				
Vehicle Noise:         54.3         52.8         50.8         49.8         56.7         57           Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         5         10         22         48           CNEL:         5         11         23         50	Heavy Trucks: 47.6 44.7		7	41.3	46.0		52.2		52.3					
Centerline Distance to Noise Contour (in feet)         70 dBA         65 dBA         60 dBA         55 dBA           Ldn:         5         10         22         48           CNEL:         5         11         23         50	Vehicle Noise:	54	.3 52.8	В	50.8		49.8	56.7	7	57.0				
70 dBA         65 dBA         66 dBA         55 dBA           Ldn:         5         10         22         48           CNEL:         5         11         23         50	Centerline Distant	ce to Noise Co	ontour (in feet)											
Ldn:         5         10         22         48           CNEL:         5         11         23         50				70	dBA	65 dBA		60 dBA	55	dBA				
CNEL: 5 11 23 50			Ldr	n:	5	10		22		48				
			CNEL		5	11		23		50				

Tuesday, January 21, 2020

APPENDIX 9.1:

**REFERENCE NOISE SOURCE PHOTOS** 





## JN:12374 Reference Noise Source Photos



Main Track\_1 34, 2' 4.520000"117, 22' 7.970000"



Main Track\_2 34, 2' 4.520000"117, 22' 7.970000"



Main Track\_3 34, 2' 4.520000"117, 22' 7.970000"



Main Track\_4 34, 1' 25.140000"117, 22' 7.370000"



Main Track\_5 34, 1' 24.690000"117, 22' 7.420000"



Main Track\_6 34, 1' 24.940000"117, 22' 7.180000"

### JN:12374 Reference Noise Source Photos



Parking Lot\_1 34, 1' 22.710000"117, 22' 15.110000"



Parking Lot\_2 34, 1' 23.130000"117, 22' 15.090000"



Parking Lot\_3 34, 1' 23.250000"117, 22' 14.810000"



Parking Lot\_4 34, 1' 23.400000"117, 22' 14.650000"



Parking Lot\_5 34, 1' 22.510000"117, 22' 15.580000"



Veteran Track\_1 34, 1' 29.150000"117, 22' 9.540000"

### JN:12374 Reference Noise Source Photos



Veteran Track\_2 34, 1' 29.180000"117, 22' 9.650000"



Veteran Track\_3 34, 1' 29.170000"117, 22' 9.650000"



Veteran Track\_4 34, 1' 29.150000"117, 22' 9.650000"



Veteran Track\_5 34, 1' 29.110000"117, 22' 9.680000"



APPENDIX 9.2:

CADNAA NOISE MODEL


### 12374

CadnaA Noise Prediction Model

12374\_02.cna

Date:

06.02.20

Analyst: B. Lawson

**Receiver Noise Levels** 

				Level Lr y Night CNR A) (dBA) (dBA) .7 54.7 61 .0 50.0 56												
Name	M.	ID		Level Lr		Li	mit. Val	ue		Land	l Use	Height		C	oordinates	
			Day	Night	CNEL	Day	Night	CNEL	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)	Γ	(ft)	(ft)	(ft)
R1		R1	54.7	54.7	61.3	55.0	0 45.0					1781.00	a	6245498.07	2218602.73	1781.00
R2		R2	50.0	50.0	56.7	55.0	45.0	0.0				1724.00	а	6246395.88	2219241.56	1724.00
R3		R3	48.0	48.0	54.7	55.0	45.0	0.0				1635.00	a	6248096.54	2218474.47	1635.00
R4		R4	49.8	49.8	56.5	55.0	45.0	0.0				1657.00	a	6248085.44	2216533.33	1657.00
R5		R5	52.1	52.1	58.8	55.0	45.0	0.0				1675.00	а	6247632.49	2215899.56	1675.00
R6		R6	53.3	53.3	60.0	55.0	45.0	0.0				1713.00	a	6247032.45	2215276.73	1713.00

### Point Source(s)

Name	М.	ID	F	Result. PW	Ľ		Lw / L	i	(	Correctio	า	Soun	d Reduction	Attenuation	Op	erating T	ime	К0	Freq.	Direct.	Height	C	oordinates	
			Day	Evening	Night	Type	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					x	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft <sup>2</sup> )		(min)	(min)	(min)	(dB)	(Hz)		(ft)	(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245770.08	2215547.71	1750.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245770.95	2215488.82	1749.92
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245885.50	2216405.75	1752.72
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245888.36	2216553.39	1751.87
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245875.03	2216658.17	1751.66

## Area Source(s)

Name	M.	ID	R	esult. PW	/L	R	esult. PW	L''		Lw / L	i	(	Correctio	n	Soun	d Reduction	Attenuation	Op	erating Ti	me	К0	Freq.	Direct.	M	oving Pt. S	Src
			Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
AREASOURCE		MAIN01	117.8	117.8	117.8	70.7	70.7	70.7	Lw	117.8		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		MAIN02	117.8	117.8	117.8	71.1	71.1	71.1	Lw	117.8		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING01	105.1	105.1	105.1	58.5	58.5	58.5	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING02	105.1	105.1	105.1	72.0	72.0	72.0	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING03	105.1	105.1	105.1	68.9	68.9	68.9	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING04	105.1	105.1	105.1	66.4	66.4	66.4	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING05	105.1	105.1	105.1	76.8	76.8	76.8	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		VETERAN01	113.5	113.5	113.5	67.8	67.8	67.8	Lw	113.5		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		VETERAN02	113.5	113.5	113.5	73.9	73.9	73.9	Lw	113.5		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		VETERAN03	113.5	113.5	113.5	68.4	68.4	68.4	Lw	113.5		0.0	0.0	0.0							0.0	500	(none)			



APPENDIX 9.3:

MSCHP CADNAA NOISE MODEL

### 12374

CadnaA Noise Prediction Model

12374\_03\_MSHCP.cna

Date:

07.02.20

Analyst: B. Lawson

Receiver Noise Levels

	<b>.</b>															
Name	М.	ID		Level Lr		Lir	nit. Valı	ue		Land	l Use	Height	:	C	oordinates	
			Day	Night	CNEL	Day	Night	CNEL	Туре	Auto	Noise Type			Х	Y	z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
MSCHP_1		MSCHP_1	59.7	59.7	66.4	65.0	0.0	0.0				1830.00	а	6245262.82	2218075.55	1830.00
MSCHP_2		MSCHP_2	63.0	63.0	69.7	65.0	0.0	0.0				2000.00	а	6244700.72	2217662.76	2000.00
MSCHP_3		MSCHP_3	60.1	60.1	66.8	65.0	0.0	0.0				1900.00	а	6244683.37	2216693.33	1900.00
MSCHP_4		MSCHP_4	61.2	61.2	67.9	65.0	0.0	0.0				1805.00	а	6244676.10	2215649.22	1805.00
MSCHP_5		MSCHP_5	62.2	62.2	68.8	65.0	0.0	0.0				1855.00	а	6245306.26	2215341.83	1855.00

#### Point Source(s)

Name	М.	ID	R	Result. PW	Ľ		Lw/L	.i		Correctio	n	Soun	d Reduction	Attenuation	Op	erating Ti	ime	К0	Freq.	Direct.	Height	C	oordinates	
			Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft²)		(min)	(min)	(min)	(dB)	(Hz)		(ft)	(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245770.08	2215547.71	1750.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245770.95	2215488.82	1749.92
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245885.50	2216405.75	1752.72
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245888.36	2216553.39	1751.87
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		0.0	0.0	0.0							0.0	500	(none)	15.00 r	6245875.03	2216658.17	1751.66

### Area Source(s)

Name	M.	ID	R	esult. PW	/L	R	esult. PW	τ"		Lw/L	i		Correctio	n	Sound	d Reduction	Attenuation	Op	erating Ti	me	К0	Freq.	Direct.	M	oving Pt.	Src
			Day	Evening	Night	Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft <sup>2</sup> )		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
AREASOURCE		MAIN01	117.8	117.8	117.8	70.7	70.7	70.7	Lw	117.8		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		MAIN02	117.8	117.8	117.8	71.1	71.1	71.1	Lw	117.8		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING01	105.1	105.1	105.1	58.5	58.5	58.5	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING02	105.1	105.1	105.1	72.0	72.0	72.0	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING03	105.1	105.1	105.1	68.9	68.9	68.9	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING04	105.1	105.1	105.1	66.4	66.4	66.4	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		PARKING05	105.1	105.1	105.1	76.8	76.8	76.8	Lw	105.1		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		VETERAN01	113.5	113.5	113.5	67.8	67.8	67.8	Lw	113.5		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		VETERAN02	113.5	113.5	113.5	73.9	73.9	73.9	Lw	113.5		0.0	0.0	0.0							0.0	500	(none)			
AREASOURCE		VETERAN03	113.5	113.5	113.5	68.4	68.4	68.4	Lw	113.5		0.0	0.0	0.0							0.0	500	(none)			



APPENDIX 10.1:

CONSTRUCTION CADNAA NOISE MODEL





# 12374

CadnaA Noise Prediction Model

12374\_09 Construction.cna

Date:

20.08.21

Analyst:

B. Lawson

#### **Receiver Noise Levels**

Name	М.	ID		Level Lr		Lii	mit. Val	ue		Land	l Use	Height	:	C	oordinates	
			Day	Night	CNEL	Day	Night	CNEL	Туре	Auto	Noise Type			Х	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	69.5	69.5	76.1	0.0	0.0	0.0		х	Total	5.00	а	6245498.07	2218602.73	5.00
RECEIVERS		R2	64.5	64.5	71.2	0.0	0.0	0.0		х	Total	5.00	а	6246395.88	2219241.56	5.00
RECEIVERS		R3	62.1	62.1	68.8	0.0	0.0	0.0		х	Total	5.00	а	6248096.54	2218474.47	5.00
RECEIVERS		R4	64.0	64.0	70.7	0.0	0.0	0.0		х	Total	5.00	а	6248085.44	2216533.33	5.00
RECEIVERS		R5	65.7	65.7	72.3	0.0	0.0	0.0		х	Total	5.00	а	6247632.49	2215899.56	5.00
RECEIVERS		R6	67.5	67.5	74.2	0.0	0.0	0.0		х	Total	5.00	а	6247032.45	2215276.73	5.00

### Area Source(s)

Name	М.	ID	R	esult. PW	'L	R	esult. PW	L''		Lw / L	i		Correctio	ı	Soun	d Reduction	Attenuation	Op	erating T	ime	ко	Freq.	Direct.	M	oving Pt. S	src
			Day Evening Night I		Day	Evening	Night	Туре	Value	norm.	Day	Evening	Night	R	Area		Day	Special	Night					Number		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	dB(A)	dB(A)	dB(A)		(ft <sup>2</sup> )		(min)	(min)	(min)	(dB)	(Hz)		Day	Evening	Night
SITEBOUNDARY		SITEBOUNDARY00001	134.8	134.8	134.8	79.0	79.0	79.0	Lw"	79		0.0	0.0	0.0							0.0	500	(none)			

