

# **KTM French Valley**

## NOISE IMPACT ANALYSIS COUNTY OF RIVERSIDE

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11624-03 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
FTA	Federal Transit 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
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	KTM French Valley
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
SR-79	State Route 79
VdB	Vibration Decibels

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## **EXECUTIVE SUMMARY**

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed KTM French Valley development ("Project"). The Project site is located on the northeast corner of Winchester Road (State Route 79 (SR-79)) and Hunter Road in unincorporated County of Riverside. The Project is proposed to consist of the development of 32,292 square feet of warehouse use, 65,100 square feet of office use, and a 66,306 square foot research and development center. This study has been prepared to satisfy applicable County of Riverside noise standards; and derives 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 proposed Project will influence the traffic noise levels in surrounding off-site areas. To quantify the traffic noise increases on the surrounding off-site areas, the changes in traffic noise levels on 10 roadway segments surrounding the Project site were calculated based on the change in the average daily traffic (ADT) volumes. The traffic noise levels provided in this analysis are based on the traffic forecasts found in the *KTM French Valley Traffic Impact Analysis* prepared by Urban Crossroads, Inc. (2) To assess the off-site noise level impacts associated with the proposed Project, noise contour boundaries were developed for Existing, Existing plus Ambient Growth (EA) 2020, and EA plus Cumulative Developments (EAC) 2020 conditions. The analysis shows that the Project-related traffic noise level increases under all traffic scenarios will be *less than significant*.

### **OPERATIONAL NOISE ANALYSIS**

Using reference noise levels to represent the expected noise sources from the KTM French Valley site, this analysis estimates the Project-related stationary-source noise levels at nearby sensitive receiver locations. The normal activities associated with the proposed KTM French Valley are anticipated to include roof-top air conditioning units, pressure washing activity, parking lot vehicle movements, motorcycle safety course activity, idling trucks, backup alarms, as well as trailer movement and storage activity. Since the nearby sensitive receiver locations are located in the City of Murrieta, the City of Murrieta Municipal Code exterior noise level standards are used in this analysis to determine potential impacts. The operational noise analysis shows that the unmitigated Project-related stationary-source noise levels will satisfy the City of Murrieta exterior noise level standards at the nearby sensitive receiver locations.

Further, this analysis demonstrates that the Project will contribute a *less than significant* longterm operational noise level impact to the existing ambient noise environment at all of the nearby sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the roof-top air conditioning units, pressure washing activity, parking lot vehicle movements, motorcycle safety course activity, idling trucks, backup alarms, as well as trailer movement and storage activity, are considered *less than significant*.



### **CONSTRUCTION NOISE ANALYSIS**

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 closest point to the nearby receiver locations from edge of primary Project construction activity. Using sample reference noise levels to represent the construction activities of the KTM French Valley site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. The results of the construction noise analysis show that the unmitigated construction noise levels will satisfy the City of Murrieta Municipal Code construction noise level standards of 75 dBA L<sub>max</sub> for mobile equipment, and 60 dBA L<sub>max</sub> for stationary equipment. Therefore, the construction of the Project will result in a *less than significant* noise impact.

### **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 186 to 264 feet from the location of primary construction activities, construction vibration velocity levels are expected to approach 0.003 in/sec (RMS) at the nearby receiver locations, and will remain below the County of Riverside and City of Murrieta vibration thresholds of 0.01 in/sec RMS. As such, the Project-related vibration impacts will be *less than significant* during the construction activities at the Project site.

Further, the vibration levels due to Project construction do not represent vibration levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (3) The peak Project-construction vibration levels, approaching 0.004 in/sec PPV, will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Further, the levels at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

#### **CONSTRUCTION NOISE AND VIBRATION BEST PRACTICES**

Though construction noise and vibration are temporary, intermittent, will be short in duration, and will not present any long-term impacts, the following best practices would further reduce noise and vibration levels produced by the construction equipment to the nearby sensitive land uses.

• Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May (County of Riverside Municipal Code, Section 9.52.020). The Project construction supervisor shall ensure compliance with the note and the County shall conduct periodic inspection at its discretion.



- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the center).
- The construction contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.

#### SUMMARY OF SIGNIFICANCE FINDINGS

The results of this KTM French Valley Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact before and after any required mitigation measures.

Analusia	Report	Significance Findings			
Analysis	Section	Unmitigated	Mitigated		
Off-Site Traffic Noise	7	Less Than Significant	n/a		
On-Site Aircraft Noise	4	Less Than Significant	n/a		
Operational Noise	9	Less Than Significant	n/a		
Construction Noise	10	Less Than Significant	n/a		
Construction Vibration	10	Less Than Significant	n/a		

#### TABLE ES-1: SUMMARY OF SIGNIFICANCE FINDINGS

"n/a" = No mitigation is required since the unmitigated impact will be 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 KTM French Valley ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational and short-term construction noise impacts.

## **1.1** SITE LOCATION

The proposed KTM French Valley site is located on the northeast corner of Winchester Road (SR-79) and Hunter Road unincorporated County of Riverside, as shown on Exhibit 1-A. The Project site is currently vacant. Nearby existing residential land uses are located west of the Project site across Winchester Road. The vacant land located north and south of the Project site is designated as commercial use. The French Valley Airport is located east of the Project site across Sky Canyon Drive at approximately 400 feet.

## **1.2 PROJECT DESCRIPTION**

The Project is proposed to consist of the development of 32,292 square feet of warehouse use, 65,100 square feet of office use, and a 66,306 square foot research and development center, as shown on Exhibit 1-B.

The on-site stationary noise sources associated with the proposed KTM French Valley Project are expected to include roof-top air conditioning units, pressure washing activity, parking lot vehicle movements, motorcycle safety course activity, idling trucks, backup alarms, as well as trailer movement and storage activity.

According to the *KTM French Valley Traffic Impact Analysis* prepared by Urban Crossroads, Inc., the Project is expected to generate a net total of approximately 1,469 trip-ends per day (actual vehicles). The Project trip generation includes 11 truck trip-ends per day from the Project site. This noise study relies on the actual Project trips to accurately account for the effect of individual truck trips on the study area roadway network.





EXHIBIT 1-A: LOCATION MAP









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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		SPEECH INTERFERENCE	
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD		
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60			
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	CLEED	
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 10			NO EFFECT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0			

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

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

## 2.1 RANGE OF NOISE

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



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

## 2.2 NOISE DESCRIPTORS

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

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA  $L_{eq}$  sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the 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. (4)

### 2.3.2 GROUND ABSORPTION

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



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

#### **2.3.3** Atmospheric Effects

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

#### 2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (6)

## 2.4 NOISE CONTROL

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

## **2.5** Noise Barrier Attenuation

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



## 2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (7)

#### 2.7 COMMUNITY RESPONSE TO NOISE

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

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

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





EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION

## 2.8 EXPOSURE TO HIGH NOISE LEVELS

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

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (10)

## 2.9 VIBRATION

Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (3), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions.



As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

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

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





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

\* RMS Vibration Velocity Level in VdB relative to 10<sup>-6</sup> inches/second

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



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## **3 REGULATORY SETTING**

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

## 3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

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

## **3.2** STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The 2014 State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (12) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA L<sub>eq</sub> for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

## 3.3 COUNTY OF RIVERSIDE GENERAL PLAN NOISE ELEMENT

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. (13) 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 1.7 Require proposed land uses, affected by unacceptable high noise levels, to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem.
- *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<sub>eq</sub> 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.
- N 13.1 Minimize the impacts of construction noise on adjacent uses within acceptable standards.
- N 13.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse impacts on surrounding areas.
- N 13.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the City for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as:
  - *i.* Temporary noise attenuation fences;
  - *ii.* Preferential location and equipment; and
  - *iii.* Use of current noise suppression technology and equipment.
- N 16.3 Prohibit exposure of residential dwellings to perceptible ground vibration from passing trains as perceived at the ground or second floor. Perceptible motion shall be presumed to be a motion velocity of 0.01 inches/second over a range of 1 to 100 Hz.

To ensure noise-sensitive land uses are protected from high levels of noise (N 1.1), Table N-1 of the Noise Element identifies guidelines to evaluate proposed developments based on exterior and interior noise level limits for land uses and requires a noise analysis to determine needed mitigation measures if necessary. The Noise Element identifies residential use as a noise-



sensitive land use (N 1.3) and discourages new development in areas with 65 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 noise levels higher than 65 CNEL. The intent of policy N 1.7 is to require a noise analysis for land uses impacted by unacceptably high noise levels and include mitigation measures in the design. Policy N 4.1 of the Noise Element sets a stationary-source exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA L<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. To prevent high levels of construction noise from impacting noise-sensitive land uses, policies N 13.1 through 13.3 identify construction noise mitigation requirements for new development located near existing noise-sensitive land uses. Policy 16.3 establishes the vibration perception threshold for rail-related vibration levels, used in this analysis as a threshold for determining potential vibration impacts due to Project construction. (13)

#### **3.3.1** LAND USE COMPATIBILITY

The noise criteria identified in the County of Riverside Noise Element (Table N-1) are guidelines to evaluate the land use compatibility of transportation related noise. The compatibility criteria, shown on Exhibit 3-A, provides the County with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The Land Use Compatibility for Community Noise Exposure matrix describes categories of compatibility and not specific noise standards. Office and other non-noise sensitive land uses (e.g., commercial, industrial), such as the KTM French Valley Project, are considered normally acceptable with unmitigated exterior noise levels of less than 70 dBA CNEL. For conditionally acceptable exterior noise levels, approaching 75 dBA CNEL for Project land uses, new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. (13)

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

The County of Riverside has set exterior noise limits to control roof-top air conditioning units, pressure washing activity, parking lot vehicle movements, motorcycle safety course activity, idling trucks, backup alarms, as well as trailer movement and storage activity associated with the development of the proposed KTM French Valley. The County considers noise generated using motor vehicles to be a stationary noise source when operated on private property such as at a loading dock or tire and lube center. These facility-related noises, as projected to any portion of any surrounding property containing a *habitable dwelling, hospital, school, library or nursing home*, must not exceed the following worst-case noise levels.

Policy N 4.1 of the Noise Element sets an exterior noise limit not to be exceeded for a cumulative period of more than ten minutes in any hour of 65 dBA  $L_{eq}$  for daytime hours of 7:00 a.m. to 10:00 p.m., and 45 dBA  $L_{eq}$  during the noise-sensitive nighttime hours of 10:00 p.m. to 7:00 a.m. (14)



The County of Riverside operational noise standards used in this analysis are shown on Table 3-1.

LAND USE CATEGORY COMMUNITY NOISE EXPOSURE LEVEL Ldn or CNEL,							CNEL, dBA
		55	60	65	70	75	80
Residential-Low Density	1	1	_		1		1
Single Family, Dupley, Mobile	Homes	1					
Single I unity, Dupter, Hoone	Tiones					11/2	
<b>Residential-Multiple Family</b>		1	12				
			12			_	
	-						
Transient Lodging-Motels, Ho	tels	-	-				
			-	1			
Schools Libraries Churches	Hosnitals	I					
Nursing Homes		1					
runsing nomes							
Auditoriums, Concert Halls, A	mphitheaters						
					T	- 7	
		I					
Sports Arena, Outdoor Specta	tor Sports				1	2	
							1
Playarounds Naighborhood P	anke	I			_		
Flaygrounds, Neighborhood F		1					
		I					
Golf Courses, Riding Stables,	Water Recreation.						
Cemeteries							-
Office Buildings, Businesses, C	Commercial,		-				
and Professional					1	1	
Industrial Manufasturing Ut	ilition						
Agriculture	indes,				_		
nginunuit	L	r	1	1	1		
Logonda		1	1	1	1		1
Normally Acceptable:	Conditionally Accentables	No	rmally Unor	centable	_	Charles	Inaccontables
Specified land use is satisfactory based upon the assumption that any buildings involved	New construction of development should be	New	construction or	development should g	enerally	New constru	action or development should
of normal conventional construction, without any special noise insulation requirements	the noise reduction requirements is made and mended noise insulation fortune included in	does	s proceed, a detail	led analysis of the noi its must be made with	se needed	costs to mak	to the indoor environment
	the design. Conventional construction, but with closed windows and fresh air sample	nois	e insulation featu door areas must b	res included in the de	sign.	outdoor env	ironment would not be usable.
Source: California Office of Noise Control	systems or air conditioning will normally	- settin	and presenting to				

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

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

### **3.4 OPERATIONAL NOISE STANDARDS**

To analyze noise impacts originating from a designated fixed location or private property such as the KTM French Valley Project, stationary-source (operational) noise such as roof-top air conditioning units, pressure washing activity, parking lot vehicle movements, motorcycle safety course activity, idling trucks, backup alarms, as well as trailer movement and storage activity are typically evaluated against standards established under the Municipal Code.

#### 3.4.1 COUNTY OF RIVERSIDE OPERATIONAL NOISE STANDARDS

Although the Project site is located within the County of Riverside, several sensitive receivers are in the adjacent City of Murrieta. Therefore, this analysis presents both the County of Riverside General Plan stationary noise standards, previously described in Section 3.3, and City of Murrieta Municipal Code operational noise standards discussed below. The stationary-source noise level standards, shown on Table 3-1, are consistent with the County of Riverside Office of Industrial Hygiene guidelines for noise studies within the County. (15)

#### 3.4.2 CITY OF MURRIETA OPERATIONAL NOISE STANDARDS

Section 16.30.090 of the City of Murrieta Municipal Code states the following: *No person shall, operate or cause to be operated, any source of sound at any location within the City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by a person that causes the noise level, when measured on any other property, to exceed...the maximum permissible sound levels by receiving land use as shown on Table 3-1. For noise-sensitive residential properties (Noise Zone II), the Municipal Code identifies operational noise level limits for the daytime (7:00 a.m. to 10:00 p.m.) hours of 50 dBA L<sub>50</sub> and 45 dBA L<sub>50</sub> during the nighttime (10:00 p.m. to 7:00 a.m.) hours. These standards shall apply for a cumulative period of 30 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time. (16)* 

			Exterior Noise Level Standards (dBA) <sup>3</sup>					
Jurisdiction	Land Use	Period	L <sub>eq</sub> (Average)	L <sub>50</sub> (30 mins)	L <sub>25</sub> (15 mins)	L₃ (5 mins)	L₂ (1 min)	L <sub>max</sub> (Anytime)
County of	Residential	Daytime	65	-	-	-	-	-
Riverside <sup>1</sup>		Nighttime	45	-	-	-	-	-
City of	Residential	Daytime	-	50	55	60	65	70
Murrieta <sup>2</sup>	(Noise Zone II)	Nighttime	-	45	50	55	60	65

#### TABLE 3-1: OPERATIONAL NOISE STANDARDS

<sup>1</sup> Source: County of Riverside General Plan Noise Element, Table N-2.

<sup>2</sup> Source: City of Murrieta Municipal Code, Section 16.30.090 (A) & (B) (Appendix 3.1).

 $^{3}$  L<sub>eq</sub> represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The percent noise level is the level exceeded "n" percent of the time during the measurement period. L<sub>25</sub> is the noise level exceeded 25% of the time. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.



### **3.5 CONSTRUCTION NOISE STANDARDS**

To analyze noise impacts originating from the construction of the KTM French Valley Project, noise from construction activities are typically limited to the hours of operation established under the Municipal Code. The Municipal Code noise standards for construction are described below for the County of Riverside and the City of Murrieta to determine the potential noise impacts at receiver locations within each jurisdiction. The construction-related noise standards are summarized in Tables 3-2 and 3-3.

#### **3.5.1** COUNTY OF RIVERSIDE 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 9.52.020 of the County's Noise Regulation ordinance 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. (17) Neither the County's General Plan nor Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers, which would allow for a quantified determination of what CEQA constitutes a *substantial temporary or periodic noise increase*. Therefore, the noise levels due to Project construction are evaluated based on the City of Murrieta construction noise standards at the nearby sensitive land uses.

#### **3.5.2** CITY OF MURRIETA CONSTRUCTION NOISE STANDARDS

The City of Murrieta has established maximum noise levels for mobile and stationary equipment. Section 16.30.130 of the Municipal Code identifies limits on noise from construction activities to the noise levels shown on Table 3-2 and 3-3 for mobile and stationary equipment, respectively. The nearest noise-sensitive receivers to the Project site consist of existing single-family residential developments. For single-family residential development, mobile equipment noise levels may not exceed 75 dBA L<sub>max</sub> and stationary equipment noise levels may not exceed 60 dBA L<sub>max</sub> during the daytime hours. (16) The City of Murrieta Municipal Code noise standards are included in Appendix 3.1.



Receiving Land Use Category	Time Period	Maximum Noise Levels (dBA L <sub>max</sub> ) <sup>1</sup>
Single-Family	Daytime (7:00 a.m 8:00 p.m.)	75
Residential	Nighttime (8:00 p.m 7:00 a.m.)	60
Multi-Family	Daytime (7:00 a.m 8:00 p.m.)	80
Residential	Nighttime (8:00 p.m 7:00 a.m.)	64
Commercial	Daytime (7:00 a.m 8:00 p.m.)	85
Commercial	Nighttime (8:00 p.m 7:00 a.m.)	70

TABLE 3-2: MOBILE EQUIPMENT NOISE LEVEL LIMITS

<sup>1</sup> Maximum noise levels for mobile equipment, City of Murrieta Municipal Code, 16.30.130 (A) (Appendix 3.1).

<b>TABLE 3-3:</b>	<b>STATIONARY</b>	EQUIPMENT	NOISE LEVEL LIMITS
	•		

Receiving Land Use Category	Time Period	Maximum Noise Levels (dBA L <sub>max</sub> ) <sup>1</sup>
Single-Family	Daytime (7:00 a.m 8:00 p.m.)	60
Residential	Nighttime (8:00 p.m 7:00 a.m.)	50
Multi-Family	Daytime (7:00 a.m 8:00 p.m.)	65
Residential	Nighttime (8:00 p.m 7:00 a.m.)	55
Commorcial	Daytime (7:00 a.m 8:00 p.m.)	70
Commerciai	Nighttime (8:00 p.m 7:00 a.m.)	60

 $^1$  Maximum noise levels for stationary equipment, City of Murrieta Municipal Code, 16.30.130 (A) (Appendix 3.1).

### 3.6 CONSTRUCTION VIBRATION STANDARDS

To analyze the vibration impacts originating from the construction of the Project, vibration from construction activities are typically evaluated against standards established under the Municipal Code. The Municipal Code vibration standards for construction are described below for the County of Riverside and City of Murrieta to determine the potential vibration impacts at receivers



within each jurisdiction. The construction-related vibration standards for each jurisdiction are summarized in Table 3-4.

#### 3.6.1 COUNTY OF RIVERSIDE CONSTRUCTION VIBRATION STANDARDS

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 0.787 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. (13) However, since the nearest sensitive receiver locations are located within the City of Murrieta, the City of Murrieta vibration standards are used to evaluate the potential impacts at nearby sensitive receiver locations.

#### **3.6.2** CITY OF MURRIETA CONSTRUCTION VIBRATION STANDARDS

The City of Murrieta Municipal Code, Section 16.30.130 (K), states that operating or permitting the operation of any device that creates a vibration that is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet from the source if on public space or public right-of-way is prohibited. The Municipal Code defines the vibration perception threshold to be a motion velocity of 0.01 in/sec over the range of one to 100 Hz. (16)

#### 3.6.3 HUMAN PERCEPTION OF VIBRATION

Typically, the human response at the perception threshold for vibration includes annoyance in residential areas as previously shown on Exhibit 2-B, when vibration levels expressed in vibration decibels (VdB) approach 75 VdB. The City of Murrieta, however, identifies a vibration perception threshold of 0.01 in/sec. For vibration levels expressed in velocity, the human body responds to the average vibration amplitude often described as the root-mean-square (RMS). The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a one-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to reduce the range of numbers used to describe human response to vibration. Therefore, the City of Murrieta vibration standard of 0.01 in/sec in RMS velocity levels is used in this analysis to assess the human perception of vibration levels due to Project-related construction activities.



Jurisdiction	Root-Mean-Square Velocity Standard (in/sec)
County of Riverside <sup>1</sup>	0.01
City of Murrieta <sup>2</sup>	0.01

#### TABLE 3-4: CONSTRUCTION VIBRATION STANDARDS

<sup>1</sup>Source: County of Riverside General Plan Noise Element, Policy N 16.3.

<sup>2</sup> Source: City of Murrieta Municipal Code, Section 16.30.130 (K) (Appendix 3.1).

#### 3.7 RIVERSIDE COUNTY AIRPORT LAND USE COMPATIBILITY PLAN

The Riverside County Airport Land Use Compatibility Plan (RC ALUCP) establishes compatibility criteria for land uses in relation to the noise contour boundaries of airports within the County of Riverside. Chapter 2, *Countywide Policies*, of the RC ALUCP establishes Policy 4.1.6 which identifies an interior noise level limit of 45 dBA CNEL with windows closed for office buildings affected by aircraft-related noise. In addition, the RC ALUCP provides Table 2B *Supporting Compatibility Criteria: Noise*, which indicates that office uses such as the Project, are considered *clearly acceptable* when located within the 50 to 55 dBA CNEL noise contour boundaries of an airport. Office uses are considered *normally acceptable* when located within the 55 to 60 dBA CNEL noise contours of an airport. Office uses that are located between the 60 to 65 dBA CNEL noise contours are considered *marginally acceptable* and the *indicated noise exposure will cause moderate interference with outdoor activities and with indoor activities when windows are open. The land use is acceptable on the conditions that outdoor activities are minimal and construction features which provide sufficient noise attenuation are used (e.g., installation of air conditioning so that windows can be kept closed). Under other circumstances, the land use should be discouraged. (18)* 

The French Valley Airport is located roughly 400 feet east of the Project site. Map FV-3 of the RC ALUCP shows the French Valley Airport Noise Compatibility Contours. The Project site is partially located within the 55 to 60 dBA CNEL and 60 to 65 dBA CNEL noise contour boundaries of the French Valley Airport, as shown on Exhibit 3-B.

Exhibit 3-B shows the office uses within the Project site are considered *normally acceptable* since they are located between the 55 and 60 dBA CNEL noise contour boundaries of the French Valley Airport. The outdoor covered truck parking and car wash areas are located within the 60 to 65 dBA CNEL noise contours, shown on Exhibit 3-B, and therefore, are considered *marginally acceptable*. The outdoor activities at the Project site will be minimal, with most activity occurring within the proposed office uses at the Project site.





EXHIBIT 3-B: FRENCH VALLEY AIRPORT NOISE LEVEL CONTOUR BOUNDARIES



## 4 SIGNIFICANCE CRITERIA

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

- A. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- B. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
- C. A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project; or
- D. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.
- E. For a project located within 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, expose people residing or working in the Project area to excessive noise levels.
- F. For a project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

While the CEQA Guidelines and 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 under CEQA Guideline A, they do not define the levels at which increases are considered substantial for use under Guidelines B, C, and D. CEQA Guidelines E and F apply to nearby public and private airports, if any, and the Project's land use compatibility.

As previously shown on Exhibit 3-B, the office uses within the Project site are considered *normally acceptable* since they are located between the 55 and 60 dBA CNEL noise contour boundaries of the French Valley Airport. The outdoor covered truck parking and car wash areas are located within the 60 to 65 dBA CNEL noise contours, shown on Exhibit 3-B, and therefore, are considered *marginally acceptable*. However, the outdoor activities at the Project site will be minimal, with most activity occurring within the proposed office uses at the Project site. Therefore, while some aircraft noise levels will be heard, the noise due to aircraft flyovers represents a *less than significant* noise level impact at the Project site.



### 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.* (19)

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

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (20) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (i.e., CNEL).

For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

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

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

Federal Interagency Committee on Noise (FICON), 1992.


## 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*. (13)

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 s 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. Table 4.2 provides a summary of the noise impact significance criteria.

## 4.3 SIGNIFICANCE CRITERIA

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):
  - are less than 60 dBA CNEL and the Project creates a *readily perceptible* 5 dBA CNEL or greater Project related noise level increase; or
  - range from 60 to 65 dBA CNEL and the Project creates a *barely perceptible* 3 dBA CNEL or greater Project noise level increase; or
  - already exceed 65 dBA CNEL, and the Project creates a community noise level impact 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; 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 50 dBA L<sub>50</sub> daytime or 45 dBA L<sub>50</sub> nighttime noise level standards at nearby sensitive residential land uses in the City of Murrieta. These standards shall not be exceeded for a cumulative period of 30 minutes (L<sub>50</sub>) or cannot exceed 55 dBA (daytime) or 50 dBA (nighttime) for a cumulative period of more than 15 minutes (L<sub>25</sub>) in any hour, or 60 dBA (daytime) or 55 dBA (nighttime) for a cumulative period of more than 5 minutes (L8) in any hour, or 65 dBA (daytime) or 60 dBA (nighttime) for a cumulative period of more than 1 minute (L2) in any hour, or 70 dBA (daytime) or 65 dBA (nighttime) at any time (Lmax) (City of Murrieta Municipal Code, Sections 16.30.090 (A) & (B)).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
  - $\circ~$  are less than 60 dBA  $L_{50}$  and the Project creates a readily perceptible 5 dBA  $L_{50}$  or greater Project-related noise level increase; or
  - $\circ~$  range from 60 to 65 dBA  $L_{50}$  and the Project creates a barely perceptible dBA  $L_{50}$  or greater Project-related noise level increase; or
  - $\circ~$  already exceed 65 dBA  $L_{50},$  and the Project creates a community noise level impact of greater than 1.5 dBA  $L_{50}$  (FICON, 1992).

#### **CONSTRUCTION NOISE AND VIBRATION**

- If Project-related construction activities create noise levels which exceed the mobile 75 dBA L<sub>max</sub> or stationary 60 dBA L<sub>max</sub> equipment noise level limits at the nearby sensitive residential land uses (City of Murrieta Municipal Code, Section 16.30.130 (A)).
- If short-term Project generated construction vibration levels could exceed the City of Murrieta maximum acceptable vibration standard of 0.01 in/sec (RMS) at sensitive receiver locations (City of Murrieta Municipal Code, Section 16.30.130 (K)).



Amahasia	Landlia	Condition(s)	Significa	nce Criteria
Analysis	Land Use	Condition(s)	Daytime	Nighttime
Neise		if ambient is < 60 dBA CNEL	≥ 5 dBA CNEL	Project increase
Off-Site	Noise- Sensitive <sup>1</sup>	if ambient is 60 - 65 dBA CNEL	≥ 3 dBA CNEL	Project increase
Traffic	Schöltive	if ambient is > 65 dBA CNEL	≥ 1.5 dBA CNE	L Project increase
Noise	Non-Noise- Sensitive <sup>2</sup>	if ambient is < 70 dBA CNEL	≥ 5 dBA CNEL	Project increase
		if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
	Exterior Noise Level Standards <sup>3</sup>		See T	able 3-1
Operational	Noise-	if ambient is < 60 dBA $L_{50}^{1}$	≥ 5 dBA L <sub>50</sub> Project increase	
Noise	Sensitive	if ambient is 60 - 65 dBA $L_{50}^{1}$	$\geq$ 3 dBA L <sub>50</sub> F	Project increase
		if ambient is > 65 dBA $L_{50}^{1}$	≥ 1.5 dBA L <sub>50</sub> Project increase	
Construction		Mobile Equipment Noise Level Threshold <sup>4</sup>	75 d	BA L <sub>max</sub>
Noise &	Noise- Sensitive	Stationary Equipment Noise Level Threshold <sup>4</sup>	60 d	BA L <sub>max</sub>
Vibration	Sensitive	Vibration Level Threshold <sup>5</sup>	0.01 in	/sec RMS

#### TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

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

<sup>2</sup> Source: County of Riverside General Plan Noise Element, Table N-1.

<sup>3</sup> Sources: County of Riverside General Plan Noise Element, Table N-2 and the City of Murrieta Municipal Code, Section 16.30.090 (A) & (B).

<sup>4</sup> Source: City of Murrieta Municipal Code, 16.30.130 (A) (Appendix 3.1)

<sup>5</sup> Source: City of Murrieta Municipal Code, Section 16.30.130 (K) (Appendix 3.1).

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





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# 5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, six 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, July 11<sup>th</sup>, 2018. Appendix 5.1 includes study area photos.

## 5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (21)

## 5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent any part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources. (4)* 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. (3)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (3) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels



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

## 5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels ( $L_{eq}$ ). The equivalent sound level ( $L_{eq}$ ) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Median noise levels ( $L_{50}$ ) are also provided on Table 5-1 consistent with the City of Murrieta Municipal Code standards previously shown on Table 3-1. 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 Sparkman Way adjacent to a French Valley Airport parking lot and vacant land. The noise level measurements collected show an overall 24-hour exterior noise level of 61.0 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 57.2 dBA L<sub>eq</sub> with an average nighttime noise level of 53.6 dBA L<sub>eq</sub>.
- Location L2 represents the noise levels north of the Project site on Winchester Road adjacent to existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 80.0 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 74.3 dBA L<sub>eq</sub> with an average nighttime noise level of 73.2 dBA L<sub>eq</sub>.
- Location L3 represents the noise levels west of the Project site across Winchester Road adjacent to existing residential homes. The 24-hour CNEL indicates that the overall exterior noise level is 78.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 72.8 dBA L<sub>eq</sub> with an average nighttime noise level of 71.5 dBA L<sub>eq</sub>.
- Location L4 represents the noise levels west of the Project site across Winchester Road adjacent to existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 74.9 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 69.9 dBA L<sub>eq</sub> with an average nighttime noise level of 67.7 dBA L<sub>eq</sub>.
- Location L5 represents the noise levels southwest of the Project site on Augusta Drive adjacent to existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 64.8 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 60.2 dBA  $L_{eq}$  with an average nighttime noise level of 57.6 dBA  $L_{eq}$ .
- Location L6 represents the noise levels south of the Project site adjacent to a vacant lot designated as future commercial land use. The 24-hour CNEL indicates that the overall exterior noise level is 57.3 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 56.9 dBA L<sub>eq</sub> with an average nighttime noise level of 47.0 dBA L<sub>eq</sub>.



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 the arterial roadway network. This includes the auto and heavy truck activities on study area roadway segments such as Winchester Road (SR-79) near the noise level measurement locations. Background noise sources also include aircraft flyover noise levels from French Valley Airport east of the Project site. The 24-hour existing noise level measurement results are shown on Table 5-1.



KTM French Valley Noise Impact Analysis

Location <sup>1</sup>	Jurisdiction	Distance to Site	Description	Energy Noise (dBA	Average : Level \ L <sub>eq</sub> ) <sup>2</sup>	Average Noise (dBA	Median Level .L <sub>50</sub> ) <sup>2</sup>	CNEL
		11		Daytime	Nighttime	Daytime	Nighttime	
11	County of Riverside	1,635'	Located north of the Project site on Sparkman Way adjacent to a French Valley Airport parking lot and vacant land.	57.2	53.6	50.9	46.3	61.0
13	Murrieta	1,230'	Located north of the Project site on Winchester Road adjacent to existing residential homes.	74.3	73.2	72.3	66.2	80.0
13	Murrieta	150'	Located west of the Project site across Winchester Road adjacent to existing residential homes.	72.8	71.5	71.3	63.9	78.4
14	Murrieta	133'	Located west of the Project site across Winchester Road adjacent to existing residential homes.	6.69	67.7	67.2	60.0	74.9
LS	Murrieta	950'	Located southwest of the Project site on Augusta Drive adjacent to existing residential homes.	60.2	57.6	58.7	53.7	64.8
97	County of Riverside	285'	Located south of the Project site adjacent to a vacant lot designated as future commercial land use.	56.9	47.0	44.9	39.3	57.3

# 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> The long-term 24-hour measurement printouts 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.

11624-03 Noise Study





**EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS** 



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# 6 METHODS AND PROCEDURES

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

## 6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (22) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (23) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

## 6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site transportation noise impacts. Table 6-1 identifies the 10 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications according to 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 were obtained from the *KTM French Valley Traffic Impact Analysis* prepared by Urban Crossroads, Inc., for the following traffic scenarios: Existing, Existing plus Ambient (EA) 2020, and EA plus Cumulative (EAC) 2020 conditions. (2) Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits.

For this analysis, soft site conditions are used to analyze the traffic noise level increases with the Project on the study area roadway segments. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Consistent with Appendix EIR-7 of the *County of Riverside General Plan Amendment No. 960 Environmental Impact Report*, the off-site traffic noise analysis provided in this Noise Study is intended to document the traffic noise environment and project future potential traffic noise level increases due to the KTM French Valley Project. (24) As such, the off-site traffic noise analysis does not follow the County of Riverside Office of Industrial Hygiene hard site condition requirements for determining and mitigating on-site traffic noise impacts at residential structures, consistent with the *County of Riverside General Plan Amendment No. 960 Environmental Impact Report*. (24) Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this noise study. (25)



ID	Roadway	Segment	Adjacent Land Use <sup>1</sup>	Distance From Centerline To Nearest Adjacent Land Use (Feet) <sup>2</sup>	Vehicle Speed (mph) <sup>3</sup>
1	Winchester Rd. (SR-79)	n/o Auld Rd.	Residential	92'	55
2	Winchester Rd. (SR-79)	s/o Auld Rd.	Residential	92'	55
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	Residential	92'	55
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	Residential	92'	55
5	Winchester Rd. (SR-79)	s/o Technology Dr.	Residential	92'	55
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	Commercial	92'	55
7	Auld Rd.	e/o Winchester Rd. (SR-79)	Commercial	50'	40
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	Commercial	30'	40
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	Residential	30'	40
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	Residential	37'	45

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

<sup>1</sup> Sources: County of Riverside General Plan, Southwest Area Land Use Plan and the City of Murrieta General Plan Land Use Policy Map.

<sup>2</sup> Distance to adjacent land use is based upon the right-of-way distances for each functional roadway classification provided in the County of Riverside and City of Murrieta General Plan Circulation Elements.

<sup>3</sup> Source: KTM French Valley Traffic Impact Analysis, August 2018.

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

				Avera	age Daily T	raffic (1,0	00's) <sup>1</sup>	
п	Poodwov	Sogmont	Segment		EA 2	020	EAC	2020
	Nuduway	Segment	Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Winchester Rd. (SR-79)	n/o Auld Rd.	45,936	46,521	47,792	48,377	63,678	64,263
2	Winchester Rd. (SR-79)	s/o Auld Rd.	49,249	49,834	51,239	51,824	60,092	60,677
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	52,549	53,214	54,672	55,337	67,494	68,159
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	58,712	59,523	61,084	61,895	73,356	74,167
5	Winchester Rd. (SR-79)	s/o Technology Dr.	56,612	57,350	58,899	59,637	70,151	70,889
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	49,372	49,666	51,367	51,661	56,277	56,571
7	Auld Rd.	e/o Winchester Rd. (SR-79)	7,881	7,954	8,199	8,272	17,144	17,217
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	1,186	1,853	1,234	1,901	5,952	6,619
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	3,381	3,454	3,518	3,591	4,206	4,279
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	40,209	40,652	41,834	42,277	48,220	48,663

<sup>1</sup> Source: KTM French Valley Traffic Impact Analysis, August 2018.

"EA" = Existing plus Ambient Growth; "EAC" = Existing plus Ambient Growth plus Cumulative Developments



		Total of Time of		
venicie Type	Daytime	Evening	Nighttime	Day Splits
Autos	71.55%	12.98%	15.47%	100.00%
Medium Trucks	70.41%	5.61%	23.98%	100.00%
Heavy Trucks	77.80%	5.86%	16.34%	100.00%

<sup>1</sup> Based on existing ADT counts by vehicle type taken on 5/24/2018 on Winchester Road south of Sparkman Way (KTM French Valley Traffic Impact Analysis, August 2018). All values rounded to the nearest one-hundredth.

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

According to the *KTM French Valley Traffic Impact Analysis* prepared by Urban Crossroads, Inc., the Project is expected to generate a net total of approximately 1,469 trip-ends per day (actual vehicles). The Project trip generation includes 11 truck trip-ends per day from the Project site. This noise study relies on the actual Project trips to accurately account for the effect of individual truck trips on the study area roadway network.

To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix.

The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Traffic Impact Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-5 to 6-7 show the vehicle mixes used for the with Project traffic scenarios.

Classification	То	Total		
Classification	Autos	Medium Trucks	Heavy Trucks	TOLAI
All Segments	98.56%	0.37%	1.07%	100.00%

TABLE 6-4:	WITHOUT	PROJECT	CONDITIONS	<b>VEHICLE MIX</b>
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<sup>1</sup> Based on existing ADT counts by vehicle type taken on 5/24/2018 on Winchester Road south of Sparkman Way (KTM French Valley Traffic Impact Analysis, August 2018). All values rounded to the nearest one-hundredth.



				With P	roject <sup>1</sup>	
ID	Roadway	Segment	Autos	Medium Trucks	Heavy Trucks	Total <sup>2</sup>
1	Winchester Rd. (SR-79)	n/o Auld Rd.	98.57%	0.37%	1.06%	100.00%
2	Winchester Rd. (SR-79)	s/o Auld Rd.	98.57%	0.37%	1.06%	100.00%
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	98.56%	0.37%	1.07%	100.00%
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	98.56%	0.37%	1.07%	100.00%
5	Winchester Rd. (SR-79)	s/o Technology Dr.	98.56%	0.37%	1.07%	100.00%
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	98.56%	0.37%	1.07%	100.00%
7	Auld Rd.	e/o Winchester Rd. (SR-79)	98.57%	0.37%	1.06%	100.00%
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	98.48%	0.35%	1.17%	100.00%
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	98.59%	0.37%	1.05%	100.00%
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	98.56%	0.37%	1.07%	100.00%

#### TABLE 6-5: EXISTING WITH PROJECT CONDITIONS VEHICLE MIX

<sup>1</sup> Source: KTM French Valley Traffic Impact Analysis, August 2018.

<sup>2</sup> Total of vehicle mix percentage values rounded to the nearest one-hundredth.

#### TABLE 6-6: EA 2020 WITH PROJECT CONDITIONS VEHICLE MIX

				With P	roject <sup>1</sup>	
ID	Roadway	Segment	Autos	Medium Trucks	Heavy Trucks	Total <sup>2</sup>
1	Winchester Rd. (SR-79)	n/o Auld Rd.	98.57%	0.37%	1.06%	100.00%
2	Winchester Rd. (SR-79)	s/o Auld Rd.	98.57%	0.37%	1.06%	100.00%
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	98.56%	0.37%	1.07%	100.00%
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	98.56%	0.37%	1.07%	100.00%
5	Winchester Rd. (SR-79)	s/o Technology Dr.	98.56%	0.37%	1.07%	100.00%
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	98.56%	0.37%	1.07%	100.00%
7	Auld Rd.	e/o Winchester Rd. (SR-79)	98.57%	0.37%	1.06%	100.00%
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	98.48%	0.35%	1.17%	100.00%
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	98.59%	0.37%	1.05%	100.00%
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	98.56%	0.37%	1.07%	100.00%

<sup>1</sup> Source: KTM French Valley Traffic Impact Analysis, August 2018.

<sup>2</sup> Total of vehicle mix percentage values rounded to the nearest one-hundredth.

				With P	roject <sup>1</sup>	
ID	Roadway	Segment	Autos	Medium Trucks	Heavy Trucks	Total <sup>2</sup>
1	Winchester Rd. (SR-79)	n/o Auld Rd.	98.57%	0.37%	1.06%	100.00%
2	Winchester Rd. (SR-79)	s/o Auld Rd.	98.57%	0.37%	1.06%	100.00%
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	98.56%	0.37%	1.07%	100.00%
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	98.56%	0.37%	1.07%	100.00%
5	Winchester Rd. (SR-79)	s/o Technology Dr.	98.56%	0.37%	1.07%	100.00%
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	98.56%	0.37%	1.07%	100.00%
7	Auld Rd.	e/o Winchester Rd. (SR-79)	98.56%	0.37%	1.07%	100.00%
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	98.54%	0.37%	1.10%	100.00%
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	98.58%	0.37%	1.05%	100.00%
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	98.56%	0.37%	1.07%	100.00%

TABLE 6-7: EAC 2020 WITH PROJECT CONDITIONS VEHICLE MIX

<sup>1</sup> Source: KTM French Valley Traffic Impact Analysis, August 2018.

<sup>2</sup> Total of vehicle mix percentage values rounded to the nearest one-hundredth.

#### 6.3 VIBRATION ASSESSMENT

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

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with various types of construction equipment are summarized on Table 6-8. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) 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:  $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$ 



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

#### TABLE 6-8: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.



# 7 OFF-SITE TRANSPORTATION NOISE IMPACTS

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

- <u>Existing Without / With Project</u>: This scenario refers to the existing present-day noise conditions, without and with the proposed Project.
- <u>Existing plus Ambient Growth (EA) 2020 Without / With Project</u>: This scenario refers to Year 2020 noise conditions without and with the proposed Project plus ambient growth.
- <u>EA plus Cumulative Development (EAC) 2020 Without / With Project</u>: This scenario refers to Year 2020 noise conditions without and with the proposed Project plus ambient growth, and includes all cumulative projects identified in the *Traffic Impact Analysis*.

## 7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA noise levels. The noise contours do not take into account 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 traffic noise levels, without barrier attenuation, for the 10 study area roadway segments analyzed from the without Project to the with Project conditions in each of the four timeframes: Existing, Existing plus Ambient Growth (EA) 2020, and EA plus Cumulative Development (EAC) 2020 conditions. Appendix 7.1 includes a summary of the traffic noise level contours for each of the six traffic scenarios.

	Road	Segment	Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID		Segment	Land Use <sup>1</sup>	Adjacent Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Winchester Rd. (SR-79)	n/o Auld Rd.	Residential	72.8	141	304	655
2	Winchester Rd. (SR-79)	s/o Auld Rd.	Residential	73.1	148	319	687
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	Residential	73.4	154	333	717
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	Residential	73.9	166	358	772
5	Winchester Rd. (SR-79)	s/o Technology Dr.	Residential	73.7	162	350	753
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	Commercial	73.1	148	319	688
7	Auld Rd.	e/o Winchester Rd. (SR-79)	Commercial	65.5	RW	54	117
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	Commercial	60.3	RW	RW	31
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	Residential	64.8	RW	RW	63
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	Residential	75.4	85	183	394

TABLE 7-1: EXISTING WITHOUT PROJECT CONDITIONS NOISE CONTOURS

<sup>1</sup> Sources: County of Riverside General Plan, Southwest Area Land Use Plan and the City of Murrieta General Plan Land Use Policy Map.

<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 adjacent land use.

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

<b>TABLE 7-2:</b>	<b>EXISTING WITH</b>	PROJECT CONDI	<b>TIONS NOISE CONTO</b>	URS

	Road		Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID		Segment	Land Use <sup>1</sup>	Adjacent Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Winchester Rd. (SR-79)	n/o Auld Rd.	Residential	72.8	142	306	660
2	Winchester Rd. (SR-79)	s/o Auld Rd.	Residential	73.1	149	321	691
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	Residential	73.4	156	336	723
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	Residential	73.9	168	361	779
5	Winchester Rd. (SR-79)	s/o Technology Dr.	Residential	73.8	164	353	760
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	Commercial	73.1	149	320	690
7	Auld Rd.	e/o Winchester Rd. (SR-79)	Commercial	65.6	RW	54	117
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	Commercial	62.3	RW	RW	43
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	Residential	64.9	RW	RW	63
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	Residential	75.5	85	184	397

<sup>1</sup> Sources: County of Riverside General Plan, Southwest Area Land Use Plan and the City of Murrieta General Plan Land Use Policy Map.

<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 adjacent land use.

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



	Road		Adiacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID		Segment	Land Use <sup>1</sup>	Adjacent Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Winchester Rd. (SR-79)	n/o Auld Rd.	Residential	73.0	145	312	673
2	Winchester Rd. (SR-79)	s/o Auld Rd.	Residential	73.3	152	327	705
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	Residential	73.5	159	342	736
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	Residential	74.0	171	368	793
5	Winchester Rd. (SR-79)	s/o Technology Dr.	Residential	73.9	167	359	774
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	Commercial	73.3	152	328	706
7	Auld Rd.	e/o Winchester Rd. (SR-79)	Commercial	65.7	RW	56	120
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	Commercial	60.4	RW	RW	32
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	Residential	65.0	RW	30	65
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	Residential	75.6	87	188	405

TABLE 7-3: EA 2020 WITHOUT PROJECT CONDITIONS NOISE CONTOURS

<sup>1</sup> Sources: County of Riverside General Plan, Southwest Area Land Use Plan and the City of Murrieta General Plan Land Use Policy Map.

<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 adjacent land use.

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

TABLE 7-4. EA 2020 WITH PROJECT CONDITIONS NOISE CONTOURS	TABLE 7-4:	EA 2020 WITH	PROJECT	CONDITIONS	NOISE CONTOUR	۱S
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		Sogmont	Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Land Use <sup>1</sup>	Adjacent Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Winchester Rd. (SR-79)	n/o Auld Rd.	Residential	73.0	146	314	677
2	Winchester Rd. (SR-79)	s/o Auld Rd.	Residential	73.3	153	329	709
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	Residential	73.6	160	344	742
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	Residential	74.1	172	371	799
5	Winchester Rd. (SR-79)	s/o Technology Dr.	Residential	73.9	168	362	780
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	Commercial	73.3	153	329	709
7	Auld Rd.	e/o Winchester Rd. (SR-79)	Commercial	65.7	RW	56	120
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	Commercial	62.4	RW	RW	44
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	Residential	65.0	RW	30	65
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	Residential	75.6	88	189	407

<sup>1</sup> Sources: County of Riverside General Plan, Southwest Area Land Use Plan and the City of Murrieta General Plan Land Use Policy Map.

<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 adjacent land use.

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



	Road		Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID		Segment	Land Use <sup>1</sup>	Adjacent Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Winchester Rd. (SR-79)	n/o Auld Rd.	Residential	74.2	176	378	815
2	Winchester Rd. (SR-79)	s/o Auld Rd.	Residential	74.0	169	364	784
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	Residential	74.5	183	393	847
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	Residential	74.8	193	416	895
5	Winchester Rd. (SR-79)	s/o Technology Dr.	Residential	74.6	187	403	869
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	Commercial	73.7	162	348	750
7	Auld Rd.	e/o Winchester Rd. (SR-79)	Commercial	68.9	RW	91	196
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	Commercial	67.3	RW	43	92
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	Residential	65.8	RW	34	73
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	Residential	76.2	96	206	445

TABLE 7-5: EAC 2020 WITH PROJECT CONDITIONS NOISE CONTOURS

<sup>1</sup> Sources: County of Riverside General Plan, Southwest Area Land Use Plan and the City of Murrieta General Plan Land Use Policy Map.

<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 adjacent land use.

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

		Segment	Adjacent	CNEL at Nearest	Distance to Contour from Centerline (Feet)		
ID	Road	Segment	Land Use <sup>1</sup>	Adjacent Land Use (dBA) <sup>2</sup>	70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Winchester Rd. (SR-79)	n/o Auld Rd.	Residential	74.2	176	380	819
2	Winchester Rd. (SR-79)	s/o Auld Rd.	Residential	74.0	170	366	788
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	Residential	74.5	184	396	853
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	Residential	74.9	194	419	902
5	Winchester Rd. (SR-79)	s/o Technology Dr.	Residential	74.7	189	406	875
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	Commercial	73.7	162	349	753
7	Auld Rd.	e/o Winchester Rd. (SR-79)	Commercial	68.9	RW	91	196
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	Commercial	67.8	RW	46	99
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	Residential	65.8	RW	34	73
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	Residential	76.2	96	208	447

<sup>1</sup> Sources: County of Riverside General Plan, Southwest Area Land Use Plan and the City of Murrieta General Plan Land Use Policy Map.

<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 adjacent land use.

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



## 7.2 EXISTING CONDITION PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-1 presents the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 60.3 to 75.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 625.3 to 75.5 dBA CNEL. As shown on Table 7-7 the Project will generate a noise level increase of up to 2.0 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related noise level increases are considered *less than significant* under Existing conditions at the land uses adjacent to roadways conveying Project traffic.

ID	Road	Segment	CNEL at Adjacent Land Use (dBA) <sup>1</sup>			Noise- Sensitive Land	Threshold Exceeded? <sup>2</sup>
			No Project	With Project	Project Addition	Use?	
1	Winchester Rd. (SR-79)	n/o Auld Rd.	72.8	72.8	0.0	Yes	No
2	Winchester Rd. (SR-79)	s/o Auld Rd.	73.1	73.1	0.0	Yes	No
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	73.4	73.4	0.1	Yes	No
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	73.9	73.9	0.1	Yes	No
5	Winchester Rd. (SR-79)	s/o Technology Dr.	73.7	73.8	0.1	Yes	No
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	73.1	73.1	0.0	No	No
7	Auld Rd.	e/o Winchester Rd. (SR-79)	65.5	65.6	0.0	No	No
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	60.3	62.3	2.0	No	No
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	64.8	64.9	0.1	Yes	No
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	75.4	75.5	0.0	Yes	No

#### TABLE 7-7: EXISTING OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

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

<sup>2</sup> Significance Criteria (Section 4).



## 7.3 EXISTING PLUS AMBIENT GROWTH PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-8 presents a comparison of the Existing plus Ambient Growth (EA) 2020 without and with Project conditions CNEL noise levels. Table 7-3 shows that the exterior noise levels without accounting for any noise attenuation features are expected to range from 60.4 to 75.6 dBA CNEL without the Project. Table 7-4 presents the EA 2020 with Project conditions noise level contours that are expected to range from 62.4 to 75.6 dBA CNEL. As shown on Table 7-8 the Project will generate *less than significant* noise level increases of up to 2.0 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related increases represent a *less than significant* impact under EA 2020 conditions.

ID	Road	Segment	CN La	CNEL at Adjacent Land Use (dBA) <sup>1</sup>			Threshold
			No Project	With Project	Project Addition	Use?	
1	Winchester Rd. (SR-79)	n/o Auld Rd.	73.0	73.0	0.0	Yes	No
2	Winchester Rd. (SR-79)	s/o Auld Rd.	73.3	73.3	0.0	Yes	No
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	73.5	73.6	0.1	Yes	No
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	74.0	74.1	0.1	Yes	No
5	Winchester Rd. (SR-79)	s/o Technology Dr.	73.9	73.9	0.1	Yes	No
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	73.3	73.3	0.0	No	No
7	Auld Rd.	e/o Winchester Rd. (SR-79)	65.7	65.7	0.0	No	No
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	60.4	62.4	2.0	No	No
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	65.0	65.0	0.1	Yes	No
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	75.6	75.6	0.0	Yes	No

#### TABLE 7-8: EA 2020 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

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

<sup>2</sup> Significance Criteria (Section 4).



## 7.4 EA PLUS CUMULATIVE DEVELOPMENT PROJECT TRAFFIC NOISE LEVEL CONTRIBUTIONS

Table 7-9 presents a comparison of the EA plus Cumulative Development (EAC) 2020 without and with Project conditions CNEL noise levels. Table 7-5 shows that the exterior noise levels without accounting for any noise attenuation features are expected to range from 65.8 to 76.2 dBA CNEL without the Project. Table 7-6 presents the EAC 2020 with Project conditions noise level contours that are expected to range from 65.8 to 76.2 dBA CNEL. As shown on Table 7-9 the Project will generate *less than significant* noise level increases of up to 0.5 dBA CNEL on the study area roadway segments. Based on the significance criteria in Section 4, the Project-related increases represent a *less than significant* impact under EAC 2020 conditions.

ID	Road	Segment	CN La	EL at Adjac nd Use (dB	ent A) <sup>1</sup>	Noise- Sensitive	Threshold
			No Project	With Project	Project Addition	Use?	
1	Winchester Rd. (SR-79)	n/o Auld Rd.	74.2	74.2	0.0	Yes	No
2	Winchester Rd. (SR-79)	s/o Auld Rd.	74.0	74.0	0.0	Yes	No
3	Winchester Rd. (SR-79)	s/o Sparkman Wy.	74.5	74.5	0.0	Yes	No
4	Winchester Rd. (SR-79)	s/o Hunter Rd.	74.8	74.9	0.0	Yes	No
5	Winchester Rd. (SR-79)	s/o Technology Dr.	74.6	74.7	0.0	Yes	No
6	Winchester Rd. (SR-79)	s/o Murrieta Hot Springs Rd.	73.7	73.7	0.0	No	No
7	Auld Rd.	e/o Winchester Rd. (SR-79)	68.9	68.9	0.0	No	No
8	Sparkman Wy.	e/o Winchester Rd. (SR-79)	67.3	67.8	0.5	No	No
9	Robert Trent Jones Pkwy.	w/o Winchester Rd. (SR-79)	65.8	65.8	0.0	Yes	No
10	Murrieta Hot Springs Rd.	w/o Winchester Rd. (SR-79)	76.2	76.2	0.0	Yes	No

#### TABLE 7-9: EAC 2020 OFF-SITE PROJECT-RELATED TRAFFIC NOISE IMPACTS

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

<sup>2</sup> Significance Criteria (Section 4).



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# 8 **RECEIVER LOCATIONS**

To assess the potential for long-term operational and short-term construction noise impacts, the following four 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, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

Sensitive receivers near the Project site include existing residential homes as described below. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

- R1: Located approximately 169 feet west of the Project site across Winchester Road, R1 represents existing single-family residential homes. A long-term noise measurement was taken near this location, L3, to describe the existing ambient noise environment.
- R2: Location R2 represents the existing residential homes located roughly 179 feet west of the Project site across Winchester Road. A long-term noise measurement was taken near this location, L3, to describe the existing ambient noise environment.
- R3: Location R3 represents the existing residential homes situated west of the Project site at approximately 185 feet across Winchester Road adjacent to an existing commercial shopping center. A long-term noise measurement was taken near this location, L4, to describe the existing ambient noise environment.
- R4: Location R4 represents the existing residential home situated approximately 248 feet southwest of the Project site on the southwest corner of Winchester Road and Hunter Road. A long-term noise measurement was taken near this location, L5, to describe the existing ambient noise environment.







**EXHIBIT 8-A: RECEIVER LOCATIONS** 

# 9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from operation of the proposed KTM French Valley Project. Exhibit 9-A identifies the representative receiver locations and noise source locations used to assess the operational noise levels.

## 9.1 **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 associated with roof-top air conditioning units, pressure washing activity, parking lot vehicle movements, motorcycle safety course activity, idling trucks, backup alarms, as well as trailer movement and storage activity.

#### 9.1.1 ROOF-TOP AIR CONDITIONING UNITS

In order to assess the impacts created by the roof-top air conditioning units at the Project buildings, reference noise levels measurements were taken at the Santee Walmart on July 27<sup>th</sup>, 2015. 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 an existing Walmart store. The reference noise level represents a Lennox SCA120 series 10-ton model packaged air conditioning unit. Using a uniform reference distance of 50 feet, the noise level is 54.4 dBA L<sub>50</sub>. The operating conditions of the reference noise level measurement reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. The roof-top air condition units were observed to operate the most during the daytime hours, for a total of 39 minutes per hour, and are anticipated to operate during the daytime and nighttime hours at the Project site. The noise attenuation provided by a parapet wall is not reflected in this reference noise level measurement.

#### 9.1.2 PRESSURE WASHER ACTIVITY

To describe pressure washers at the Project site car wash area, a reference noise level measurement was collected at the Audi Mission Viejo dealership on June  $10^{th}$ , 2016. The reference pressure washer activity noise level was measured at 68.2 dBA L<sub>50</sub> at a uniform reference distance of 50 feet. It is expected that pressure washers would be located in the outdoor car wash area within the Project site. Pressure washer activities are expected to occur for 30 minutes during peak hour conditions.



#### 9.1.3 PARKING LOT VEHICLE MOVEMENTS

To determine the noise levels associated with parking lot vehicle movements, Urban Crossroads collected reference noise level measurements over a 24-hour period on May  $17^{th}$ , 2017 at the parking lot for the Panasonic Avionics Corporation in the City of Lake Forest. The peak hour of activity measured over the 24-hour noise level measurement period occurred between 12:00 p.m. to 1:00 p.m. The measured reference noise level at 50 feet from parking lot vehicle movements was measured at 38.5 dBA L<sub>50</sub>. The parking lot noise levels are mainly due to cars pulling in and out of spaces during peak activity and employees talking. Noise associated with parking lot vehicle movements is expected to operate for the entire hour (60 minutes).

#### 9.1.4 MOTORCYCLE SAFETY COURSE ACTIVITY

To evaluate the noise levels associated with the motorcycle training course within the Project site, Urban Crossroads collected a reference noise level measurement at the Ride Rite motorcycle training course in the Crossroads Church parking lot located at 2331 Kellogg Avenue in the City of Corona. The reference noise level at 50 feet from activity was measured at 55.6 dBA  $L_{50}$ . The reference noise level measurement includes up to seven motorcycles driving around the safety course simultaneously, with two instructors yelling directions to the course attendees. Background noise sources include parking lot vehicle movements associated with the Crossroads Church parking lot. Noise associated with motorcycle safety course activity is expected to operate for the entire hour (60 minutes).

#### 9.1.5 TRUCK IDLING, BACKUP ALARMS, TRAILER MOVEMENTS & STORAGE

To evaluate the noise levels associated with truck idling, backup alarms, trailer movements and storage activities, Urban Crossroads collected a reference noise level measurement at an existing parcel hub facility, located in the City of Rialto on March  $13^{th}$ , 2017 to describe the potential operational noise levels associated with Project operational activities. The measured reference noise level at 50 feet from activity was measured at 54.9 dBA L<sub>50</sub>. The reference noise level measurement includes a semi-truck with trailer pass-by event, background switcher cab trailer towing, drop-off, idling, and backup alarm events. Noise associated with trailer movements and storage activity is expected to operate for the entire hour (60 minutes).



Noise Source	Duration (hh:mm:ss)	Ref. Distance (Feet)	Noise Source Height (Feet)	Hourly Activity (Mins) <sup>1</sup>	Referen Level (c @ Ref. Dist.	ce Noise IBA L <sub>50</sub> ) @ 50 Feet
Roof-Top Air Conditioning Units <sup>2</sup>	96:00:00	5'	5'	39	74.4	54.4
Pressure Washer Activity <sup>3</sup>	00:00:45	10'	5'	30	82.2	68.2
Parking Lot Vehicle Movements <sup>4</sup>	01:00:00	10'	5'	60	49.0	38.5
Motorcycle Safety Course Activity <sup>5</sup>	00:01:00	140'	5'	60	48.9	55.6
Truck Trailer Movements & Storage Activity <sup>6</sup>	00:00:36	50'	8'	60	54.9	54.9

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

<sup>1</sup> Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site based on the reference noise level measurement activity.

<sup>2</sup> As measured by Urban Crossroads, Inc. on 7/27/2015 at the Santee Walmart located at 170 Town Center Parkway.

<sup>3</sup> As measured by Urban Crossroads, Inc. at the Audi Mission Viejo dealership on 6/10/2016.

<sup>4</sup> As measured by Urban Crossroads, Inc. on 5/17/2017 at the Panasonic Avionics Corporation parking lot in the City of Lake Forest.

<sup>5</sup> As measured by Urban Crossroads, Inc. on 7/21/2018 at the Ride Rite motorcycle training course in the City of Corona.

<sup>6</sup> As measured by Urban Crossroads, Inc. on 3/13/2017 at a parcel delivery hub facility in Rialto.





**EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS** 



## 9.2 PROJECT OPERATIONAL NOISE LEVELS

Based upon the reference noise levels, it is possible to estimate the Project operational stationary-source noise levels at each of the sensitive receiver locations. The operational noise level calculations shown on Table 9-2 account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL1):

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

Where  $SPL_2$  is the resulting noise level after attenuation,  $SPL_1$  is the source noise level,  $D_2$  is the distance to the reference sound pressure level ( $SPL_1$ ), and  $D_1$  is the distance to the receiver location. Table 9-2 shows the individual operational noise levels of each noise source at each of the nearby sensitive receiver locations. As indicated on Table 9-2, the Project-only operational noise levels will range from 36.1 to 38.4 dBA  $L_{50}$  at the sensitive receiver locations. The noise levels calculated in this analysis include the barrier attenuation provided by the existing barriers in the Project study area, as shown on Exhibit 9-A, and the Project buildings themselves. Appendix 9.1 shows the operational noise level calculations for each receiver location by noise source.



		Operational Noise Levels (dBA) <sup>3</sup>					
Receiver Location <sup>1</sup>	Noise Sources <sup>2</sup>	L <sub>50</sub> (30 mins)	L <sub>25</sub> (15 mins)	L <sub>8</sub> (5 mins)	L₂ (1 min)	L <sub>max</sub> (Anytime)	
	Roof-Top Air Conditioning Units	32.8	34.5	35.8	36.1	36.6	
	Pressure Washer Activity	34.6	35.3	36.1	36.3	36.5	
D1	Parking Lot Vehicle Movements	22.5	23.5	28.5	34.5	45.4	
KT.	Motorcycle Safety Course Activity	22.0	23.0	25.1	28.0	32.1	
	Truck Movements & Storage Activity	25.6	29.1	31.4	32.4	33.8	
	Combined Noise Level:	37.4	38.7	40.1	41.3	46.8	
	Roof-Top Air Conditioning Units	32.8	34.5	35.8	36.1	36.6	
	Pressure Washer Activity	36.4	37.1	37.9	38.1	38.3	
R2	Parking Lot Vehicle Movements	6.7	7.7	12.7	18.7	29.6	
	Motorcycle Safety Course Activity	24.1	25.1	27.2	30.1	34.2	
	Truck Movements & Storage Activity	26.4	29.9	32.2	33.2	34.6	
	Combined Noise Level:	38.4	39.7	40.9	41.4	42.5	
	Roof-Top Air Conditioning Units	30.8	32.5	33.8	34.1	34.6	
	Pressure Washer Activity	36.1	36.8	37.6	37.8	38.0	
	Parking Lot Vehicle Movements	19.2	20.2	25.2	31.2	42.1	
КЭ	Motorcycle Safety Course Activity	30.9	31.9	34.0	36.9	41.0	
-	Truck Movements & Storage Activity	25.7	29.2	31.5	32.5	33.9	
	Combined Noise Level:	38.4	39.6	40.9	42.2	46.1	
	Roof-Top Air Conditioning Units	23.2	24.9	26.2	26.5	27.0	
	Pressure Washer Activity	33.4	34.1	34.9	35.1	35.3	
	Parking Lot Vehicle Movements	17.8	18.8	23.8	29.8	40.7	
K4	Motorcycle Safety Course Activity	31.6	32.6	34.7	37.6	41.7	
	Truck Movements & Storage Activity	22.6	26.1	28.4	29.4	30.8	
	Combined Noise Level:	36.1	37.1	38.7	40.5	45.0	

TABLE 9-2: PROJECT-ONLY OPERATIONAL NOISE LEVELS
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<sup>1</sup> See Exhibit 9-A for the receiver and noise source locations.

<sup>2</sup> Reference noise sources as shown on Table 9-1.

<sup>3</sup> Operational noise level calculations are provided in Appendix 9.1.

Table 9-3 presents a summary of the combined total Project-only operational noise level projections at the nearby sensitive receiver locations for a comparison the City of Murrieta exterior noise level standards. The Project operational noise levels at the nearby sensitive receiver locations are shown to range from 36.1 to 38.4 dBA  $L_{50}$ . Based on the results of this analysis, the Project operational noise levels associated the Project will satisfy the City of Murrieta Municipal Code exterior noise level standards, shown on Table 9-3.



Receiver	Land	No	ise Level at	Threshold Exceeded? <sup>3</sup>				
Location <sup>1</sup> Use	L <sub>50</sub> (30 mins)	L <sub>25</sub> (15 mins)	L <sub>8</sub> (5 mins)	L₂ (1 min)	L <sub>max</sub> (Anytime)	Daytime	Nighttime	
Operational	Desidential	50	55	60	65	70	-	-
Standards	Residential	45	50	55	60	65	-	-
R1	Residential	37.4	38.7	40.1	41.3	46.8	No	No
R2	Residential	38.4	39.7	40.9	41.4	42.5	No	No
R3	Residential	38.4	39.6	40.9	42.2	46.1	No	No
R4	Residential	36.1	37.1	38.7	40.5	45.0	No	No

#### TABLE 9-3: OPERATIONAL NOISE LEVEL COMPLIANCE

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

<sup>2</sup> Estimated Project stationary source noise levels as shown on Table 9-2.

<sup>3</sup> Do the estimated Project stationary source noise levels exceed the exterior noise level standards?

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

#### 9.3 PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTION

To describe the Project operational noise level contributions, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (4) Instead, they must be logarithmically added using the following base equation:

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

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

As indicated on Tables 9-4 and 9-5, the Project will not generate an increase on the existing ambient noise levels at the nearby receiver locations during the daytime hours, and will generate an increase of up to 0.1 during the nighttime hours at the nearby receiver locations. Since the Project-related operational noise level contributions will satisfy the significance criteria discussed in Section 4, the increases at the sensitive receiver locations will be *less than significant*. On this basis, Project operational stationary-source noise would not result in a substantial temporary/periodic, or permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project, and impacts in these regards will be *less than significant*.

Receiver Location <sup>1</sup>	Total Project Operational Noise Level (dBA L <sub>50</sub> ) <sup>2</sup>	Measurement Location <sup>3</sup>	Reference Ambient Noise Levels (dBA L₅o) <sup>4</sup>	Combined Project and Ambient (dBA L₅o) <sup>5</sup>	Project Contribution (dBA L₅₀) <sup>6</sup>	Threshold Exceeded? <sup>7</sup>
R1	37.4	L3	71.3	71.3	0.0	No
R2	38.4	L3	71.3	71.3	0.0	No
R3	38.4	L4	67.2	67.2	0.0	No
R4	36.1	L5	58.7	58.7	0.0	No

TABLE 9-4: PROJECT DAYTIME 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 9-3.

<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.

	<b>TABLE 9-5:</b>	PROJECT	NIGHTTIME	<b>NOISE LEVEL</b>	<b>CONTRIBUTIONS</b>
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Receiver Location <sup>1</sup>	Total Project Operational Noise Level (dBA L <sub>50</sub> ) <sup>2</sup>	Measurement Location <sup>3</sup>	Reference Ambient Noise Levels (dBA L <sub>50</sub> ) <sup>4</sup>	Combined Project and Ambient (dBA L₅o) <sup>5</sup>	Project Contribution (dBA L₅o) <sup>6</sup>	Threshold Exceeded? <sup>7</sup>
R1	37.4	L3	63.9	63.9	0.0	No
R2	38.4	L3	63.9	63.9	0.0	No
R3	38.4	L4	60.0	60.0	0.0	No
R4	36.1	L5	53.7	53.8	0.1	No

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

<sup>2</sup> Total Project operational noise levels as shown on Table 9-3.

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

<sup>4</sup> Observed nighttime 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.



# **10 CONSTRUCTION IMPACTS**

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

## **10.1** CONSTRUCTION NOISE LEVELS

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

#### Mobile Equipment:

- Demolition
- Site Preparation
- Grading
- Paving

## Stationary Equipment:

- Building Construction
- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with air quality construction data provided by CASC Engineering and Consulting. (26)

#### OFF-SITE GRADING ACTIVITY

Grading activities planned north of the Project site will occur at distances of approximately 223 to 235 feet to the residential homes to the west, as shown on Exhibit 10-A. As such, Project construction noise levels due to the grading-only activity north of the site would be less than those analyzed at the closer receiver locations (R1 to R3) at shorter distances ranging from 186 to 197. Therefore, no further analysis is provided for noise-sensitive receiver locations since Project construction noise levels will be lower than those shown at the closer receiver locations, R1 to R3.



**EXHIBIT 10-A: CONSTRUCTION ACTIVITY AND RECEIVER LOCATIONS** 


#### **10.2** CONSTRUCTION REFERENCE NOISE LEVELS

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

ID	Noise Source	Duration (h:mm:ss)	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L <sub>max</sub> )	Reference Noise Levels @ 50 Feet (dBA L <sub>max</sub> ) <sup>6</sup>
1	Truck Pass-Bys & Dozer Activity <sup>1</sup>	0:01:15	30'	68.1	63.7
2	Dozer Activity <sup>1</sup>	0:01:00	30'	76.4	72.0
3	Construction Vehicle Maintenance Activities <sup>2</sup>	0:01:00	30'	74.8	70.4
4	Foundation Trenching <sup>2</sup>	0:01:01	30'	74.9	70.5
5	Rough Grading Activities <sup>2</sup>	0:05:00	30'	84.8	80.4
6	Framing <sup>3</sup>	0:02:00	30'	76.7	72.3
7	Two Scrapers Pass-By <sup>4</sup>	0:00:30	30'	86.9	82.5
8	Concrete Mixer Truck Movements <sup>5</sup>	0:01:00	50'	73.1	73.1
9	Concrete Paver Activities <sup>5</sup>	0:01:00	30'	75.7	71.3
10	Concrete Mixer Pour & Paving Activities <sup>5</sup>	0:01:00	30'	76.3	71.9
11	Concrete Mixer Backup Alarms & Air Brakes⁵	0:00:20	50'	78.8	78.8
12	Concrete Mixer Pour Activities <sup>5</sup>	1:00:00	50'	79.2	79.2

#### TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

<sup>1</sup>As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.

<sup>2</sup> As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.

<sup>3</sup> As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.

<sup>4</sup> As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations within an industrial construction site located in the City of Ontario.

<sup>5</sup> Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.

<sup>6</sup> Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).



#### **10.3** CONSTRUCTION NOISE ANALYSIS

Tables 10-2 to 10-7 show the Project construction stages and the reference construction noise levels used for each stage. Table 10-8 provides a summary of the noise levels from each stage of construction at each of the sensitive receiver locations. Based on the reference construction noise levels, the Project-related construction noise levels when the highest reference noise level is operating at the edge of primary construction activity nearest each sensitive receiver location will range from 52.5 to 66.1 dBA L<sub>max</sub> at the sensitive receiver locations, as shown on Table 10-8.

Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>max</sub> )
Truck Pass-Bys & Dozer Activity	63.7
Dozer Activity	72.0
Highest Reference Noise Level at 50 Feet (dBA L <sub>max</sub> ):	72.0

#### TABLE 10-2: DEMOLITION MOBILE EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) <sup>2</sup>	Distance Attenuation (dBA) <sup>3</sup>	Estimated Noise Barrier Attenuation (dBA) <sup>4</sup>	Construction Noise Level (dBA L <sub>max</sub> )
R1	186'	-11.4	-5.0	55.6
R2	192'	-11.7	-5.0	55.3
R3	197'	-11.9	-5.0	55.1
R4	264'	-14.5	-5.0	52.5

<sup>1</sup> Reference construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$  Distance from the nearest point of construction activity to the nearest receiver.

<sup>3</sup> Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>max</sub> )
Truck Pass-Bys & Dozer Activity	63.7
Dozer Activity	72.0
Highest Reference Noise Level at 50 Feet (dBA L <sub>max</sub> ):	72.0

#### TABLE 10-3: SITE PREPARATION MOBILE EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) <sup>2</sup>	Distance Attenuation (dBA) <sup>3</sup>	Estimated Noise Barrier Attenuation (dBA) <sup>4</sup>	Construction Noise Level (dBA L <sub>max</sub> )
R1	186'	-11.4	-5.0	55.6
R2	192'	-11.7	-5.0	55.3
R3	197'	-11.9	-5.0	55.1
R4	264'	-14.5	-5.0	52.5

<sup>1</sup> Reference construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$  Distance from the nearest point of construction activity to the nearest receiver.

<sup>3</sup> Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>max</sub> )
Truck Pass-Bys & Dozer Activity	63.7
Dozer Activity	72.0
Rough Grading Activities	80.4
Two Scrapers Pass-By	82.5
Highest Reference Noise Level at 50 Feet (dBA L <sub>max</sub> ):	82.5

#### TABLE 10-4: GRADING MOBILE EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) <sup>2</sup>	Distance Attenuation (dBA) <sup>3</sup>	Estimated Noise Barrier Attenuation (dBA) <sup>4</sup>	Construction Noise Level (dBA L <sub>max</sub> )
R1	186'	-11.4	-5.0	66.1
R2	192'	-11.7	-5.0	65.8
R3	197'	-11.9	-5.0	65.6
R4	264'	-14.5	-5.0	63.0

<sup>1</sup> Reference construction noise level measurements taken by Urban Crossroads, Inc.

<sup>2</sup> Distance from the nearest point of construction activity to the nearest receiver.

<sup>3</sup> Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>max</sub> )
Concrete Mixer Truck Movements	73.1
Concrete Paver Activities	71.3
Concrete Mixer Pour & Paving Activities	71.9
Concrete Mixer Backup Alarms & Air Brakes	78.8
Concrete Mixer Pour Activities	79.2
Highest Reference Noise Level at 50 Feet (dBA L <sub>max</sub> ):	79.2

#### TABLE 10-5: PAVING MOBILE EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) <sup>2</sup>	Distance Attenuation (dBA) <sup>3</sup>	Estimated Noise Barrier Attenuation (dBA) <sup>4</sup>	Construction Noise Level (dBA L <sub>max</sub> )
R1	186'	-11.4	-5.0	62.8
R2	192'	-11.7	-5.0	62.5
R3	197'	-11.9	-5.0	62.3
R4	264'	-14.5	-5.0	59.7

<sup>1</sup> Reference construction noise level measurements taken by Urban Crossroads, Inc.

<sup>2</sup> Distance from the nearest point of construction activity to the nearest receiver.

<sup>3</sup> Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>max</sub> )
Construction Vehicle Maintenance Activities	70.4
Foundation Trenching	70.5
Framing	72.3
Highest Reference Noise Level at 50 Feet (dBA L <sub>max</sub> ):	72.3

#### TABLE 10-6: BUILDING CONSTRUCTION STATIONARY EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) <sup>2</sup>	Distance Attenuation (dBA) <sup>3</sup>	Estimated Noise Barrier Attenuation (dBA) <sup>4</sup>	Construction Noise Level (dBA L <sub>max</sub> )
R1	186'	-11.4	-5.0	55.9
R2	192'	-11.7	-5.0	55.6
R3	197'	-11.9	-5.0	55.4
R4	264'	-14.5	-5.0	52.8

<sup>1</sup> Reference construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$  Distance from the nearest point of construction activity to the nearest receiver.

<sup>3</sup> Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.



Reference Construction Activity <sup>1</sup>	Reference Noise Level @ 50 Feet (dBA L <sub>max</sub> )
Construction Vehicle Maintenance Activities	70.4
Framing	72.3
Highest Reference Noise Level at 50 Feet (dBA L <sub>max</sub> ):	72.3

#### TABLE 10-7: ARCHITECTURAL COATING STATIONARY EQUIPMENT NOISE LEVELS

Receiver Location	Distance to Construction Activity (Feet) <sup>2</sup>	Distance Attenuation (dBA) <sup>3</sup>	Estimated Noise Barrier Attenuation (dBA) <sup>4</sup>	Construction Noise Level (dBA L <sub>max</sub> )
R1	186'	-11.4	-5.0	55.9
R2	192'	-11.7	-5.0	55.6
R3	197'	-11.9	-5.0	55.4
R4	264'	-14.5	-5.0	52.8

<sup>1</sup> Reference construction noise level measurements taken by Urban Crossroads, Inc.

 $^{\rm 2}$  Distance from the nearest point of construction activity to the nearest receiver.

<sup>3</sup> Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.

<sup>4</sup> Estimated barrier attenuation from existing barriers in the Project study area.

#### **10.4** CONSTRUCTION NOISE THRESHOLDS OF SIGNIFICANCE

The construction noise analysis shows that the highest construction noise levels will occur when equipment is operating at the closest point to each receiver location. As shown on Table 10-8, the unmitigated construction noise levels experienced at the nearby sensitive receiver locations are expected to range from 52.5 to 66.1 dBA  $L_{max}$  for mobile equipment, and between 52.8 to 55.9 dBA  $L_{max}$  for stationary equipment at the sensitive receiver locations.



		Co	onstruction St	age Hourly No	oise Level (dBA	L <sub>max</sub> )	
Receiver		Mobile E	quipment		Stationary	Equipment	
Location <sup>1</sup>	Demolition	Site Preparation	Grading	Paving	Building Construction	Architectural Coating	Hignest Noise Levels <sup>2</sup>
R1	55.6	55.6	66.1	62.8	55.9	55.9	66.1
R2	55.3	55.3	65.8	62.5	55.6	55.6	65.8
R3	55.1	55.1	65.6	62.3	55.4	55.4	65.6
R4	52.5	52.5	63.0	59.7	52.8	52.8	63.0

#### TABLE 10-8: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

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

<sup>2</sup> Highest construction noise levels across all stages of Project construction.

Table 10-8 shows the highest construction noise levels at the potentially impacted receiver locations are expected to approach 66.1 dBA  $L_{max}$  from mobile equipment, and 55.9 dBA  $L_{max}$  for stationary equipment and will satisfy the City of Murrieta Municipal Code construction noise level standards of 75 dBA  $L_{max}$  for mobile equipment and 60 dBA  $L_{max}$  for stationary equipment during temporary Project construction activities. The noise impact due to unmitigated Project construction noise levels is, therefore, considered a *less than significant* impact at all nearby sensitive receiver locations.

#### TABLE 10-9: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA LMAX)

Receiver	Land Use	Highest Co Activity No	onstruction bise Levels <sup>2</sup>	Noise Level	Threshold <sup>3</sup>	Threshold	Exceeded? <sup>4</sup>
Location <sup>1</sup>	Category	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment
R1	Single-Family Residential	66.1	55.9	75	60	No	No
R2	Single-Family Residential	65.8	55.6	75	60	No	No
R3	Single-Family Residential	65.6	55.4	75	60	No	No
R4	Single-Family Residential	63.0	52.8	75	60	No	No

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

<sup>2</sup> Highest construction noise levels of mobile and stationary equipment, as shown on Table 10-8.

<sup>3</sup> Construction noise standards as shown on Table 3-2 and 3-3.

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



#### **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. The proposed Project's construction activities most likely to cause vibration impacts are:

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

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated based on data published by the Federal Transit Administration (FTA). Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include mobile equipment activities. Using the vibration source level of construction equipment provided on Table 6-8 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-10 presents the expected Project related vibration levels at the nearby receiver locations.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec PPV at 25 feet. At distances ranging from 186 to 264 feet from the Project construction activities, construction vibration velocity levels are expected to approach 0.004 in/sec PPV, as shown on Table 10-10. To assess the human perception of vibration levels in PPV, as previously discussed in Section 3, the velocities are converted to RMS vibration levels based on the Caltrans *Transportation and Construction Vibration Guidance Manual* conversion factor of 0.71. Table 10-10 shows the construction vibration levels in RMS are expected to approach 0.003 in/sec (RMS). Therefore, the Project-related vibration impacts will satisfy the County of Riverside and City of Murrieta 0.01 in/sec RMS thresholds, and impacts are considered *less than significant* during the construction activities at the Project site.

Further, the vibration levels due to Project construction do not represent vibration levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (3) The peak Project-construction vibration levels shown on Table 10-10, approaching 0.004 in/sec PPV, will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Further, the levels at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

	Distance		Receiver	PPV Levels	; (in/sec)²		RMS	
Receiver Location <sup>1</sup>	To Const. Activity (Feet)	Small Bulldozer	Jack- hammer	Loaded Trucks	Large Bulldozer	Peak Vibration (PPV)	Velocity Levels (in/sec) <sup>3</sup>	Threshold Exceeded? <sup>4</sup>
R1	186'	0.000	0.002	0.004	0.004	0.004	0.003	No
R2	192'	0.000	0.002	0.004	0.004	0.004	0.003	No
R3	197'	0.000	0.002	0.003	0.004	0.004	0.003	No
R4	264'	0.000	0.001	0.002	0.003	0.003	0.002	No

TABLE 10-10: UNMITIGATED CONSTRUCTION EQUIPMENT 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 6-8.

<sup>3</sup> 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>4</sup> Does the peak vibration exceed the maximum acceptable vibration threshold shown on Table 3-4?

#### **10.6** CONSTRUCTION NOISE AND VIBRATION BEST PRACTICES

Though construction noise and vibration are temporary, intermittent, will be short in duration, and will not present any long-term impacts, the following best practices would further reduce noise and vibration levels produced by the construction equipment to the nearby sensitive land uses.

- Prior to approval of grading plans and/or issuance of building permits, plans shall include a note indicating that noise-generating Project construction activities shall only occur between the hours of 6:00 a.m. to 6:00 p.m. June through September, and 7:00 a.m. to 6:00 p.m. October through May (County of Riverside Municipal Code, Section 9.52.020). The Project construction supervisor shall ensure compliance with the note and the County shall conduct periodic inspection at its discretion.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the center).
- The construction contractor shall design delivery routes to minimize the exposure of sensitive land uses or residential dwellings to delivery truck-related noise.



### **11 REFERENCES**

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



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- 26. CASC Engineering and Consulting. KTM French Valley Air Quality Data. July 2018.



# 12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed KTM French Valley Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

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



#### EDUCATION

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

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

#### **PROFESSIONAL REGISTRATIONS**

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

#### **PROFESSIONAL AFFILIATIONS**

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

#### **PROFESSIONAL CERTIFICATIONS**

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



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APPENDIX 3.1:

CITY OF MURRIETA MUNICIPAL CODE



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### 16.30 Noise

#### Sections:

16.30.010	Purpose.
16.30.020	Declaration of Policy.
16.30.030	Definitions.
16.30.040	Enforcement of Regulations.
16.30.050	Initial Violations.
16.30.060	Activities Exempt from Regulations.
16.30.070	Decibel Measurement.
16.30.080	Noise Zones Designated.
16.30.090	Exterior Noise Standards.
16.30.100	Interior Noise Standards for Multi-family Residential.
16.30.110	Correction for Certain Types of Sounds.
16.30.120	Measurement Methods.
16.30.130	Acts Deemed Violations of Chapter.
16.30.140	Modification of Standards.

#### 16.30.010 Purpose.

The purpose of this chapter is to establish standards to protect the health, safety, and welfare of those living and working in the city and to implement policies of the general plan noise element.

(Ord. 182 § 2 (part), 1997)

#### 16.30.020 Declaration of Policy.

Excessive noise levels are detrimental to the health and safety of individuals. Noise is considered a public nuisance and the city discourages unnecessary, excessive or annoying noises from all sources. Creating, maintaining, causing or allowing to be created. caused or maintained any noise or vibration in a manner prohibited by the provisions of this chapter is a public nuisance and shall be punishable as a misdemeanor.

(Ord. 182 § 2 (part), 1997)

#### 16.30.030 Definitions.

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

A-Weighted Sound Level. The sound level in decibels as measured on a sound level meter using the A-weighting network. The level so read is designated dB(A) or dBA.

**Ambient Noise Histogram.** The composite of all noise from sources near and far, excluding the alleged intrusive noise source. In this context, the ambient noise histogram shall constitute the normal or existing level of environmental noise at a given location.

**Cumulative Period.** An additive period of time composed of individual time segments which may be continuous or interrupted.

**Decibel.** A unit for measuring the amplitude of a sound, equal to twenty (20) times the logarithm to the base of ten of the ratio of the pressure of the sound measured to the reference pressure, which is twenty (20) micropascals.

**Emergency Machinery, Vehicle or Alarm.** Any machinery, vehicle or alarm used, employed, performed or operated in an effort to protect, provide or restore safe conditions in the community, or work by private or public utilities when restoring utility service.

**Emergency Work.** Work performed for the purpose of preventing or alleviating the physical trauma or property damage threatened or caused by an emergency.

**Fixed Noise Source.** A stationary device which creates sounds while fixed or motionless, including, but not limited to, residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

**Impulsive Noise.** A sound of short duration, usually less than one second and of high intensity, with an abrupt onset and rapid decay.

**Intrusive Noise.** The alleged offensive noise that intrudes over and above the existing ambient noise at the receptor property.

Mobile Noise Source. A noise source other than a fixed noise source.

**Noise Disturbance.** An alleged intrusive noise that violates an applicable noise standard of this chapter. Noise Histogram. A graphical representation of the distribution of frequency of occurrence of all noise levels near and far measured over a given period of time.

**Noise Level (L<sub>N</sub>).** The noise level expressed in decibels that exceeds the specified (L,) value a percentage of total time measured. For example, an L25 noise level means that noise level that is exceeded twenty-five (25) percent of the time measured.

**Noise-Sensitive Area.** An area designated for the purpose of ensuring exceptional quiet (e.g., around hospitals, nursing homes, libraries, and similar uses).

NoiseZone. A defined area of a generally consistent land use.

**Pure Tone Noise.** A sound that can be judged as audible as a single pitch or a set of single pitches by the code enforcement officer. For the purposes of this chapter, a pure tone shall exist if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound-pressure levels of the two contiguous one-third octave bands by five dB for center frequencies of five hundred (500) Hertz and above, and by eight dB for center frequencies between one hundred sixty (160) and four hundred (400) Hertz, and by fifteen (15) dB for center frequencies less than or equal to one hundred twenty-five (125) Hertz.

**Sound Level Meter.** An instrument, including a microphone, an amplifier, an output meter and frequency weighting network, for the measurement of sound levels, that satisfies the requirements pertinent for Type

S2A meters in American National Standards Institute specifications for sound level meters.

**Vibration.** The minimum ground or structure-borne vibrational motion necessary to cause a normal person to be aware of the vibration including, but not limited to, sensation by touch or visual observations of moving objects. The perception threshold shall be presumed to be a motion velocity of 0.01 in/sec over the range of one to one hundred (100) Hertz.

Weekday. Any day. Monday through Friday, that is not a legal holiday.

(Ord. 182 § 2 (part), 1997)

#### 16.30.040 Enforcement of Regulations.

The code enforcement officer shall have primary responsibility for the enforcement of the noise regulations contained in this chapter. The code enforcement officer shall make all noise-level measurements required for the enforcement of this chapter.

(Ord. 182 § 2 (part), 1997)

#### 16.30.050 Initial Violations.

In the event of an initial violation of the provisions of this chapter, a written notice of violation shall be given the alleged violator. specifying the time by which the condition shall be corrected or an application for a permit or variance shall be filed. No further action shall be taken if the cause of the violation has been removed, the condition abated, or fully corrected within the time period specified in the written notice.

(Ord. 182 § 2 (part), 1997)

#### 16.30.060 Activities Exempt from Regulations.

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

**A. Emergency Exemption.** The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work.

**B.** Warning Device. Warning devices necessary for the protection of public safety, (e.g., police, tire and ambulance sirens, and train horns).

**C. Outdoor Activities.** Activities conducted on public playgrounds and public or private school grounds. including, but not limited to, school athletic and school entertainment events.

**D.** Motion Picture Production and Related Activities. Activities in connection to production of motion pictures.

**E.** Railroad Activities. All locomotives and rail cars operated by any railroad which is regulated by the state Public Utilities Commission.

**F.** Federal or State Pre-Exempted Activities. Any activity, to the extent regulation thereof has been pre-empted by state or federal law,

**G.** Public Health and Safety Activities. All transportation, flood control, and utility company maintenance and construction operations at any time on public right-of-way, and those situations that may occur on private real property deemed necessary to serve the best interest of the public and to protect the public's health and well being, including, but not limited to, street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, house

moving, vacuuming catchbasins, removal of damaged poles and vehicles, repair of water hydrants and mains, gas lines, oil lines, sewers, etc.

**H.** Motor, Vehicles on Public Right-of-Way and Private Property. Except as provided in this chapter, all vehicles operating in a legal manner in compliance with local, state, and federal vehicle noise regulations within the public right-of-way or on private property.

**1.** Minor Maintenance to Residential Real Property. Noise sources associated with the minor maintenance of residential real property, provided the activities take place between the hours of seven a.m. and eight p.m. on any day except Sunday, or between the hours of nine a.m. and eight p.m. on Sunday.

(Ord. 182 § 2 (part), 1997)

#### 16.30.070 Decibel Measurement.

Decibel measurements made in compliance with the provisions of this chapter shall be based on a reference sound-pressure of twenty (20) micropascals, as measured with a sound level meter using the A-weighted network (scale) at slow response, or at the fast response when measuring impulsive sound levels and vibrations.

(Ord. 182 § 2 (part). 1997)

#### 16.30.080 Noise Zones Designated.

Receptor properties described in this chapter are hereby assigned to the following noise zones:

- A. Noise zone I, noise-sensitive area:
- B. Noise zone II, residential properties;
- C. Noise zone Ill, commercial properties: and
- D. Noise zone IV, industrial properties.

(Ord. 182 § 2 (part), 1997)

#### 16.30.090 Exterior Noise Standards.

**A.** Standards for Noise Zones. Unless otherwise provided in this chapter, the following exterior noise levels shall apply to all receptor properties within a designated noise zone:

# TABLE 3-6EXTERIOR NOISE STANDARDS

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Allowed Exterior Noise Level (dB)
Ι	Noise-sensitive area	Anytime	45
II	Residential properties Residential properties within five hundred (500) feet of a kennel(s)	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 a.m. to 10:00 p.m. (daytime) 7:00 a.m. to 10:00 p.m.	45 50 70
III	Commercial properties	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 a.m. to 10:00 p.m. (daytime)	55 60

**B**. Noise Standards. No person shall operate or cause to be operated. any source of sound at any location within the city or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by a person that causes the noise level, when measured on any other property to exceed the following exterior noise standards:

1. Standard No.1. Standard No. 1 shall be the exterior noise level which shall not be exceeded for a cumulative period of more than thirty (30) minutes in any hour. Standard No. 1 may be the applicable noise level from Table 3-6 above.

2. Standard No. 2. Standard No. 2 shall be the exterior noise level which shall not be exceeded for a cumulative period of more than fifteen (15) minutes in any hour. Standard No. 2 shall be the applicable noise level from Table 3-6 above, plus five dB.

3. Standard No.3. Standard No. 3 shall be the exterior noise level which shall not be exceeded for a cumulative period of more than five minutes in any hour. Standard No. 3 shall be the applicable noise level from Table 3-6 above plus ten dB.

4. Standard No.4. Standard No. 4 shall be the exterior noise level which shall not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable noise level from Table 3-6 above plus fifteen (15) dB.

5. Standard No. 5. Standard No. 5 shall be the exterior noise level which shall not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from Table 3-6 above plus twenty (20) dB.

**C.** Noise at Zone Boundaries. If the measurement location is on a boundary property between two different zoning districts, the exterior noise level utilized in subsection B of this chapter to determine the exterior standard shall be the arithmetic mean of the exterior noise levels. as specified in Table 3-6, of the subject zones.

**D.** Measurement of Ambient Noise Histogram. The ambient noise histogram shall be measured at the same location along the property line utilized in subsection B. above, with the alleged intruding noise source inoperative. If the alleged intruding noise source cannot be turned off, the ambient noise histogram shall be estimated by performing a measurement in the same general area of the alleged intruding noise source but at a sufficient distance so that the noise from the alleged intruding noise source is at least ten dB below the ambient noise histogram.

E. Abatement Notice in Lieu of Citation. If the intrusive noise exceeds the exterior noise standards provided in subsections A and B above, at a specific receptor property and the code enforcement officer has reason to believe that this violation was unanticipated and due to abnormal conditions, the code enforcement officer shall issue an abatement notice in lieu of a citation. lithe specific violation is abated, no citation shall be is-sued. If the specific violation is not abated, the code enforcement officer shall issue a citation.

(Ord. 182 § 2 (part), 1997)

#### 16.30.100 Interior Noise Standards for Multi-Family Residential.

A. Noise Standards for Residential Units. No person shall operate or cause to be operated within a residential unit. any source of sound, or allow the creation of any noise, that causes the noise level when measured inside a neighboring receiving residential unit to exceed the following standards:

1. Standard No.1. The applicable interior noise level for cumulative period of more than five minutes in any hour;

2. Standard No.2. The applicable interior noise level plus five dB for a cumulative period of more than one minute in any hour; or

3. Standard No.3. The applicable interior noise level plus ten dB for any period of time.

**B.** Interior Noise Levels for Multi-Family Residential. The following interior noise levels shall apply within multi-family dwellings with windows in their normal seasonal configuration.

Noise Zone	Designated Land Use	Time Interval	Allowable Interior Noise Level(dBl
All	Multi-family	10:00 p.m.—7:00 a.m.	40
	Residential	7:00 a.m.—10:00 p.m.	45

If the measured ambient noise level reflected by the  $L_{50}$  exceeds that permissible within the interior noise standards in subsection A above, the allowable interior noise level shall be increased in five dB increments to reflect the ambient noise level (L5,, ).

(Ord. 182 § 2 (part), 1997)

#### 16.30.110 Correction for Certain Types of Sounds.

For any source of sound that emits a pure tone or impulsive noise, the allowed noise levels provided in Sections 1 6.30.090 (Exterior Noise Standards) and 16.30.100 (Interior Noise Standards for Multi-family Residential) shall be reduced by five decibels.

(Ord. 182 § 2 (part). 1997)

#### 16.30.120 Measurement Methods.

**A.** A-weighting Scale. The noise level shall be measured at a position(s) at any point on the receiver's property utilizing the A-weighting scale of the sound-level meter and the slow meter response (use fast response for impulsive type sounds). Calibration of the measurement equipment, utilizing an acoustic calibrator, shall be performed immediately prior to recording any noise data.

**B.** Microphone Location. The microphone shall be located four to five feet above the ground and ten feet or more from the nearest reflective surface except in those cases where another elevation is deemed appropriate.

**C.** Interior Noise. Interior noise measurements shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor nearest the noise source, with windows in the normal seasonal configuration.

(Ord. 182 § 2 (part), 1997)

#### 16.30.130 Acts Deemed Violations of Chapter.

The following acts are a violation of this chapter.

#### A. Construction Noise.

1. Operating or causing the operation of tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of seven p.m. and seven a.m., or at any time on

Sundays or holidays. so that the sound creates a noise disturbance across a residential or commercial property line, except for emergency work of public service utilities.

2. Construction activities shall be conducted in a manner that the maximum noise levels at the affected structures will not exceed those listed in the following schedule:

#### a. Residential Structures:

1) Mobile Equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation (less than ten days) of mobile equipment:

	Single-family Residential	Multi-family Residential	Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA

2) Stationary Equipment. Maximum noise level for repetitively scheduled and relatively long-term operation periods (three days or more) of stationary equipment:

	Single-family Residential	Multi-family Residential	Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

**b.** Business Structures. Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment: daily. including Sundays and legal holidays, all hours: maximum of eighty-five (85) dBA.

3. All mobile or stationary internal combustion engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order.

**B.** Loading and Unloading Operations. Loading, unloading, opening, closing or other handling of boxes. crates, containers, building materials, garbage cans or similar objects between the hours of ten p.m. and six am. in a manner to cause a noise disturbance is prohibited.

**C.** Noise Disturbances in Noise-Sensitive Zones. Creating or causing the creation of a noise disturbance within a noise-sensitive zone is prohibited, provided that conspicuous signs are displayed indicating the presence of the zone. Noise-sensitive zones shall be indicated by the display of conspicuous signs in at least three separate locations within five hundred (500) feet of the institution or facility (e.g., health care facility)

**D.** Places of Public Entertainment. Operating, playing, or permitting the operation or playing of a radio, television. phonograph, drum, musical instrument, sound amplifier or similar device that produces, reproduces, or amplifies sound in a place of public entertainment at a sound level greater than ninety-five (95) dBA, (read by the slow response on a sound level meter) at any point that is normally occupied by a customer is prohibited, unless conspicuous signs are located near each public entrance stating, "Warning: Sound Levels Within May Cause Hearing Impairment."

#### E. Emergency Signaling Devices.

1. The intentional sounding or permitting the sounding outdoors of an emergency signaling device, including fire, burglar or civil defense alarm, siren, whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing is prohibited.

2. Testing of a stationary emergency signaling device shall not occur before seven a.m. or after seven p.m. Testing shall use only the minimum cycle test time. Test time shall not exceed sixty (60) seconds. Testing of the complete emergency signaling system, including the functioning of the signaling device, and the personnel response to the signaling device, shall not occur more than once in each calendar month. Testing shall not occur before seven a.m. or after ten p.m.

3. Sounding or permitting the sounding of an exterior burglar or fire alarm, or motor vehicle burglar alarm

is prohibited, unless the alarm is terminated within fifteen (15) minutes of activation.

**F.** Stationary Nonemergency Signaling Devices. Sounding or permitting the sounding of an electronically amplified signal from a stationary bell, chime, siren. whistle, or similar device intended primarily for nonemergency purposes, from any place, for more than ten consecutive seconds in any hourly period is prohibited.

#### G. Refuse Collection Vehicles.

1. Operating or permitting the operation of the compacting mechanism of any motor vehicle that compacts refuse and that creates, during the compacting cycle, a sound level in excess of eighty-six (86) dBA when measured at fifty (50) feet from any point of the vehicle is prohibited.

2. Collecting refuse, or operating or permitting the operation of the compacting mechanism of any motor vehicle that compacts refuse between the hours often p.m. and six a.m. the following day in a residential area or noise-sensitive zone is prohibited.

**H.** Sweepers and Associated Equipment. Operating or permitting the operation of sweepers or associated sweeping equipment (i.e., blowers) between the hours often p.m. and six a.m. the following day in, or adjacent to, a residential area or noise-sensitive area is prohibited.

**I. Residential Air Conditioning or Refrigeration Equipment.** Operating or permitting the operation of air conditioning or refrigeration equipment in a manner that exceeds the following sound levels is prohibited:

Measurement Location	Maximum Noise level
Any point on neighboring property line, five feet above grade level, no closer than three feet from any wall.	55
Center of neighboring patio, five feet above grade level, no closer than three feet from any wall.	50
Outside the neighboring living area window nearest the equipment location, not more than three feet from the window opening, but at least three feet from any other surface.	50

**J.** Vehicle or Motorboat Repairs and Testing. Repairing, rebuilding, modifying or testing any motor vehicle, motorcycle or motorboat in a manner as to cause a noise disturbance across property lines or within a noise-sensitive zone is prohibited.

**K.** Vibration. Operating or permitting the operation of any device that creates vibration that is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on

private property, or at one hundred fifty (150) feet from the source if on a public space or public right-ofway is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

(Ord. 182 § 2 (part), 1997)

#### 16.30.140 Modification of Standards.

Modifications to the requirements of this chapter may be granted by the director for a period of up to two years, subject to any terms, conditions, or requirements to minimize adverse effects on the surrounding neighborhood reasonable. Modifications may be granted only if one of the following findings can be made:

A. Additional time is necessary for the applicant to alter or modify the activity, operation, or noise source to comply with this chapter: or

B. The activity, operation, or noise source cannot feasibly be done in a manner that would comply with the provisions of this chapter. and no other reasonable alternative is available to the applicant.

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APPENDIX 5.1:

**STUDY AREA PHOTOS** 



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L1\_E



L1\_S



L1\_W



L1\_NW



L1\_SE



L1N



L2\_E



L2\_SE



L3\_NE



L2\_NE



L3\_E



L3\_S



L3\_SE



L4\_S



L5\_E



L4\_E



L4\_W





L5\_NW



L5\_W



L6\_E



L6\_SW



L6\_W

APPENDIX 5.2:

**NOISE LEVEL MEASUREMENT WORKSHEETS** 



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| Lmax<br>2.02<br>61.0<br>70.9<br>61.0<br>70.9<br>61.0<br>70.9<br>61.0<br>70.9<br>61.0<br>70.3<br>88.6<br>75.5<br>75.5<br>75.6<br>73.8<br>75.6<br>75.6<br>77.3<br>88.6<br>77.3<br>78.5<br>78.5<br>78.5<br>78.5<br>78.5<br>78.6<br>78.5<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6<br>78.6 | Lain 26.4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5   | 6 <b>6 1.0 6 1.1 7 1 6 1.1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 </b>  | 9:55   |   |   
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| Lance Lance 20.2 3.6 61.0 61.0 61.0 61.0 61.0 88.6 63.6 63.6 63.6 77.3 75.5 77.3 78.5 775.7 78.5 78.5 78.5 78.5 78.5 78.   | Lain<br>Lain<br>38.8<br>37.7<br>38.8<br>37.7<br>38.8<br>41.8<br>41.8<br>41.8<br>41.8<br>41.8<br>42.0                            | <b>61.0 6</b> | 9.22   |   |   
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| 61.0<br>70.9<br>61.9<br>63.6<br>63.6<br>72.3<br>88.6<br>75.7<br>75.7<br>78.5<br>78.8   | 38.8<br>37.7<br>36.2<br>41.8<br>43.0<br>43.1<br>41.8<br>41.8<br>41.8<br>42.0  | 53.0<br>52.0<br>54.0<br>56.0<br>61.0   | 12%  | <b>L5%</b>  | 78%   
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   |
| 61.9<br>59.3<br>63.6<br>72.3<br>88.6<br>75.5<br>75.7<br>78.5<br>78.8   | 41.8<br>36.2<br>41.8<br>43.0<br>43.1<br>41.8<br>41.8<br>42.0  | 54.0<br>56.0<br>57.0<br>61.0   | 52.0<br>50.0   | 51.0<br>10.0  | 47.0  
   | 45.0<br>45.0  
   | 43.0  
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   | 39.0  | 39.0<br>20.0  | 45.5<br>46.2  | 10.0   | 55.5<br>56.7   
   |
| 59.3<br>63.6<br>72.3<br>88.6<br>75.6<br>75.7<br>78.5<br>78.8   | 41.8<br>43.0<br>43.7<br>43.1<br>41.8<br>41.8<br>42.0  | 56.0<br>57.0<br>61.0   | 53.0   | 49.0<br>52.0  | 40.0<br>51.0  
   | 49.0  
   | 46.0  
   | 42.0  
   | 40.0  | 39.0  | 40.2  | 10.0   | 58.1<br>58.1   
   |
| 63.6<br>72.3<br>88.6<br>75.6<br>75.7<br>78.5<br>78.8   | 43.0<br>43.7<br>43.1<br>41.8<br>42.0  | 57.0<br>61.0   | 55.0   | 54.0  | 53.0  
   | 50.0  
   | 49.0  
   | 45.0  
   | 45.0  | 43.0  | 50.2  | 10.0   | 60.2   
   |
| 88.6<br>75.6<br>78.5<br>78.5<br>78.8   | 43.1<br>41.8<br>42.0  |  | 56.0<br>60.0   | 54.0<br>59.0  | 53.0<br>58.0  
   | 51.0<br>55.0  
   | 48.0<br>51.0  
   | 45.0<br>47.0  
   | 45.0<br>46.0  | 43.0<br>45.0  | 50.4<br>54.6  | 10.0<br>10.0   | 60.4<br>64.6   
   |
| 75.7<br>75.7<br>78.5<br>78.8   | 41.8<br>42.0  | 67.0   | 63.0   | 57.0  | 54.0  
   | 50.0  
   | 47.0  
   | 45.0  
   | 44.0  | 43.0  | 61.1  | 10.0   | 71.1   
   |
| 78.5<br>78.8   | )   | 68.0<br>68.0   | 64.0<br>66.0   | 59.0<br>59.0  | 56.0  
   | 52.0  
   | 47.0  
   | 44.0<br>45.0  
   | 44.0<br>44.0  | 42.0<br>42.0  | 55.6  | 0.0  | 55.6   
   |
| 78.8   | 43.6  | 72.0   | 70.0   | 66.0  | 63.0  
   | 56.0  
   | 51.0  
   | 46.0  
   | 46.0  | 44.0  | 60.09   | 0.0  | 60.09  
   |
|  | 43.9  | 70.0   | 66.0   | 61.0  | 59.0  
   | 54.0  
   | 50.0  
   | 46.0  
   | 45.0  | 44.0  | 57.6  | 0.0  | 57.6   
   |
| 79.8<br>80.4   | 43.1<br>A6 1  | 70.0   | 67.0<br>70.0   | 62.0<br>64.0  | 60.0<br>60.0  
   | 54.0<br>55.0  
   | 50.0  
   | 46.0<br>49.0  
   | 45.0  | 44.0  | 58.1<br>59.1  | 0.0  | 58.1<br>50.4   
   |
| 79.4   | 47.1  | 67.0   | 64.0   | 60.09   | 59.0  
   | 55.0  
   | 53.0  
   | 50.0  
   | 49.0  | 48.0  | 57.4  | 0.0  | 57.4   
   |
| 71.2   | 47.6  | 66.0   | 64.0   | 60.0  | 59.0  
   | 56.0  
   | 54.0  
   | 51.0  
   | 50.0  | 49.0  | 56.6  | 0.0  | 56.6   
   |
| 87.7<br>7.7  | 47.4  | 68.0   | 64.0   | 60.0<br>60.0  | 58.0  
   | 55.0  
   | 52.0  
   | 50.0  
   | 49.0  | 48.0  | 59.8<br>10.0  | 0.0  | 59.8   
   |
| 7.77   | 47.5  | 0.09   | 03.0<br>67.0   | 64.0  | 50.0<br>62.0  
   | 57.0  
   | 54.0  
   | 50.0  
   | 90.0<br>49.0  | 49.0  | 59.0  | 0.0  | 59.0   
   |
| 68.5   | 45.5  | 63.0   | 61.0   | 58.0  | 57.0  
   | 55.0  
   | 53.0  
   | 50.0  
   | 49.0  | 47.0  | 54.9  | 0.0  | 54.9   
   |
| 81.1<br>75 1   | 44.0  | 66.0<br>61.0   | 62.0<br>50.0   | 56.0  | 57.0  
   | 54.0  
   | 51.0  
   | 48.0  
   | 46.0  | 45.0  | 56.1<br>52 A  | 5.0  | 61.1<br>58 A   
   |
| 67.3   | 39.1  | 54.0   | 53.0   | 52.0  | 51.0  
   | 48.0  
   | 45.0  
   | 40.0  
   | 40.0  | 39.0  | 48.0  | 5.0  | 53.0   
   |
| 70.6   | 36.1  | 54.0   | 53.0   | 52.0  | 51.0  
   | 49.0  
   | 46.0  
   | 41.0  
   | 40.0  | 39.0  | 48.6  | 10.0   | 58.6   
   |
| 64.6<br>L  | 36.1<br>L   | 53.U<br>11%  | 52.0<br><b>L2%</b>   | 51.0<br><b>15%</b>  | 49.0<br><b>18%</b>  
   | 46.0<br>125%  
   | 44.0<br><b>L50%</b>   
   | 190%  
   | 38.0<br><b>195%</b>   | 36.0<br><b>199%</b>   | 46.2  | L (dBA)  | 2.92   
   |
| 68.5   | 41.8  | 63.0   | 61.0   | 58.0  | 56.0  
   | 51.0  
   | 47.0  
   | 44.0  
   | 44.0  | 42.0  | 24-Hour   | Daytime  | Nighttime  
   |
| 8/./<br>Avera  | 47.7<br>Ige:  | 68.2   | /U.U<br>65.5   | 61.1  | 58.9  
   | 54.6  
   | 54.0  
   | 48.2  
   | 47.3  | 49.0<br>46.0  |   |  |  
   |
| 67.3   | 39.1  | 54.0   | 53.0   | 52.0  | 51.0  
   | 48.0  
   | 45.0  
   | 40.0  
   | 40.0  | 39.0  | 20.2  | 7./ C  | 0.50   
   |
| 81.1   | 44.0  | 66.0   | 62.0   | 58.0  | 57.0  
   | 54.0  
   | 51.0  
   | 48.0  
   | 46.0  | 45.0  | 24-   | Hour CNET (  | (BA)   
   |
| AVEra<br>Fo 3  | 36 1  | 60.3<br>E2 D   | 58.U   | 70 D  | 54.U<br>17.0  
   | 51.3<br>AF 0  
   | 48./  
   | 44.3<br>20.0  
   | 43.3<br>28.0  | 42.3<br>26.0  |   |  |  
   |
| 88.6   | 130.1<br>43.7   | 0.22<br>67.0   | 63.0   | 49.0<br>59.0  | 58.0  
   | 55.0  
   | 51.0  
   | 47.0  
   | 46.0  | 45.0  |   | 61.0   |  
   |
| Avera  | age:  | 56.3   | 54.9   | 53.2  | 51.6  
   | 48.9  
   | 46.3  
   | 42.4  
   | 41.8  | 40.7  |   |  |  
   |
|  | 87.7<br>71.7<br>77.7<br>68.5<br>68.5<br>67.3<br>70.6<br>67.3<br>70.6<br>67.3<br>87.7<br>Avera<br>81.1<br>Avera<br>83.6<br>Avera | 87.7       47.4         71.7       47.4         71.7       47.5         71.7       47.5         71.7       47.5         71.7       47.5         81.1       44.0         75.1       44.0         75.1       40.8         67.3       36.1         70.6       36.1         64.6       36.1         64.6       36.1         68.5       41.8         87.7       47.7 $87.7$ 47.7 $87.7$ 47.0 $87.7$ 47.0 $87.7$ 47.0 $81.1$ 44.0 $81.1$ 44.0 $81.1$ 44.0 $81.1$ 44.0 $81.1$ 44.0 $Average:       36.1         88.6       43.7         Average:       43.7   $   | 87.7 $47.4$ $68.0$ $71.7$ $47.5$ $69.0$ $77.7$ $47.5$ $69.0$ $68.5$ $45.5$ $69.0$ $81.1$ $44.0$ $66.0$ $81.1$ $44.0$ $66.0$ $75.1$ $40.8$ $61.0$ $75.1$ $40.8$ $61.0$ $75.1$ $40.8$ $61.0$ $75.1$ $40.8$ $61.0$ $70.6$ $36.1$ $54.0$ $70.6$ $36.1$ $54.0$ $70.6$ $36.1$ $54.0$ $70.6$ $36.1$ $54.0$ $70.6$ $36.1$ $54.0$ $70.6$ $36.1$ $54.0$ $8.5$ $41.8$ $63.0$ $87.7$ $47.7$ $72.0$ $81.1$ $44.0$ $66.0$ $81.1$ $44.0$ $60.3$ $81.1$ $44.0$ $60.3$ $81.1$ $44.0$ $60.3$ $81.1$ $44.0$ $60.3$ $88.6$ $43.7$ $67.0$ | 87.7         47.4         68.0         64.0           71.7         47.5         65.0         63.0           77.7         47.5         65.0         63.0           77.7         47.5         65.0         63.0           68.5         45.5         63.0         67.0           81.1         44.0         66.0         62.0           75.1         44.0         66.0         62.0           75.1         40.8         61.0         59.0           67.3         39.1         54.0         53.0           70.6         36.1         54.0         53.0           70.6         36.1         54.0         53.0           70.6         36.1         54.0         53.0           64.6         36.1         54.0         53.0           67.3         39.1         54.0         53.0           67.3         41.8         63.0         61.0 $87.7$ 47.7         72.0         70.0 $87.7$ 44.0         66.0         62.0 $81.1$ 44.0         66.0         62.0 $81.1$ 44.0         66.0         62.0 | 87.7         47.4         68.0         64.0         60.0           71.7         47.5         65.0         63.0         60.0           77.7         47.5         65.0         63.0         64.0           68.5         45.5         63.0         61.0         58.0           81.1         44.0         66.0         62.0         58.0           81.1         44.0         66.0         62.0         58.0           67.3         39.1         54.0         53.0         56.0           67.3         39.1         54.0         53.0         56.0           67.3         36.1         54.0         53.0         52.0         56.0           67.3         36.1         53.0         52.0         52.0         57.0           70.6         36.1         53.0         52.0         51.0         57.0           64.6         36.1         53.0         52.0         51.0         57.0           64.6         36.1         53.0         52.0         51.0         55.0           64.7         64.0         53.0         52.0         51.0           88.5         41.8         63.0         52.0         51.0 <td>87.7       47.4       68.0       64.0       60.0       58.0         71.7       47.5       65.0       63.0       60.0       58.0         77.7       47.5       69.0       67.0       64.0       58.0         77.7       47.5       69.0       67.0       64.0       58.0         81.1       44.0       66.0       62.0       58.0       57.0         81.1       44.0       66.0       62.0       58.0       57.0         75.1       40.8       61.0       59.0       58.0       57.0         67.3       36.1       54.0       58.0       57.0       57.0         75.1       40.8       61.0       59.0       58.0       57.0         67.3       36.1       54.0       59.0       57.0       54.0         75.1       40.8       61.0       59.0       57.0       54.0         67.3       36.1       54.0       53.0       57.0       54.0         67.1       41.8       61.0       53.0       52.0       54.0         68.5       41.8       63.0       57.0       54.0       58.0         87.7       47.0       58.0       57.0<td>87.7       47.4       68.0       64.0       60.0       58.0       55.0         71.7       47.5       65.0       63.0       64.0       53.0       55.0         77.7       47.5       65.0       63.0       64.0       53.0       55.0         68.5       45.5       63.0       61.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       57.0       57.0         7.1       40.8       61.0       58.0       57.0       58.0       57.0       57.0         7.1       40.8       61.0       53.0       53.0       57.0       54.0       55.0         64.6       36.1       53.0       57.0       54.0       57.0       54.0         64.6       66.0       61.0       53.0       57.0       54.0       57.0         64.6       64.6       66.0       53.0       57.0       54.0       57.0         68.5       41.7       77.0<td>87.7         47.4         68.0         64.0         58.0         55.0         52.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0           77.7         47.7         65.0         63.0         61.0         58.0         55.0         53.0           68.5         45.5         63.0         61.0         58.0         57.0         57.0         54.0           81.1         44.0         66.0         62.0         58.0         57.0         54.0         51.0           75.1         40.8         61.0         59.0         53.0         51.0         48.0         45.0           75.1         40.8         61.0         59.0         53.0         51.0         49.0         45.0           75.1         40.8         61.0         53.0         52.0         51.0         47.0           67.3         36.1         54.0         53.0         52.0         54.0         57.0         54.0           70.6         36.1         1.8         47.0         57.0         54.0         57.0         54.0           68.5         41.8         63.0         57.0         57.0         57.0<td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0           71.7         47.7         65.0         63.0         60.0         58.0         55.0         54.0         51.0           77.7         47.5         65.0         63.0         60.0         58.0         57.0         54.0         51.0           68.5         45.5         63.0         61.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         62.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         53.0         57.0         54.0         48.0         48.0           75.1         44.0         56.0         57.0         54.0         54.0         54.0           75.1         44.0         53.0         57.0         54.0         44.0         48.0           70.6         36.1         53.0         57.0         54.0         54.0         54.0           70.6         36.1         57.0         54.0         47.0         48.2           64.6         41.1         53.0         57.0         54.0         54.0<!--</td--><td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0         49.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0         51.0         50.0           71.7         47.5         65.0         63.0         61.0         58.0         55.0         54.0         51.0         50.0         49.0           81.1         44.0         66.0         61.0         58.0         57.0         54.0         51.0         40.0           75.1         44.0         66.0         53.0         52.0         51.0         48.0         46.0           75.1         44.0         54.0         53.0         52.0         51.0         48.0         46.0           70.6         36.1         53.0         52.0         51.0         49.0         47.0         40.0           70.6         36.1         53.0         52.0         51.0         49.0         46.0         44.0         38.0           64.5         36.1         53.0         52.0         51.0         49.0         47.0         44.0           85.7         41.7         48.7         48.</td><td>87.7         47.4         68.0         64.0         6.0.0         58.0         55.0         50.0         69.0         68.0           71.7         47.5         65.0         63.0         66.0         58.0         55.0         54.0         51.0         50.0         49.0         48.0           71.7         47.5         65.0         61.0         58.0         57.0         57.0         54.0         51.0         50.0         49.0         48.0           75.1         44.0         66.0         58.0         57.0         54.0         51.0         49.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           64.6         53.0         53.0         52.0         54.0         57.0         44.0         43.0           64.6         41.8         61.0         58.0</td><td>37.7 <math>47.4</math> <math>68.0</math> <math>64.0</math> <math>60.0</math> <math>58.0</math> <math>55.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>71.7</math> <math>47.7</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>55.0</math> <math>51.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>77.7</math> <math>47.5</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>57.0</math> <math>54.0</math> <math>51.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>81.1</math> <math>44.0</math> <math>66.0</math> <math>62.0</math> <math>58.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>49.0</math> <math>49.0</math> <math>56.0</math> <math>75.1</math> <math>40.8</math> <math>61.0</math> <math>59.0</math> <math>57.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>45.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>48.0</math> <math>4</math></td><td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         50.0         49.0         48.0         59.8         00           71.7         47.7         65.0         61.0         68.0         65.0         53.0         54.0         50.0         49.0         58.0         55.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         50.0         49.0         48.0         48.0         66.0         66.0         66.0         66.0         54.0         50.0         54.0         54.0         54.0         54.0         54.</td></td></td></td></td> | 87.7       47.4       68.0       64.0       60.0       58.0         71.7       47.5       65.0       63.0       60.0       58.0         77.7       47.5       69.0       67.0       64.0       58.0         77.7       47.5       69.0       67.0       64.0       58.0         81.1       44.0       66.0       62.0       58.0       57.0         81.1       44.0       66.0       62.0       58.0       57.0         75.1       40.8       61.0       59.0       58.0       57.0         67.3       36.1       54.0       58.0       57.0       57.0         75.1       40.8       61.0       59.0       58.0       57.0         67.3       36.1       54.0       59.0       57.0       54.0         75.1       40.8       61.0       59.0       57.0       54.0         67.3       36.1       54.0       53.0       57.0       54.0         67.1       41.8       61.0       53.0       52.0       54.0         68.5       41.8       63.0       57.0       54.0       58.0         87.7       47.0       58.0       57.0 <td>87.7       47.4       68.0       64.0       60.0       58.0       55.0         71.7       47.5       65.0       63.0       64.0       53.0       55.0         77.7       47.5       65.0       63.0       64.0       53.0       55.0         68.5       45.5       63.0       61.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       57.0       57.0         7.1       40.8       61.0       58.0       57.0       58.0       57.0       57.0         7.1       40.8       61.0       53.0       53.0       57.0       54.0       55.0         64.6       36.1       53.0       57.0       54.0       57.0       54.0         64.6       66.0       61.0       53.0       57.0       54.0       57.0         64.6       64.6       66.0       53.0       57.0       54.0       57.0         68.5       41.7       77.0<td>87.7         47.4         68.0         64.0         58.0         55.0         52.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0           77.7         47.7         65.0         63.0         61.0         58.0         55.0         53.0           68.5         45.5         63.0         61.0         58.0         57.0         57.0         54.0           81.1         44.0         66.0         62.0         58.0         57.0         54.0         51.0           75.1         40.8         61.0         59.0         53.0         51.0         48.0         45.0           75.1         40.8         61.0         59.0         53.0         51.0         49.0         45.0           75.1         40.8         61.0         53.0         52.0         51.0         47.0           67.3         36.1         54.0         53.0         52.0         54.0         57.0         54.0           70.6         36.1         1.8         47.0         57.0         54.0         57.0         54.0           68.5         41.8         63.0         57.0         57.0         57.0<td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0           71.7         47.7         65.0         63.0         60.0         58.0         55.0         54.0         51.0           77.7         47.5         65.0         63.0         60.0         58.0         57.0         54.0         51.0           68.5         45.5         63.0         61.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         62.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         53.0         57.0         54.0         48.0         48.0           75.1         44.0         56.0         57.0         54.0         54.0         54.0           75.1         44.0         53.0         57.0         54.0         44.0         48.0           70.6         36.1         53.0         57.0         54.0         54.0         54.0           70.6         36.1         57.0         54.0         47.0         48.2           64.6         41.1         53.0         57.0         54.0         54.0<!--</td--><td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0         49.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0         51.0         50.0           71.7         47.5         65.0         63.0         61.0         58.0         55.0         54.0         51.0         50.0         49.0           81.1         44.0         66.0         61.0         58.0         57.0         54.0         51.0         40.0           75.1         44.0         66.0         53.0         52.0         51.0         48.0         46.0           75.1         44.0         54.0         53.0         52.0         51.0         48.0         46.0           70.6         36.1         53.0         52.0         51.0         49.0         47.0         40.0           70.6         36.1         53.0         52.0         51.0         49.0         46.0         44.0         38.0           64.5         36.1         53.0         52.0         51.0         49.0         47.0         44.0           85.7         41.7         48.7         48.</td><td>87.7         47.4         68.0         64.0         6.0.0         58.0         55.0         50.0         69.0         68.0           71.7         47.5         65.0         63.0         66.0         58.0         55.0         54.0         51.0         50.0         49.0         48.0           71.7         47.5         65.0         61.0         58.0         57.0         57.0         54.0         51.0         50.0         49.0         48.0           75.1         44.0         66.0         58.0         57.0         54.0         51.0         49.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           64.6         53.0         53.0         52.0         54.0         57.0         44.0         43.0           64.6         41.8         61.0         58.0</td><td>37.7 <math>47.4</math> <math>68.0</math> <math>64.0</math> <math>60.0</math> <math>58.0</math> <math>55.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>71.7</math> <math>47.7</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>55.0</math> <math>51.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>77.7</math> <math>47.5</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>57.0</math> <math>54.0</math> <math>51.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>81.1</math> <math>44.0</math> <math>66.0</math> <math>62.0</math> <math>58.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>49.0</math> <math>49.0</math> <math>56.0</math> <math>75.1</math> <math>40.8</math> <math>61.0</math> <math>59.0</math> <math>57.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>45.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>48.0</math> <math>4</math></td><td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         50.0         49.0         48.0         59.8         00           71.7         47.7         65.0         61.0         68.0         65.0         53.0         54.0         50.0         49.0         58.0         55.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         50.0         49.0         48.0         48.0         66.0         66.0         66.0         66.0         54.0         50.0         54.0         54.0         54.0         54.0         54.</td></td></td></td> | 87.7       47.4       68.0       64.0       60.0       58.0       55.0         71.7       47.5       65.0       63.0       64.0       53.0       55.0         77.7       47.5       65.0       63.0       64.0       53.0       55.0         68.5       45.5       63.0       61.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       55.0         81.1       44.0       66.0       62.0       58.0       57.0       57.0       57.0         7.1       40.8       61.0       58.0       57.0       58.0       57.0       57.0         7.1       40.8       61.0       53.0       53.0       57.0       54.0       55.0         64.6       36.1       53.0       57.0       54.0       57.0       54.0         64.6       66.0       61.0       53.0       57.0       54.0       57.0         64.6       64.6       66.0       53.0       57.0       54.0       57.0         68.5       41.7       77.0 <td>87.7         47.4         68.0         64.0         58.0         55.0         52.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0           77.7         47.7         65.0         63.0         61.0         58.0         55.0         53.0           68.5         45.5         63.0         61.0         58.0         57.0         57.0         54.0           81.1         44.0         66.0         62.0         58.0         57.0         54.0         51.0           75.1         40.8         61.0         59.0         53.0         51.0         48.0         45.0           75.1         40.8         61.0         59.0         53.0         51.0         49.0         45.0           75.1         40.8         61.0         53.0         52.0         51.0         47.0           67.3         36.1         54.0         53.0         52.0         54.0         57.0         54.0           70.6         36.1         1.8         47.0         57.0         54.0         57.0         54.0           68.5         41.8         63.0         57.0         57.0         57.0<td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0           71.7         47.7         65.0         63.0         60.0         58.0         55.0         54.0         51.0           77.7         47.5         65.0         63.0         60.0         58.0         57.0         54.0         51.0           68.5         45.5         63.0         61.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         62.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         53.0         57.0         54.0         48.0         48.0           75.1         44.0         56.0         57.0         54.0         54.0         54.0           75.1         44.0         53.0         57.0         54.0         44.0         48.0           70.6         36.1         53.0         57.0         54.0         54.0         54.0           70.6         36.1         57.0         54.0         47.0         48.2           64.6         41.1         53.0         57.0         54.0         54.0<!--</td--><td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0         49.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0         51.0         50.0           71.7         47.5         65.0         63.0         61.0         58.0         55.0         54.0         51.0         50.0         49.0           81.1         44.0         66.0         61.0         58.0         57.0         54.0         51.0         40.0           75.1         44.0         66.0         53.0         52.0         51.0         48.0         46.0           75.1         44.0         54.0         53.0         52.0         51.0         48.0         46.0           70.6         36.1         53.0         52.0         51.0         49.0         47.0         40.0           70.6         36.1         53.0         52.0         51.0         49.0         46.0         44.0         38.0           64.5         36.1         53.0         52.0         51.0         49.0         47.0         44.0           85.7         41.7         48.7         48.</td><td>87.7         47.4         68.0         64.0         6.0.0         58.0         55.0         50.0         69.0         68.0           71.7         47.5         65.0         63.0         66.0         58.0         55.0         54.0         51.0         50.0         49.0         48.0           71.7         47.5         65.0         61.0         58.0         57.0         57.0         54.0         51.0         50.0         49.0         48.0           75.1         44.0         66.0         58.0         57.0         54.0         51.0         49.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           64.6         53.0         53.0         52.0         54.0         57.0         44.0         43.0           64.6         41.8         61.0         58.0</td><td>37.7 <math>47.4</math> <math>68.0</math> <math>64.0</math> <math>60.0</math> <math>58.0</math> <math>55.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>71.7</math> <math>47.7</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>55.0</math> <math>51.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>77.7</math> <math>47.5</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>57.0</math> <math>54.0</math> <math>51.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>81.1</math> <math>44.0</math> <math>66.0</math> <math>62.0</math> <math>58.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>49.0</math> <math>49.0</math> <math>56.0</math> <math>75.1</math> <math>40.8</math> <math>61.0</math> <math>59.0</math> <math>57.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>45.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>48.0</math> <math>4</math></td><td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         50.0         49.0         48.0         59.8         00           71.7         47.7         65.0         61.0         68.0         65.0         53.0         54.0         50.0         49.0         58.0         55.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         50.0         49.0         48.0         48.0         66.0         66.0         66.0         66.0         54.0         50.0         54.0         54.0         54.0         54.0         54.</td></td></td> | 87.7         47.4         68.0         64.0         58.0         55.0         52.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0           77.7         47.7         65.0         63.0         61.0         58.0         55.0         53.0           68.5         45.5         63.0         61.0         58.0         57.0         57.0         54.0           81.1         44.0         66.0         62.0         58.0         57.0         54.0         51.0           75.1         40.8         61.0         59.0         53.0         51.0         48.0         45.0           75.1         40.8         61.0         59.0         53.0         51.0         49.0         45.0           75.1         40.8         61.0         53.0         52.0         51.0         47.0           67.3         36.1         54.0         53.0         52.0         54.0         57.0         54.0           70.6         36.1         1.8         47.0         57.0         54.0         57.0         54.0           68.5         41.8         63.0         57.0         57.0         57.0 <td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0           71.7         47.7         65.0         63.0         60.0         58.0         55.0         54.0         51.0           77.7         47.5         65.0         63.0         60.0         58.0         57.0         54.0         51.0           68.5         45.5         63.0         61.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         62.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         53.0         57.0         54.0         48.0         48.0           75.1         44.0         56.0         57.0         54.0         54.0         54.0           75.1         44.0         53.0         57.0         54.0         44.0         48.0           70.6         36.1         53.0         57.0         54.0         54.0         54.0           70.6         36.1         57.0         54.0         47.0         48.2           64.6         41.1         53.0         57.0         54.0         54.0<!--</td--><td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0         49.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0         51.0         50.0           71.7         47.5         65.0         63.0         61.0         58.0         55.0         54.0         51.0         50.0         49.0           81.1         44.0         66.0         61.0         58.0         57.0         54.0         51.0         40.0           75.1         44.0         66.0         53.0         52.0         51.0         48.0         46.0           75.1         44.0         54.0         53.0         52.0         51.0         48.0         46.0           70.6         36.1         53.0         52.0         51.0         49.0         47.0         40.0           70.6         36.1         53.0         52.0         51.0         49.0         46.0         44.0         38.0           64.5         36.1         53.0         52.0         51.0         49.0         47.0         44.0           85.7         41.7         48.7         48.</td><td>87.7         47.4         68.0         64.0         6.0.0         58.0         55.0         50.0         69.0         68.0           71.7         47.5         65.0         63.0         66.0         58.0         55.0         54.0         51.0         50.0         49.0         48.0           71.7         47.5         65.0         61.0         58.0         57.0         57.0         54.0         51.0         50.0         49.0         48.0           75.1         44.0         66.0         58.0         57.0         54.0         51.0         49.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           64.6         53.0         53.0         52.0         54.0         57.0         44.0         43.0           64.6         41.8         61.0         58.0</td><td>37.7 <math>47.4</math> <math>68.0</math> <math>64.0</math> <math>60.0</math> <math>58.0</math> <math>55.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>71.7</math> <math>47.7</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>55.0</math> <math>51.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>77.7</math> <math>47.5</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>57.0</math> <math>54.0</math> <math>51.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>81.1</math> <math>44.0</math> <math>66.0</math> <math>62.0</math> <math>58.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>49.0</math> <math>49.0</math> <math>56.0</math> <math>75.1</math> <math>40.8</math> <math>61.0</math> <math>59.0</math> <math>57.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>45.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>48.0</math> <math>4</math></td><td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         50.0         49.0         48.0         59.8         00           71.7         47.7         65.0         61.0         68.0         65.0         53.0         54.0         50.0         49.0         58.0         55.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         50.0         49.0         48.0         48.0         66.0         66.0         66.0         66.0         54.0         50.0         54.0         54.0         54.0         54.0         54.</td></td> | 87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0           71.7         47.7         65.0         63.0         60.0         58.0         55.0         54.0         51.0           77.7         47.5         65.0         63.0         60.0         58.0         57.0         54.0         51.0           68.5         45.5         63.0         61.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         62.0         58.0         57.0         54.0         50.0           75.1         44.0         66.0         53.0         57.0         54.0         48.0         48.0           75.1         44.0         56.0         57.0         54.0         54.0         54.0           75.1         44.0         53.0         57.0         54.0         44.0         48.0           70.6         36.1         53.0         57.0         54.0         54.0         54.0           70.6         36.1         57.0         54.0         47.0         48.2           64.6         41.1         53.0         57.0         54.0         54.0 </td <td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0         49.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0         51.0         50.0           71.7         47.5         65.0         63.0         61.0         58.0         55.0         54.0         51.0         50.0         49.0           81.1         44.0         66.0         61.0         58.0         57.0         54.0         51.0         40.0           75.1         44.0         66.0         53.0         52.0         51.0         48.0         46.0           75.1         44.0         54.0         53.0         52.0         51.0         48.0         46.0           70.6         36.1         53.0         52.0         51.0         49.0         47.0         40.0           70.6         36.1         53.0         52.0         51.0         49.0         46.0         44.0         38.0           64.5         36.1         53.0         52.0         51.0         49.0         47.0         44.0           85.7         41.7         48.7         48.</td> <td>87.7         47.4         68.0         64.0         6.0.0         58.0         55.0         50.0         69.0         68.0           71.7         47.5         65.0         63.0         66.0         58.0         55.0         54.0         51.0         50.0         49.0         48.0           71.7         47.5         65.0         61.0         58.0         57.0         57.0         54.0         51.0         50.0         49.0         48.0           75.1         44.0         66.0         58.0         57.0         54.0         51.0         49.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           64.6         53.0         53.0         52.0         54.0         57.0         44.0         43.0           64.6         41.8         61.0         58.0</td> <td>37.7 <math>47.4</math> <math>68.0</math> <math>64.0</math> <math>60.0</math> <math>58.0</math> <math>55.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>71.7</math> <math>47.7</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>55.0</math> <math>51.0</math> <math>50.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>77.7</math> <math>47.5</math> <math>65.0</math> <math>61.0</math> <math>58.0</math> <math>57.0</math> <math>54.0</math> <math>51.0</math> <math>49.0</math> <math>48.0</math> <math>56.0</math> <math>81.1</math> <math>44.0</math> <math>66.0</math> <math>62.0</math> <math>58.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>49.0</math> <math>49.0</math> <math>56.0</math> <math>75.1</math> <math>40.8</math> <math>61.0</math> <math>59.0</math> <math>57.0</math> <math>57.0</math> <math>51.0</math> <math>49.0</math> <math>45.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>47.0</math> <math>48.0</math> <math>4</math></td> <td>87.7         47.4         68.0         64.0         60.0         58.0         55.0         50.0         49.0         48.0         59.8         00           71.7         47.7         65.0         61.0         68.0         65.0         53.0         54.0         50.0         49.0         58.0         55.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         50.0         49.0         48.0         48.0         66.0         66.0         66.0         66.0         54.0         50.0         54.0         54.0         54.0         54.0         54.</td> | 87.7         47.4         68.0         64.0         60.0         58.0         55.0         52.0         50.0         49.0           71.7         47.7         65.0         63.0         64.0         58.0         55.0         54.0         51.0         50.0           71.7         47.5         65.0         63.0         61.0         58.0         55.0         54.0         51.0         50.0         49.0           81.1         44.0         66.0         61.0         58.0         57.0         54.0         51.0         40.0           75.1         44.0         66.0         53.0         52.0         51.0         48.0         46.0           75.1         44.0         54.0         53.0         52.0         51.0         48.0         46.0           70.6         36.1         53.0         52.0         51.0         49.0         47.0         40.0           70.6         36.1         53.0         52.0         51.0         49.0         46.0         44.0         38.0           64.5         36.1         53.0         52.0         51.0         49.0         47.0         44.0           85.7         41.7         48.7         48. | 87.7         47.4         68.0         64.0         6.0.0         58.0         55.0         50.0         69.0         68.0           71.7         47.5         65.0         63.0         66.0         58.0         55.0         54.0         51.0         50.0         49.0         48.0           71.7         47.5         65.0         61.0         58.0         57.0         57.0         54.0         51.0         50.0         49.0         48.0           75.1         44.0         66.0         58.0         57.0         54.0         51.0         49.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           67.3         30.1         54.0         53.0         52.0         54.0         57.0         47.0         47.0         47.0           64.6         53.0         53.0         52.0         54.0         57.0         44.0         43.0           64.6         41.8         61.0         58.0 | 37.7 $47.4$ $68.0$ $64.0$ $60.0$ $58.0$ $55.0$ $50.0$ $49.0$ $48.0$ $56.0$ $71.7$ $47.7$ $65.0$ $61.0$ $58.0$ $55.0$ $51.0$ $50.0$ $49.0$ $48.0$ $56.0$ $77.7$ $47.5$ $65.0$ $61.0$ $58.0$ $57.0$ $54.0$ $51.0$ $49.0$ $48.0$ $56.0$ $81.1$ $44.0$ $66.0$ $62.0$ $58.0$ $57.0$ $51.0$ $49.0$ $49.0$ $49.0$ $56.0$ $75.1$ $40.8$ $61.0$ $59.0$ $57.0$ $57.0$ $51.0$ $49.0$ $45.0$ $47.0$ $47.0$ $47.0$ $47.0$ $48.0$ $4$ | 87.7         47.4         68.0         64.0         60.0         58.0         55.0         50.0         49.0         48.0         59.8         00           71.7         47.7         65.0         61.0         68.0         65.0         53.0         54.0         50.0         49.0         58.0         55.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         54.0         54.0         50.0         60.0         58.0         57.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         57.0         54.0         57.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         57.0         54.0         50.0         49.0         48.0         66.0         54.0         50.0         49.0         48.0         66.0         66.0         66.0         54.0         50.0         49.0         48.0         48.0         66.0         66.0         66.0         66.0         54.0         50.0         54.0         54.0         54.0         54.0         54. |

U:\Uclobs\\_11600-12000\\_11600\11624\Fieldwork\Measurements\11624\_L1\_Summary

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						L2 - Locate	d north of th	e Project site	e on Winche	ster Road						
Date: Project:	Wednesda KTM Frencl	y, July 11, 201 h Valley	×		Location:	adjacent tc	) existing res	idential hom	les.		Meter	PICCOIO I			JN: Analyst:	11624 A. Wolfe
							Hourly L <sub>eq</sub>	dBA Reading	s (unadjusted	()						
85.0 80.0																
<b>AB</b>																
d 70.0 • 65.0			T.8	9.97 8.27	Γ.97	<mark>8:21</mark>	<b>L.97</b>	0.8 0.8	6.5	<b>6.3</b>	<b>C D</b>	4'3	9'8 0'2'0	<b>4.8</b>	9" S"	Þ
אר גע 55.0 גע	89	5 <sup>.</sup> 89	EZ										E           L		TL L	<sup>.</sup> 69
20.02 20.02																
H40.0																
2.00	0	1 2	- ~	4 5	9	7 8	6	10 11	12	13 14	15 10	5 17	18 19	20	21 22	23
								Hour E	seginning							
Timeframe	Hour	L eq	L <sub>max</sub>	L <sub>min</sub>	L1%	12%	<b>75%</b>	<i>%8</i> 7	125%	150%	%067	762%	%667	L eq	Adj.	Adj. L <sub>eq</sub>
	0	68.3	92.4	35.3	77.0	76.0	74.0	73.0	68.0	60.0	44.0	41.0	38.0	68.3	10.0	78.3
	1	67.6	85.7	35.3	77.0	76.0	74.0	73.0	67.0	58.0	42.0	40.0	38.0	67.6	10.0	77.6
	2	68.3	82.0	38.2	78.0	77.0	75.0	74.0	68.0	59.0	44.0	42.0	39.0	68.3	10.0	78.3
Night	ŝ	73.1	84.7	44.1	81.0	80.0	79.0	78.0	74.0	68.0	53.0	50.0	47.0	73.1	10.0	83.1
	4 1	75.8	92.9 oc 4	50.1	82.0	81.0	80.0	79.0	77.0	73.0	61.0	59.0	54.0	75.8	10.0	85.8
	v م	76.1	96.4 01 0	51.4 51.2	83.U 81.0	82.0	80.0	20.0	0.//	74.0	61.0 63 0	0./c 61.0	53.U	/0.0/ 76.1	10.0	86.b 86.1
	0	75.7	95.4	49.9	0.10 80.0	80.0	0.05	79.0	77.0	74.0	62.0 62.0	29.0	56.0	75.7	0.0	75.7
	~ ∞	75.3	98.7	46.9	80.0	0.67	78.0	78.0	76.0	74.0	61.0	58.0	51.0	75.3	0.0	75.3
	6	76.1	102.9	44.1	81.0	0.67	78.0	77.0	76.0	73.0	61.0	59.0	52.0	76.1	0.0	76.1
	10	73.9	85.9	45.7	79.0	79.0	78.0	77.0	75.0	73.0	62.0	59.0	52.0	73.9	0.0	73.9
	11	73.0	86.3	47.8	78.0	78.0	77.0	76.0	74.0	72.0	60.0	57.0	51.0	73.0	0.0	73.0
Day	12	73.9	92.6	51.4	80.0	0.67	78.0	77.0	75.0	72.0	61.0	58.0	54.0	73.9	0.0	73.9
	13	74.2	91.4 01 7	49.4 51.7	0.08	79.0	78.0	77.0	75.0	72.0	62.0	59.0 61.0	54.0	73.6	0.0	73.6
	15 14	74.2	93.9	52.3	80.0 80.0	0.67	78.0	77.0	75.0	72.0	03.0 63.0	0.10	56.0	74.2	0.0	74.2
	16	74.3	88.4	53.8	80.0	0.67	78.0	77.0	75.0	73.0	65.0	63.0	60.0	74.3	0.0	74.3
	17	74.3	94.1	49.4	80.0	79.0	78.0	78.0	76.0	72.0	62.0	61.0	57.0	74.3	0.0	74.3
	18	0.5/	93.5	49.7	81.0	80.0	0.67	/8.0	/6.0	/3.0	63.0	60.0	56.0	/5.0	0.0	/5.0
Evening	19	73.6	90.8	48.1 50.2	80.0	79.0	78.0	77.0	75.0	71.0	60.0	57.0	52.0	73.6	0.0	78.6
9	21	72.5	2.00 89.7	42.2	79.00	78.0	77.0	76.0	74.0	0.11	0.10 56.0	52.0	48.0	72.5	5.0	77.5
Nicht	22	71.6	93.3	40.9	79.0	77.0	76.0	75.0	72.0	67.0	52.0	49.0	44.0	71.6	10.0	81.6
าเมริเท	23	69.4	90.3	35.3	78.0	77.0	75.0	74.0	70.0	63.0	45.0	41.0	37.0	69.4	10.0	79.4
Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	<b>75%</b>	%87	L25%	720%	%067	195%	%667		L <sub>eq</sub> (dBA)	
Dav	Min	73.0	85.9	44.1	78.0	78.0	77.0	76.0	74.0	72.0	60.0	57.0	51.0	24-Hour	Daytime	Nighttime
	Max	74.5	102.9	53.8	81.0	80.0	79.0	0.67	75.4	73.0	65.0 1	63.U	60.0 74.7			
Energy	Average	74.0 70 r	AVe	rage:	79.8	0.6/	/8.0	7.0	4.01	12.8	1.20	59.5 0.61	54.7	1 73.9	74.3	73.2
Evening		۲.2/ ع در	0.00	42.2 EO 2	0.6/	/8.0	0.//	/6.0	75.0	0.69.0	56.U	52.0	48.0			
Energy	Averade	0.67	5.05 1911	C.UC	20.00	U.61	0.0/	D.11	0.67	0.T/	01.0	0.0C	0.4.0 E1 2	57		(Ha
בוופוצא	Avelage	13.2 67.6		JE JE J	1.61	76.0	74.0	7.07	67 0 67 0	70.3 For	0.60	0.00	0.1.0			
Night	Max	07.0 76.6	02.0 96.4	5.00 51.4	83.0	70.0 82.0	80.0	80.0	77.0	74.0	42.0 63.0	40.0 61.0	58.0		80.0	
Energy	Average	73.2	Ave	rage:	79.6	78.6	77.0	76.1	72.2	66.2	51.7	48.9	45.3	_		
				,												
6' <u>7</u> 9 62'9	Adj. L <sub>eq</sub> 76.1 75.7 77.1 81.9 84.3 84.3 84.7 84.5	73.7 73.1 72.9 72.4 72.4 72.6 72.6 72.6 72.9 73.1 73.1	77.1 77.6 76.4 79.2 77.9	Nighttime 71.5 A)												
--	--	--	--	--	---											
2.69 55	<i>Adj.</i> 10.0 10.0 10.0 10.0 10.0 10.0	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	5.0 5.0 5.0 10.0 10.0	ea (dBA) Daytime 72.8 ur CNEL (dB	78.4											
23 <b>72.6</b>	L ⊶ 66.1 65.7 67.1 71.9 74.3 74.7 74.5	73.7 73.1 72.9 72.4 72.4 72.4 72.6 72.6 72.9 73.1 73.1 73.1	72.1 72.6 71.4 69.2 67.9	L 4-Hour 7 <b>2.3</b> 24-Ho												
٤ ٤	99% 86.0 88.0 14.0 14.0 19.0 18.0	45.0 46.0 51.0 51.0 51.0 52.0 51.0 51.0 51.0 51.0 51.0	46.0 49.0 14.0 86.0	99% 15.0 2 53.0 2 19.7 7 14.0 7 19.0 7	<mark>16.3</mark> 86.0 19.0 11.9											
130 <b>131</b> 130 <b>131</b>	<b>7</b> %			2% L .0.0.0.0 .0.0.0.0 .0.0.0.0 .0.0.0.0 .0.0.0.0 .0.0.0.0.0 .0.0.0.0.0.0.0 .0	<b>7</b> . 0. 0. 0. 0.											
19 19 19	<b>195 195 195 196 196 196 196 197 1197 1197 11 1197 11 1197 11 1197 11 11 111</b>	4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	51 53 48 45 45 45 39	20 54 60 60 61 60 61 61 61 62 63 63 63	50 56 56 45											
<mark>و.د۲</mark> ನೆ	<b>L90%</b> 40.0 39.0 42.0 50.0 59.0 60.0 62.0	62.0 60.0 63.0 63.0 62.0 62.0 62.0 62.0 62.0 62.0 62.0	57.0 58.0 53.0 47.0 41.0	L90% 60.0 65.0 65.0 53.0 53.0	56.0 39.0 62.0 48.9											
۲. <b>۲.6</b> ۲. <b>۲.6</b>	<b>L50%</b> 54.0 54.0 56.0 67.0 72.0 73.0 73.0	73.0 72.0 72.0 71.0 71.0 71.0 71.0 71.0 72.0 72.0 72.0	71.0 70.0 69.0 66.0 60.0	L50% 71.0 73.0 71.7 69.0 71.7	70.0 54.0 73.0 63.9											
12 T.27	65.0 65.0 66.0 73.0 76.0 76.0 76.0	75.0 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74	73.0 73.0 72.0 71.0 68.0	<b>L25%</b> 73.0 75.0 74.0 72.0 73.0	<mark>72.7</mark> 65.0 76.0 70.7											
H 11 12.54	<b>18%</b> 71.0 71.0 72.0 77.0 78.0 78.0 77.0	76.0 76.0 75.0 75.0 75.0 75.0 75.0 76.0 76.0 76.0	75.0 75.1 75.0 74.0 72.0	L8% 75.0 76.0 75.5 75.0 75.1	<mark>75.0</mark> 71.0 78.0 74.4											
ه ۲.27 ف 5	<b>L5%</b> 72.0 72.0 74.0 78.0 78.0 78.0	77.0 76.0 76.0 76.0 76.0 76.0 76.0 76.0	76.0 76.0 75.0 74.0 73.0	L5% 76.0 77.0 76.1 75.0 75.0	<mark>75.7</mark> 72.0 78.0 75.2											
∞ <u>13.1</u>	<b>1.2%</b> 75.0 76.0 79.0 79.0 79.0	78.0 77.0 77.0 77.0 77.0 77.0 77.0 77.0	77.0 77.0 77.0 75.0 75.0	L2% 76.0 78.0 77.0 77.0	77.0 75.0 79.0 76.9											
✓ <u>13.7</u> ►	11% 77.0 76.0 80.0 81.0 79.0	78.0 78.0 78.0 78.0 78.0 78.0 78.0 78.0	78.0 78.0 78.0 76.0 77.0	11% 77.0 77.9 78.0 78.0	78.0 76.0 81.0 78.1											
۰۰ <u>۲.</u> ۶۲ م	min 5.8 6.2 6.2 6.5 3.9	2.6 3.0 2.7 2.7 3.1 3.7 3.3 3.3 3.3 3.3	3.5 3.7 1.8 9.2 6.2	nin 1.0 8.9 1.8 3.7	5.8											
<b>5.4</b>	2 2 2 2 2 2 2 3 3 2 3 3 2 2 2 2 2 2 2 2		9 6 6 3 3 4 4 4 4 6 5 3 3 3 2 5	ax         L           .8         4           .8         4           .1         4           Average:         4           .9         4           .6         4	Average:.83.84.84Average:											
6°1∠ m 1°29 ~	L <sub>m</sub> 81 80 82 83 83 83 83 83 83 83	91         92         92         93         83<	83 83 83	Lm 82 96 82 96 96 82	91											
∠'S9 ~	Leg 66.1 65.7 65.7 67.1 74.3 74.7 74.5	73.7 73.1 72.9 72.7 72.6 72.7 72.6 72.6 73.1 73.1 73.1	72.1 72.6 71.4 69.2 67.9	Lea 72.4 73.7 73.7 72.9 71.4	72.1 65.7 74.7 71.5											
COCCOCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	<ul> <li>Hour</li> <li>0</li> <li>1</li> <li>3</li> <li>3</li> <li>5</li> <li>6</li> </ul>	7 8 9 11 12 18 7 8 7 8 7 8 7 18 18 18 18 18 18 18 18 18 18 18 18 18	19 20 21 22 23	Prove the the the the the the the the the th	y Average Min Max y Average											
(A8b) թյ γhսoH ೲ⊗ր∠Շնջնջնգգան	Timeframe Night	Day	Evening Night	<i>Timefram</i> Day Energ Evening	Energ Night Energ											

JN: 11624 Analyst: A. Wolfe

Meter: Piccolo I

L3 - Located west of the Project site across Winchester Road adjacent to existing residential homes.

Date: Wednesday, July 11, 2018

Project: KTM French Valley

**24-Hour Noise Level Measurement Summary** 

Date:	Wednesday	/, July 11, 201	∞		Location:	L4 - Located	west of the	Project site	aurements across Wincl	ummary Jester Road	Meter:	Piccolo I			:NL	11624
Project:	KTM Frenci	h Valley				aujacent to	existing resid		es.						Analyst:	A. Wolfe
85.0						_	Liouity L eq				_			_	_	
8A) 75.(5																
ריין אַסיין 1,000 פיין 1,000 פיין אַסיין	<b>*</b>	9	2.7	2.07	8.68	<b>8.3</b>		<b>2.8</b>	T.9	<u>2.07</u>	2.07	<b>T.I</b>	<b>L.OT</b>	<b>2.07</b>	8.ea	ζ.6
1000119	59 59	•E9	.9	;                 <b>)</b>	) )	9 9 1 1 1 9 9	9	9	9						9	)9 
H 40.( 35.(																
	0	1 2	ŝ	4 5	9	7 8	0	10 11	12 1	3 14	15 16	17	18 19	20	21 22	23
								Hour B	eginning							
Timeframe	Hour	L eq	L <sub>max</sub>	L <sub>min</sub>	L1%	<b>L2%</b>	<b>T5%</b>	%87	L25%	<i>120%</i>	%067	<i>762%</i>	%667	L eq	Adj.	Adj. L <sub>eq</sub>
	0	65.4	84.9	38.3	75.0	74.0	71.0	70.0	65.0	57.0	44.0	42.0	39.0	65.4	10.0	75.4
	← (	63.7	82.5	37.4	74.0	73.0	71.0	0.69	62.0	51.0	39.0	38.0	37.0 2-0	63.7	10.0	73.7
Night	7 00	63.6 67.2	80.3 79.7	37.5 42.4	/3.0 76.0	75.0	/1.0 73.0	69.0 72.0	62.0 67.0	51.0 62.0	41.0 49.0	40.0 47.0	37.0 44.0	63.6 67.2	10.0	/3.6 77.2
5	0 4	69.5	86.4	46.2	76.0	76.0	74.0	74.0	71.0	66.0	56.0	54.0	49.0	69.5	10.0	79.5
	ъu	70.2 60 8	87.0 85 5	46.8 47 1	78.0 76.0	76.0 75.0	74.0	74.0	71.0	66.0 67 0	55.0 56.0	53.0 52.0	49.0 49.0	70.2 60 8	10.0	80.2 70.8
	0 C	68.6 68.6	83.8	45.1	75.0	74.0	73.0	72.0	70.0	66.0	55.0	52.0	47.0	68.6	0.0	68.6
	~ ∞	68.3	89.2	45.2	76.0	74.0	72.0	72.0	69.0	65.0	54.0	52.0	48.0	68.3	0.0	68.3
	6	67.7	83.4	46.6	75.0	74.0	72.0	72.0	0.69	65.0	55.0	52.0	49.0	67.7	0.0	67.7
	10	68.1 22.2	83.3	47.4	75.0	74.0	73.0	72.0	69.0 0.00	65.0	56.0	54.0	50.0	68.1 66.2	0.0	68.1 22.2
	1 5	69.2 69.1	86.3 86.3	46.U 51 1	75.0	74.0	73.0	73.0	20.02	67.0 67.0	0.42 0.72	0.22 55.0	48.U	69 1	0.0	69.2 69.1
Day	13	70.1	95.1	46.6	76.0	75.0	73.0	73.0	70.0	67.0	57.0	55.0	52.0	70.1	0.0	70.1
	14	70.2	82.8	52.0	76.0	75.0	74.0	74.0	72.0	68.0	58.0	57.0	54.0	70.2	0.0	70.2
	15	70.2	81.3	51.8	76.0	75.0	74.0	73.0	71.0	0.69	58.0	56.0	53.0	70.2	0.0	70.2
	16	72.1	98.4	50.2	76.0	75.0	74.0 77.0	73.0	72.0	0.69	59.0	57.0	53.0	72.1	0.0	72.1
	18	71.0	80.2 83.9	46.2 50.1	0.77	76.0 76.0	75.0	74.0 74.0	72.0	0.07	60.0 58.0	55.0	50.0 52.0	71.0	0.0	71.0
	19	70.7	93.8	47.5	76.0	75.0	74.0	74.0	72.0	68.0	56.0	53.0	50.0	70.7	5.0	75.7
Evening	20	70.2	88.6	46.4	76.0	75.0	74.0	74.0	71.0	68.0	55.0	52.0	48.0	70.2	5.0	75.2
	77	67.7 7	91.7 85.7	40.5 7 1 A	75.0	74.0	73.0	72.0	0.1.1	60.U	0.16	48.0	44.U 12 O	67.7	0.6	7.77
Night	23	66.7	88.6	37.5	75.0	74.0	72.0	71.0	6.25 66.0	58.0	43.0	41.0	39.0	66.7	10.0	76.7
Timeframe	Hour	L eq	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	L5%	<b>%8</b> 7	125%	<b>L50%</b>	%067	762%	%667		L eq (dBA)	
Day	Ain 3	67.7	81.3	45.1	74.0	73.0	72.0	72.0	0.69	65.0	54.0	52.0	47.0	24-Hour	Daytime	Nighttime
Fnerøv	Average	1.2/ 69.8	98.4 Avei	122.U	7.57	74.6	0.c/ 73.3	72.8	70.4	/U.U 67.2	60.U	54.4	50.7			
10.010	Min	60.8	88.6	40 F	76.0	75.0	0.07	74.0	71.0	66 D	51.0	48.0	44.0	69.2	66.69	67.7
Evening	Max	70.7	93.8	47.5	76.0	76.0	74.0	74.0	72.0	68.0	56.0	53.0	50.0	24	Hour CNEL (a	(BA)
Energy	Average	70.2	Avei	rage:	76.0	75.3	74.0	74.0	71.3	67.3	54.0	51.0	47.3			
Night	Min Max	63.6 70.2	79.7 88.6	37.4 47.1	73.0 78.0	72.0 76.0	71.0 75.0	69.0 74.0	62.0 71.0	51.0 67.0	39.0 56.0	38.0 54.0	37.0 49.0		74.9	
Energy	Average	67.7	Aver	rage:	75.3	74.3	72.7	71.7	67.1	60.0	48.0	46.0	42.9		   	

Date: Project:	Wednesday KTM French	, July 11, 201 Valley	ω		Location.	L5 - Loc <sup>:</sup> adjacer	ated south It to existin <sub>8</sub>	west of th g resident	e Project s ial homes.	ite on Au	ugusta Dri <sup>.</sup>	e v	Meter: F	iccolo I				JN: Analyst:	11624 A. Wolfe
							Hour	y L <sub>eq</sub> dBA	Readings (u	ınadjuste	d)								
(A8k																			
o) ba																			
190.0				7.0 8.0	<b>Z</b> .(	<mark>8.0</mark>	4. 2.	8.	8.	<b>Þ.</b> (	9.(	<u>Г'</u> ]	<b>T.1</b>	9'T	<mark>6.(</mark>	2.(	<u>Þ</u> .		
<b>woH</b>	S:25	9'TS	7 <sup>.</sup> 95	)9                     	)9   	) ) ) ) ) ) ) ) ) )	65 65 65	85 	85	       09	09 09	9         	9	:9 	)9 	01         09	25         65	).92	8.42
1.65	0	1 2	- m	4 5	9	2	б 	10	11	12	13 1	4 15	16	17	18	19 2	2	1 22	23
									Hour Beg	inning									
Timeframe	Hour	L eq	L <sub>max</sub>	L min	11%	12%	(12)	%	78%	125%	150	%	%067	195%	%667	7	L eq	Adj.	Adj. L <sub>eq</sub>
	0	52.5	67.1	35.5	60.0	59.0	) 58	0.	57.0	53.0	49.	0	39.0	38.0	37.0	ß	52.5	10.0	62.5
	1	51.3	62.8	35.5	59.0	58.	) 56	0.	55.0	52.0	48.	0	38.0	36.0	35.0	ۍ ا	51.3	10.0	61.3
	2	51.6	64.9	35.5	59.0	58.	D 56	0.	55.0	53.0	49.	0	39.0	37.0	35.0	ъ	51.6	10.0	61.6
Night	ς, ·	56.4 20 -	70.9	38.4	63.0	62.	000	0.0	60.0	57.0	54.	0	48.0	46.0	42.0	<u>го</u> и	56.4	10.0	66.4 
	4 r	60.7	71.5	46.5	66.0	65. 01	0 64	0.0	64.0 62.0	61.0	59.	0	54.0	53.0	50.0	9 0	50.7	10.0	70.7
	יי רי	60.8 60.7	75 F	48.2 лг л	66.0	65. 65.(	0 64	0.0	63.0	62.0	59. F0		55.0 EA 0	53.0	51.0		50.8 20.8	10.0	7.07
	7 0	60 8	71.8	4.0.4 AA 8	67.0	.co	64 64		0.50	0.10			0.4.0	0.20	18.0		20.8 0	0.01	/0./
	~ ~ ~	00.0 59.4	26.3	44.5	07.0 65.0	00. 64.(	60		61.0	0.10	28.00		53.0	52.0	40.0		00 59.4	0.0	00.0 59.4
	0 0	59.2	71.2	41.0	65.0	64.(	0 62	2 0	62.0	60.09	5.8	. 0	53.0	50.0	46.0	о ю	59.2	0.0	59.2
	10	58.8	70.2	42.3	65.0	64.(	0 62	0	61.0	59.0	57.	0	51.0	49.0	45.0		58.8	0.0	58.8
	11	58.8	6.69	41.3	66.0	64.(	D 62	0.	61.0	59.0	57.	0	52.0	50.0	45.0	ы	58.8	0.0	58.8
Dav	12	60.4	76.1	43.3	66.0	65.1	0 63	0.	62.0	61.0	59.	0	54.0	53.0	49.0	9	50.4	0.0	60.4
	13	60.6	76.8	50.8	67.0	65.0	0	0. 0	63.0	61.0	59.	0 0	55.0	54.0	52.0	9 0	50.6 51.6	0.0	60.6 22.5
	14	61.6 61.1	75.4	49.7	67.0	66. 7	64	o. c	64.0	62.0	60.	0 0	56.0	54.0	52.0		01.6	0.0	61.6 61.1
	CI (1	1110	78.6	40.1 15.1	0/.0			o c	0.50	0.10	00. 90.		0.00	0.4.0 0.42	0.10		1.10		1.10
	17	61.6	80.5	46.3	68.0	.00 66.(	0 64	o o	64.0	62.0	60.	0 0	55.0	53.0	50.0	0	51.6	0.0	61.6
	18	60.9	69.6	45.0	66.0	65.(	0 64	0.	63.0	62.0	60.	0	55.0	54.0	50.0	9	50.9	0.0	60.9
	19	60.2	72.7	42.9	66.0	65.1	) 63	0.	63.0	61.0	59.	0	54.0	52.0	49.0	9	50.2	5.0	65.2
Evening	20	59.4 57.7	85.5 76.4	44.4 38.5	65.0 64.0	64.	62		61.0 60.0	59.0	57.		53.0 48.0	51.0 46.0	48.0	<u>л</u> п	59.4 57.7	0.0 0	64.4 62.7
	22	56.0	70.4	35.5	63.0	61.(	09	0	59.0	57.0	54.		47.0	44.0	36.0		56.0	10.0	66.0
Night	23	54.8	71.2	35.5	63.0	61.(	0 59	0.	58.0	55.0	52.	0	43.0	40.0	38.0	Ъ	54.8	10.0	64.8
Timeframe	Hour	L eq	L <sub>max</sub>	L <sub>min</sub>	L1%	12%	¢ 15	%	%87	125%	150	%	%067	<i>1</i> 95%	%667			L <sub>eq</sub> (dBA)	
Day	Min Max	58.8 61.6	69.6 80.5	41.0 50.8	65.0 68.0	64.( 66.(	0 64		61.0 64.0	59.0 62.0	57. 60.		51.0 56.0	49.0 54.0	45.0	24-	-Hour	Daytime	Nighttime
Energy ,	Average	60.5	Aver	rage:	66.3	65.(	) 63	.2	62.5	60.8	59.	0	54.3	52.4	48.8	Ľ	5		
Evening	Min	57.7	72.7	38.5	64.0	63.(	0 61	0.	60.0	58.0	56.	0	48.0	46.0	41.0	ñ	y.4	2.00	0.10
	Мах	60.2	85.5	44.4	66.0	65.	) 63	0.	63.0	61.0	59.	0	54.0	52.0	49.0		24-Ho	pur CNEL (d	(BA)
Energy	Average	59.2	Ave	rage:	65.0	64.	0 62	0.	61.3	59.3	57.	<u>е</u>	51.7	49.7	46.0				
Night	Min Max	51.3 60.8	62.8 77.1	35.5 48.2	59.0 67.0	58. 65.(	0 56 0 64	0. 0	55.0 64.0	52.0 62.0	48. 59.	0 0	38.0 55.0	36.0 53.0	35.0 51.0			64.8	
Energy	Average	57.6	Aver	rage:	62.9	61.(	5 60	.1	59.3	56.8	53.	2	46.3	44.3	41.3				

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U:\Uclobs\\_11600-12000\\_11600\11624\Fieldwork\Measurements\11624\_L5\_Summary

	Date: Project:	Wednesday KTM French	, July 11, 201 ι Valley	8		Location:	L6 - Located designated	d south of th as future co	e Project site mmercial lan	e adjacent to id use.	o a vacant lot	Meter:	Piccolo I			JN: Analyst:	11624 A. Wolfe
2         2         3         4         5         4         5         4         5         4         5         4         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         5         7         3         1	(A8b) <sub>Pe</sub> J γhu ∾%270,0080 000,000,000	9	Т           Т 	z		S	9'9 	Hourty Lag	2.5 6 7.6 7.6 7.6 7.6 7.6 7.7 7.6 7.7 7.7 7	(unadjusted (unadjusted (unadjusted (unadjusted) (unad	90 <sup>.3</sup>	8	2.8	9	8	ε 6	S
Interfere         Ku         L <thl< th="">         L         L         L</thl<>	<b>Ho</b> 45.( 35.(	0000	1 38:		∾ 25 ۲ ۲	ی ع: ع:	S ∞	S o	10 11 Hour B	12 eginning	13 14		5 17	13 <b>23</b> 13 <b>23</b>	50 <b>23</b> .	21 22	53 <b>40</b> 7
New         1         386         778         384         400         400         300         380	Timeframe	Hour	L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	L1%	L2%	<b>75%</b>	%87	L25%	150%	%067	762%	%667	L eq	Adj.	Adj. L <sub>eq</sub>
$ \  \  \  \  \  \  \  \  \  \  \  \  \ $		0 •	39.6 38.6	57.8	38.2 3F 4	42.0	41.0	41.0	40.0	39.0	38.0	38.0 2F 0	38.0 35.0	38.0 2F.0	39.6 20.0	10.0	49.6 48.8
Night         3         32		1 2	38.8 38.1	47.9 47.9	35.4 35.4	46.U 43.0	44.0 41.0	41.0 40.0	40.0	38.0 38.0	38.0 38.0	35.0 35.0	35.0 35.0	35.0 35.0	38.8 38.1	10.0	48.8 48.1
i         i	Night	ε	39.2	47.7	35.4	43.0	42.0	41.0	41.0	40.0	38.0	38.0	38.0	36.0	39.2	10.0	49.2
i         533         780         396         660         590         530         440         430         430         400         503         700         533         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         733         700         700         700         700         700         700         700         700         700		4 v	41.2 52.1	49.4 79.3	38.3 40.1	44.0 60.0	44.0 51.0	43.0 48.0	42.0 46.0	41.0 44.0	40.0 43.0	40.0 41.0	40.0 41.0	38.0 40.0	41.2 52.1	10.0 10.0	51.2 62.1
		9	53.5	78.0	39.6	66.0	59.0	53.0	50.0	44.0	43.0	41.0	40.0	40.0	53.5	10.0	63.5
		~ 0	55.3 E6.6	75.8	38.3	67.0	63.0	59.0	57.0	46.0	42.0	40.0	40.0	38.0	55.3 E6.6	0.0	55.3 E6.6
		x o	58.3	/0./ 74.7	38.3 38.3	0.69 71.0	0.79	63.U 64.0	58.U 61.0	49.0 55.0	45.U 50.0	41.0	40.0	38.U	58.3	0.0	58.3
		01	57.3	76.9	42.2	68.0	66.0	63.0	60.0	54.0	51.0	46.0	45.0	43.0	57.3	0.0	57.3
		11	57.6	76.7	38.4	70.0	68.0	64.0	61.0	51.0	46.0	41.0	40.0	39.0	57.6	0.0	57.6
	Day	13	60.3 60.3	84.4 82.8	40.0 40.1	75.0	0.07	64.0 64.0	61.0 61.0	50.0 48.0	45.U 44.0	41.0 42.0	41.0	40.0 41.0	60.3	0.0	60.3
		14	58.2	76.1	42.0	71.0	0.69	65.0	61.0	51.0	47.0	44.0	43.0	42.0	58.2	0.0	58.2
		15	51.8	69.5	41.3	65.0	61.0	56.0	52.0	47.0	45.0	43.0	42.0	42.0	51.8	0.0	51.8
		16	56.7 58.2	79.5	41.2	71.0	66.0 69.0	58.0 66.0	53.0	46.0	44.0	42.0	42.0	41.0	56.7 58.2	0.0	56.7 58.7
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		18	52.6	72.6	41.2	66.0	62.0	56.0	53.0	47.0	45.0	43.0	42.0	41.0	52.6	0.0	52.6
		19	52.5	73.6	41.2	66.0	60.0	54.0	50.0	45.0	44.0	42.0	42.0	41.0	52.5	5.0	57.5
	Evening	2 20	53.8 42.9	78.9 61.5	38.4 38.3	67.0 51.0	60.0 49.0	49.0 47.0	46.0 46.0	43.0	42.0 40.0	40.0	40.0 38.0	40.0	53.8 42.9	5.0	58.8 47.9
	Micht	22	40.3	60.1	38.0	48.0	44.0	41.0	41.0	39.0	38.0	38.0	38.0	38.0	40.3	10.0	50.3
Timeframe         Lat	INIGNT	23	40.5	62.3	38.0	46.0	43.0	41.0	41.0	39.0	38.0	38.0	38.0	38.0	40.5	10.0	50.5
	Timeframe	Hour	L eq	L <sub>max</sub>	L <sub>min</sub>	L1%	12%	L5%	<b>78%</b>	L25%	150%	%067	767 762	%667		L <sub>eq</sub> (dBA)	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Day	Min Max	51.8 60.7	69.5 84.4	38.3 42.2	65.0 75.0	61.0 70.0	56.0 66.0	52.0 61.0	46.0 55.0	42.0 51.0	40.0 46.0	40.0 45.0	38.0 43.0	24-Hour	Daytime	Nighttime
	Energy	Average	57.6	Ave	rage:	69.8	66.6	61.9	58.2	49.3	45.7	42.3	41.5	40.4	с 1 1	בכס	0 2 7
Herity Average         51.6         Value         61.3         56.3         50.0         47.3         43.3         42.0         42.0         41.0         23.7         43.3         43.0         42.0         40.0         33.1         41.0         23.7         43.3         43.0	Evening	Min	42.9 53 8	61.5 78 0	38.3 41.2	51.0	49.0	47.0 54.0	46.0	42.0 45.0	40.0	38.0	38.0	38.0			
Night         Min         38.1         47.7         35.4         42.0         41.0         40.0         38.0         38.0         35.0         35.0         35.0         57.3         57.3           Night         Max         53.5         79.3         40.1         66.0         59.0         53.0         50.0         44.0         43.0         41.0         40.0         40.0         50.0         50.0         44.0         43.0         41.0         40.0         40.0         57.3         57.3         50.0         44.0         43.0         41.0         40.0         40.0         57.3         57.3         57.3         50.3         34.0         41.0         40.0         40.0         57.3         57.3         57.3         57.3         40.2         33.3         38.1         37.6         57.6         57.6         57.3         57.3         57.3         57.3         57.3         57.3         57.3         37.4         37.6         57.6         57.6         57.3         57.3         57.3         37.4         37.6         57.6         57.6         57.3         57.3         37.3         37.6         57.6         57.6         57.6         57.3         57.3         37.2         37.6         57	Energy	Average	51.6	Ave	rage:	61.3	56.3	50.0	47.3	43.3	42.0	40.0	40.0	39.7			
Energy Average 47.0 Average: 48.7 45.4 43.2 42.3 40.2 33.2 38.1 37.6	Night	Min	38.1 12 F	47.7	35.4	42.0	41.0	40.0	40.0	38.0	38.0	35.0	35.0	35.0		57.3	
	Energy	Average	47.0	Ave	40.1 rage:	48.7	45.4	43.2	42.3	44.0	4.5.U 39.3	41.0	41.0	40.0 37.6		) )	

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U:\Uclobs\\_11600-12000\\_11600\11624\Fieldwork\Measurements\11624\_L6\_Summary

APPENDIX 7.1:

**OFF-SITE TRAFFIC NOISE CONTOURS** 

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	FH\	WA-RD-77-108	HIGHW	AY NO	ISE P	REDICTI	ON MO	DEL				
Scenario Road Name Road Segmen	<ul> <li>Existing Wile:</li> <li>Winchester</li> <li>t: n/o Auld Ro</li> </ul>	ithout Project r Rd. (SR-79) d.				Project Job Ni	Name: I umber:	KTM 11624				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUT	s		
Highway Data				Sit	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily 1	raffic (Adt):	45,936 vehicl	es				,	Autos:	15			
Peak Hour I	Percentage:	10%			Me	edium Tru	icks (2 A	(xles)	15			
Peak Ho	our Volume:	4,594 vehicle	s		He	eavy Truc	ks (3+ A	(xles)	15			
Veh	icle Speed:	55 mph		Ve	hicle	Mix						
Near/Far Lar	e Distance:	78 feet			Veh	nicleTvpe		Dav	Evening	Nial	ht	Dailv
Site Data						A	utos:	71.5%	5 13.0%	15.	5% 9	8.56%
Bar	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24.	0%	0.37%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	77.8%	5.9%	16.	3%	1.07%
Centerline Dis	t. to Barrier:	92.0 feet		No	oise S	ource El	evation	s (in f	eet)			
Centerline Dist. t	o Observer:	92.0 feet				Autos	. 0.0	000				
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Trucks	: 2.3	97				
Observer Height (A	Above Pad):	5.0 feet			Hea	v Trucks	: 8.0	004	Grade Adj	iustm	ent: (	0.0
Pa	d Elevation:	0.0 feet										
Roa	d Elevation:	0.0 feet		La	ne Eq	uivalent	Distand	ce (in	teet)			
F	Road Grade:	0.0%				Autos	: 83.4	475				
	Left View:	-90.0 degre	es		Mediu	m Trucks	:: 83.:	368				
	Right View:	90.0 degre	es		Hea	vy Trucks	83.	379				
FHWA Noise Mode	l Calculation	s										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en	Berm	Atten
Autos:	71.78	3.85		-3.44		-1.20		-4.76	0.0	000		0.000
Medium Trucks:	82.40	-20.37		-3.43		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	86.40	-15.79		-3.43		-1.20		-5.18	0.0	000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)							
VehicleType	Leq Peak Hou	ur Leq Da	/ L	eq Eve	ning	Leq I	Vight		Ldn		CNE	EL
Autos:	71	.0	68.7		67.4		63.3		71.0	)		71.5
Medium Trucks:	57	.4	55.1		50.1		51.7		58.6	6		58.8
Heavy Trucks:	66	i.0	64.1		58.9		58.6		66.1			66.3
Venicle Noise:	72	2.3	70.2		68.0		64.8		72.4	ł		72.8
Centerline Distanc	e to Noise Co	ontour (in fee	t)	70 -10		05	0.4		00 -10 4	1	<b>FF</b> - 4	24
			I dn:	100 dB	м	0.50	IDA IG	1 1	616	1	1 20 1 20	DA IG
		C	NEL:	1/1		20	14		655		1,32	2
		U	* <b>_</b>	141		30			000		1,41	-

	FHV	VA-RD-77-108 H	IGHWA	AY N	DISE PF	REDICTI	ON MC	DEL			
Scenari Road Nam Road Segmer	o: Existing Wi e: Winchester nt: s/o Auld Ro	thout Project Rd. (SR-79) I.				Project Job Nu	Name: Imber:	KTM 11624			
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE		s	
Highway Data				s	ite Con	ditions (	Hard =	: 10, So	oft = 15)		
Average Daily	Traffic (Adt):	49,249 vehicles						Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2	Axles):	15		
Peak H	our Volume:	4,925 vehicles			Hea	avy Truc	ks (3+ .	Axles):	15		
Ve	hicle Speed:	55 mph		v	ehicle I	Mix					
Near/Far La	ne Distance:	78 feet		-	Vehi	icleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						A	utos:	71.5%	13.0%	15.5%	98.56%
Pa	rior Hoight:	0.0 foot			Me	edium Tr	ucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	all 1-Berm)	0.0			F	leavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Dis	st. to Barrier:	92.0 feet		-							
Centerline Dist.	to Observer:	92.0 feet		^	loise So	ource Ele	evation	is (in fe	eet)		
Barrier Distance	to Observer:	0.0 feet			1 4 m all a sec	Autos	: 0. . 0	000			
Observer Height (	Above Pad):	5.0 feet			Mealur	n Trucks	: Z.	297	Grada Ad	iustmont	. 0.0
Pa	ad Elevation:	0.0 feet			neav	y mucks	. 0.	004	Grade Adj	usunoni	. 0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distan	ce (in	feet)		
I	Road Grade:	0.0%				Autos	: 83	.475			
	Left View:	-90.0 degrees			Mediur	n Trucks	83	.368			
	Right View:	90.0 degrees			Heav	y Trucks	: 83	.379			
FHWA Noise Mode	el Calculation	s			-						
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fres	nel	Barrier Att	en Ber	m Atten
Autos:	71.78	4.15		3.44		-1.20		-4.76	0.0	000	0.000
Medium Trucks:	82.40	-20.07		3.43		-1.20		-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-15.49		-3.43		-1.20		-5.18	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and ba	arrier a	ttenı	lation)						
VehicleType	Leq Peak Hou	ır Leq Day	Le	q Ev	ening	Leq I	Vight		Ldn	CI	NEL
Autos:	71	.3 69	.0		67.7		63.	6	71.3	3	71.8
Medium Trucks:	57	.7 55	.4		50.4		52.	0	58.9	)	59.1
Heavy Trucks:	66	.3 64	.4		59.2		58.	9	66.4	ļ	66.6
Vehicle Noise:	72	.6 70	.5		68.3		65.	1	72.7	, 	73.1
Centerline Distant	ce to Noise Co	ontour (in feet)		70 .		05	04		0.104		-10.4
				10 d	5A	65 0	IBA	6	OU dBA	55	aBA
		LC	nı:	13	1	29	0		045	1,	309
		CIVE	L.	144	2		9		100	1,-	4/9

Tuesday, August 14, 2018

	EHV	VA-PD-77-108	нісни	/ΔΥ Ν		PEDICT		DEI			
Scenar	io: Existing Wi	thout Project	nienw			Project	Name:	KTM			
Road Nam	e: Winchester	Rd. (SR-79)				Job N	umber:	11624			
Road Segme	nt: s/o Sparkm	an Wy.									
SITE	SPECIFIC IN	PUT DATA				N	OISE	MODE		s	
Highway Data				5	Site Cor	ditions	(Hard :	= 10, Se	oft = 15)		
Average Daily	Traffic (Adt):	52,549 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	icks (2	Axles):	15		
Peak H	our Volume:	5,255 vehicles			He	avy Truc	cks (3+	Axles):	15		
Ve	hicle Speed:	55 mph			/ahiala	Mix					
Near/Far La	ne Distance:	78 feet		- H	Voh	icleType		Dav	Evening	Night	Daily
Site Data				_	VCI	icic i ypc	lutos:	71.5%	13.0%	15.5%	98.56%
Data Data		0.0 ()			м	, edium Ti	ucks:	70.4%	5.6%	24.0%	0.37%
Barrior Tupo (0 M	oll 1 Porm):	0.0 feet				Heavv Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	all, 1-Dellin).	92.0 feet									
Centerline Dist	to Observer:	92.0 feet		^	Voise S	ource El	evatio	ns (in f	eet)		
Barrier Distance	to Observer:	0.0 feet				Autos	s: 0	.000			
Observer Height (	Above Pad):	5.0 feet			Mediu	m Trucks	s: 2	.297	0		
Pa	ad Elevation:	0.0 feet			Heav	y Truck	s: 8	.004	Grade Ad	ijustment	: 0.0
Roa	ad Elevation:	0.0 feet		L	ane Eq	uivalent	Distar	nce (in	feet)		
1	Road Grade:	0.0%				Autos	s: 83	.475			
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 83	.368			
	Right View:	90.0 degree	s		Heav	y Trucks	s: 83	.379			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier At	ten Bei	rm Atten
Autos:	71.78	4.43		-3.44	Ļ	-1.20		-4.76	0.	000	0.00
Medium Trucks:	82.40	-19.79		-3.43	3	-1.20		-4.88	0.	000	0.00
Heavy Trucks:	86.40	-15.21		-3.43	3	-1.20		-5.18	0.	000	0.00
Unmitigated Noise	e Levels (with	out Topo and I	barrier	atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	L	.eq Ev	rening	Leq	Night		Ldn	С	NEL
Autos:	71	.6 6	9.3		67.9		63.	9	71.	6	72.
Medium Trucks:	58	.0 5	5.7		50.7		52.	2	59.	2	59.3
Heavy Trucks:	66	.6 6	4.7		59.5		59.	.1	66.	7	66.
Vehicle Noise:	72	.9 7	0.7		68.6		65.	.4	73.	0	73.
Centerline Distant	ce to Noise Co	ontour (in feet)		-		0-					
				70 d	ıва	65	aBA		ou dBA	55	aBA
			.an:	14	5	3	13		673	1,	451
		CN	EL:	15	4	33	వన		/1/	1,	545

	FH\	WA-RD-77-108 HIC	GHWAY I	NOISE PI	REDICTIO	N MODE	iL		
Scenar Road Nan Road Segme	io: Existing W ne: Wincheste nt: s/o Hunter	ithout Project r Rd. (SR-79) Rd.			Project N Job Nur	ame: KT nber: 11	M 624		
SITE	SPECIFIC IN	IPUT DATA			NC	ISE MC	DEL INP	UTS	
Highway Data				Site Con	ditions (H	lard = 10	), Soft = 15	5)	
Average Daily	Traffic (Adt):	58,712 vehicles				Au	tos: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axl	es): 15		
Peak H	lour Volume:	5,871 vehicles		He	avy Truck	s (3+ Axl	es): 15		
Ve	hicle Speed:	55 mph	ŀ	Vehicle	Mix				
Near/Far La	ne Distance:	78 feet	ŀ	Veh	icleType	Di	v Even	ina Nie	aht Dailv
Site Data					Au	tos: 71	.5% 13.	0% 15	5.5% 98.56%
Ba	rrier Height	0.0 feet		Me	edium Tru	cks: 70	.4% 5.	6% 24	0.37%
Barrier Type (0-V	/all. 1-Berm):	0.0		ŀ	leavy Tru	cks: 77	.8% 5.	9% 16	6.3% 1.07%
Centerline Di	st. to Barrier:	92.0 feet	-	Noine Cr	uree Ele	(ationa (	in feet)		
Centerline Dist.	to Observer:	92.0 feet	-	NUISe St	Autoor				
Barrier Distance	to Observer:	0.0 feet		Madiu	Autos.	2.20	7		
Observer Height	(Above Pad):	5.0 feet		Hoo	II TTUCKS.	2.29	ı 1 Grada	Adjust	nent: 0.0
P	ad Elevation:	0.0 feet		Tieav	y muchs.	0.00	+ 0/200	најаза	nom: 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent L	Distance	(in feet)		
	Road Grade:	0.0%			Autos:	83.47	5		
	Left View:	-90.0 degrees		Mediu	m Trucks:	83.36	8		
	Right View:	90.0 degrees		Heav	y Trucks:	83.37	9		
FHWA Noise Mod	el Calculation	IS							
VehicleType	REMEL	Traffic Flow D	Distance	Finite	Road	Fresnel	Barrie	r Atten	Berm Atten
Autos:	71.78	4.92	-3.4	4	-1.20	-4	.76	0.000	0.000
Medium Trucks:	82.40	-19.30	-3.4	3	-1.20	-4	.88	0.000	0.000
Heavy Trucks:	86.40	-14.72	-3.4	3	-1.20	-5	.18	0.000	0.000
Unmitigated Nois	e Levels (with	out Topo and bar	rier atter	nuation)					
VehicleType	Leq Peak Ho	ur Leq Day	Leq E	vening	Leq N	ight	Ldn		CNEL
Autos:	72	2.1 69.8	3	68.4		64.4		72.0	72.5
Medium Trucks:	58	8.5 56.1	I	51.2		52.7		59.7	59.8
Heavy Trucks:	67	.0 65.2	2	59.9		59.6		67.2	67.4
Vehicle Noise:	73	3.4 71.2	2	69.1		65.9		73.4	73.9
Centerline Distan	ce to Noise C	ontour (in feet)							
			70	dBA	65 dE	BA	60 dBA		55 dBA
		Ldn	c 1:	56	337	,	725		1,562
		CNEL	: 1	66	358	5	772		1,663

	FH\	VA-RD-77-108	HIGHW	AY NO	ISE P	REDICTI	ON MO	DEL				
Scenario Road Name Road Segmen	<ul> <li>Existing Wile:</li> <li>Winchester</li> <li>t: s/o Technol</li> </ul>	ithout Project r Rd. (SR-79) logy Dr.				Project Job Ni	Name: I umber:	KTM 11624				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	IODE		s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	raffic (Adt):	56,612 vehicl	es					Autos:	15			
Peak Hour I	Percentage:	10%			Me	edium Tru	icks (2 A	xles):	15			
Peak Ho	our Volume:	5,661 vehicle	s		He	avy Truc	ks (3+ A	xles):	15			
Vet	nicle Speed:	55 mph		Ve	hicle	Mix						
Near/Far Lar	e Distance:	78 feet			Veh	nicleTvpe		Dav	Evenina	Nia	ht	Dailv
Site Data						A	utos:	71.5%	5 13.0%	15.	5% 9	98.56%
Bar	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24.	0%	0.37%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	77.8%	5.9%	16.	3%	1.07%
Centerline Dis	t. to Barrier:	92.0 feet		No	oise S	ource El	evation	s (in f	eet)			
Centerline Dist. t	o Observer:	92.0 feet				Autos	. 00	000	,			
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Trucks	: 2.3	97				
Observer Height (A	Above Pad):	5.0 feet			Hea	v Trucks	: 8.0	004	Grade Ad	iustm	ent:	0.0
Pa	d Elevation:	0.0 feet										
Roa	d Elevation:	0.0 feet		La	ne Eq	uivalent	Distand	ce (in	feet)			
F	Road Grade:	0.0%				Autos	: 83.4	475				
	Left View:	-90.0 degre	es		Mediu	m Trucks	83.	368				
	Right View:	90.0 degre	es		Hea	vy Trucks	83.3	379				
FHWA Noise Mode	l Calculation	s										
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresn	el	Barrier Att	en	Berm	Atten
Autos:	71.78	4.76		-3.44		-1.20		-4.76	0.0	000		0.000
Medium Trucks:	82.40	-19.46		-3.43		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	86.40	-14.88		-3.43		-1.20		-5.18	0.0	000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	attenua	ation)							
VehicleType	Leq Peak Hou	ır Leq Day	/ Le	eq Eve	ning	Leq I	Vight		Ldn		CN	EL
Autos:	71	.9	69.6		68.3		64.2		71.9	9		72.4
Medium Trucks:	58	.3	56.0		51.0		52.6		59.5	5		59.7
Heavy Trucks:	66	.9	65.0		59.8		59.5		67.0	)		67.2
Vehicle Noise:	73	.2	71.1		68.9		65.7		73.3	3		73.7
Centerline Distanc	e to Noise Co	ontour (in feet	)									
			L	70 dB	A	65 0	1BA	1	60 dBA	1	55 d	BA
		-	Ldn:	152		32	28		708		1,52	25
		C	VEL:	162		35	60		753		1,62	23

	FHV									
Scenar	io: Existing Wi	thout Project				Project N	ame: KTN	1		
Road Nam	ne: Winchester	Rd. (SR-79)				Job Nur	nber: 1162	24		
Road Segme	nt: s/o Murrieta	a Hot Springs R	d.							
SITE	SPECIFIC IN	PUT DATA				NO	ISE MOD	EL INPUT	s	
Highway Data				S	Site Con	litions (H	ard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	49,372 vehicle	s				Auto	s: 15		
Peak Hour	Percentage:	10%			Med	lium Truc	ks (2 Axles	s): 15		
Peak H	lour Volume:	4,937 vehicles	3		Hea	vy Truck	(3+ Axles	s): 15		
Ve	hicle Speed:	55 mph		v	/ehicle N	lix				
Near/Far La	ne Distance:	78 feet			Vehi	cleType	Day	Evening	Night	Daily
Site Data						Au	os: 71.5	% 13.0%	15.5%	98.56%
Ba	rrier Height:	0.0 feet			Me	dium Truc	ks: 70.4	% 5.6%	24.0%	0.37%
Barrier Type (0-W	/all. 1-Berm):	0.0			н	eavy Truc	ks: 77.8	% 5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	92.0 feet			1-i 0-			6		
Centerline Dist.	to Observer:	92.0 feet		^	voise So	urce Elev	ations (in	teet)		
Barrier Distance	to Observer:	0.0 feet			1 4 m all 1 m	Autos:	0.000			
Observer Height	(Above Pad):	5.0 feet			Mediun	Trucks:	2.297	Grada Aa	liustmont	0.0
P	ad Elevation:	0.0 feet			Heavy	/ Trucks:	8.004	Grade Au	jusiment	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	ivalent D	istance (i	n feet)		
	Road Grade:	0.0%				Autos:	83.475			
	Left View:	-90.0 degree	s		Mediun	n Trucks:	83.368			
	Right View:	90.0 degree	s		Heavy	/ Trucks:	83.379			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distan	ice	Finite I	Road	Fresnel	Barrier At	ten Ber	m Atten
Autos:	71 78	4.16		3 14						0.000
	11.70	4.10		0.44	ļ.	-1.20	-4.7	6 0.0	000	0.000
Medium Trucks:	82.40	-20.06		-3.43	1	-1.20 -1.20	-4.7 -4.8	6 0.0 8 0.0	000	0.000
Medium Trucks: Heavy Trucks:	82.40 86.40	-20.06 -15.48		-3.43 -3.43	- 5 5	-1.20 -1.20 -1.20	-4.7 -4.8 -5.1	6 0.1 8 0.1 8 0.1	000 000 000	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois	82.40 86.40 e Levels (with	-20.06 -15.48	barrier a	-3.43 -3.43	uation)	-1.20 -1.20 -1.20	-4.7 -4.8 -5.1	6 0.1 8 0.1 8 0.1	000 000 000	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	82.40 86.40 e Levels (with Leg Peak Hou	-20.06 -15.48 out Topo and r Leq Day	barrier a	-3.43 -3.43 -3.43	uation)	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4.7 -4.8 -5.1 ght	6 0.1 8 0.1 8 0.1 <u>Ldn</u>	000 000 000 <i>CI</i>	0.000 0.000 VEL
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	82.40 86.40 e Levels (with Leq Peak Hou 71	-20.06 -15.48 out Topo and r Leq Day .3	barrier a Le	-3.43 -3.43 httenu eq Ev	uation) rening 67.7	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4.7 -4.8 -5.1 ght 63.7	6 0.1 8 0.1 8 0.1 <u>Ldn</u> 71.3	000 000 000 <i>CI</i> 3	0.000 0.000 0.000 VEL 71.8
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	82.40 86.40 <u>e Levels (with</u> Leq Peak Hou 71 57	-20.06 -15.48 out Topo and r Leq Day .3 1 .7	barrier a Le 59.1	-3.43 -3.43 attenu eq Ev	uation) rening 67.7 50.4	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4.7 -4.8 -5.1 ght	6 0.0 8 0.0 8 0.0 	000 000 000 <i>CI</i> 3 9	0.000 0.000 <u>VEL</u> 71.8 59.1
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	e Levels (with Leq Peak Hou 71 57 66	-20.06 -15.48 out Topo and ir Leq Day .3 .3	barrier a Le 59.1 55.4 64.4	-3.43 -3.43 attenu eq Ev	uation) rening 67.7 50.4 59.2	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4.7 -4.8 -5.1 ght 63.7 52.0 58.9	6 0.0 8 0.0 8 0.0 <u>Ldn</u> 71.3 58.3 66.4	000 000 000 <i>Cl</i> 3 9 4	0.000 0.000 <u>VEL</u> 71.8 59.1 66.6
Medium Trucks: Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	e Levels (with Leq Peak Hou 71 57 66 72	-20.06 -15.48 out Topo and rr Leq Day .3 .3 .6	barrier a Le 69.1 55.4 64.4 70.5	-3.43 -3.43 attenu eq Ev	uation) rening 67.7 50.4 59.2 68.3	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4.7 -4.8 -5.1 63.7 52.0 58.9 65.1	6 0.1 8 0.1 8 0.1 <u>Ldn</u> 71. 58. 66. 72.	000 000 000 2000 2000 2000 2000 2000 2	0.000 0.000 <u>VEL</u> 71.8 59.1 66.6
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	82.40 86.40 e Levels (with Leq Peak Hou 71 57 66 72 ce to Noise Ca	-20.06 -15.48 out Topo and rr Leq Day .3 .7 .7 .6 ontour (in feet,	barrier a 59.1 55.4 64.4 70.5	-3.43 -3.43 attenu eq Ev	uation) rening 67.7 50.4 59.2 68.3	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4.7 -4.8 -5.1 63.7 52.0 58.9 65.1	6 0.1 8 0.1 8 0.1 <u>Ldn</u> 71. 58. 66. 72.	000 000 000 3 9 4 7	0.000 0.000 VEL 71.8 59.1 66.6 73.1
Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	82.40 86.40 e Levels (with Leq Peak Hou 71 57 66 72 72 cce to Noise Co	-20.06 -20.06 -15.48 <b>out Topo and</b> rr Leq Day .3 .3 .6 .6 .6	barrier a Le 69.1 55.4 64.4 70.5	-3.43 -3.43 ettenu eq Ev	uation) rening 67.7 50.4 59.2 68.3 BA	-1.20 -1.20 -1.20 <i>Leq Ni</i>	-4.7 -4.8 -5.1 63.7 52.0 58.9 65.1 A	6 0.1 8 0.1 8 0.1 <u>Ldn</u> 71.: 58.: 66 72. 60 dBA	000 000 000 3 9 4 7 7 55	0.000 0.000 VEL 71.8 59.1 66.6 73.1 dBA
Medium Trucks: Heavy Trucks: Unnitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distant	e Levels (with Leg Peak Hot 71 57 66 72 ce to Noise Co	-20.06 -20.06 -15.48 out Topo and rr Leq Day .3 .7 .7 .6 .6 .6 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	barrier a barrier a 69.1 55.4 64.4 70.5 0 Ldn:	-3.43 -3.43 -3.43 <u>ettenu</u> eq Ev	uation) rening 67.7 50.4 59.2 68.3 BA 9	-1.20 -1.20 -1.20 <i>Leq Ni</i> 65 dE	-4.7 -4.8 -5.1 63.7 52.0 58.9 65.1 A	6 0.1 8 0.1 8 0.1 <u>Ldn</u> 71.: 58.: 66.: 72: <u>60 dBA</u> 646	000 000 000 3 9 4 7 7 55 1,	0.000 0.000 VEL 71.8 59.1 66.6 73.1 dBA 392

Tuesday, August 14, 2018

	FHV	VA-RD-77-108	HIGHV	VAY N	OISE PI	REDICTI	ON MO	DEL			
Scenar Road Nan Road Segme	rio: Existing Wi ne: Auld Rd. nt: e/o Winche	thout Project ster Rd. (SR-79	9)			Project Job N	Name: umber:	KTM 11624			
SITE	SPECIFIC IN	PUT DATA				N	OISE	MODE	L INPUT	S	
Highway Data				5	Site Cor	ditions	(Hard =	= 10, Se	oft = 15)		
Average Daily Peak Hour Peak F	Traffic (Adt): Percentage: lour Volume:	7,881 vehicle 10% 788 vehicles	s		Me He	dium Tru avy Truc	ıcks (2 :ks (3+	Autos: Axles): Axles):	15 15 15		
Ve	hicle Speed:	40 mph		١	/ehicle	Mix					
Near/Far La	ine Distance:	36 feet			Veh	icleType		Day	Evening	Night	Daily
Site Data						A	lutos:	71.5%	13.0%	15.5%	98.56%
Ba	rrier Height:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-V	Vall, 1-Berm):	0.0			1	Heavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	ist. to Barrier:	50.0 feet			Voise S	ource Fl	evatio	ns (in f	eet)		
Centerline Dist.	to Observer:	50.0 feet		Ė		Autos	. 0	000	000		
Barrier Distance	to Observer:	0.0 feet			Modiu	m Trucks	. 0 . 2	207			
Observer Height	(Above Pad):	5.0 feet			Hoa	n Trucks	, <u>2</u> , g	004	Grade Ad	liustment	· 0.0
P	ad Elevation:	0.0 feet			near	y mucho	. U	.004	0/000/10	juounom	. 0.0
Ro	ad Elevation:	0.0 feet		L	.ane Eq	uivalent	Distar	nce (in	feet)		
	Road Grade:	0.0%				Autos	s: 46	.915			
	Left View:	-90.0 degree	s		Mediu	m Trucks	s: 46	.726			
	Right View:	90.0 degree	s		Heav	y Trucks	3: 46	.744			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier Att	ten Be	rm Atten
Autos:	66.51	-2.42		0.31		-1.20		-4.65	0.0	000	0.00
Medium Trucks:	77.72	-26.64		0.34	ŀ	-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	82.99	-22.06		0.34	Ļ	-1.20		-5.43	0.0	000	0.00
Unmitigated Nois	e Levels (with	out Topo and	barrier	atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	l	Leq Ev	rening	Leq	Night		Ldn	С	NEL
Autos:	63	.2 6	61.0		59.6		55.	6	63.3	2	63.
Medium Trucks:	50	.2 4	17.9		42.9		44.	5	51.4	4	51.
Heavy Trucks:	60	.1 ಕ	58.2		53.0		52.	7	60.3	2	60.
Vehicle Noise:	65	.1 6	62.9		60.5		57.	6	65.	1	65.
Centerline Distan	ce to Noise Co	ontour (in feet)									
			L	70 d	IBA	65 (	dBA	(	60 dBA	55	dBA
			.dn:	24	1	5	1		110	2	237
		CN	IEL:	25	5	5	4		117	2	252

	FH	WA-RD-77-108 H	IGHWAY	NOISE P	REDICTIO	N MODEL		
Scenari Road Nam Road Segmer	o: Existing W e: Sparkman nt: e/o Winche	ithout Project Wy. ester Rd. (SR-79)			Project N Job Nur	ame: KTM nber: 11624	4	
SITE	SPECIFIC IN	NPUT DATA			NO	ISE MOD	EL INPUTS	
Highway Data				Site Cor	nditions (H	lard = 10, S	Soft = 15)	
Average Daily	Traffic (Adt):	1,186 vehicles				Autos	: 15	
Peak Hour	Percentage:	10%		Me	edium Truc	ks (2 Axles)	): 15	
Peak H	our Volume:	119 vehicles		He	avy Truck	s (3+ Axles)	): 15	
Vei	hicle Speed:	40 mph		Vahiela	Miy			
Near/Far Lar	ne Distance:	12 feet		Venicle	nicleType	Day	Evening	Night Daily
Site Data					Au	tos: 71.5%	% 13.0%	15.5% 98.56%
Bar	rier Heiaht:	0.0 feet		М	ledium Truc	cks: 70.49	% 5.6%	24.0% 0.37%
Barrier Type (0-W	all, 1-Berm):	0.0		1	Heavy Truc	cks: 77.8%	% 5.9%	16.3% 1.07%
Centerline Dis	st. to Barrier:	30.0 feet		Noise S	ource Elev	ations (in	feet)	
Centerline Dist.	to Observer:	30.0 feet			Autos:	0.000	,	
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks:	2.297		
Observer Height (.	Above Pad):	5.0 feet		Heav	vv Trucks:	8.004	Grade Adiu	stment: 0.0
Pa	ad Elevation:	0.0 feet			,			
Roa	ad Elevation:	0.0 feet		Lane Eq	uivalent D	listance (in	feet)	
F	Road Grade:	0.0%			Autos:	29.816		
	Left View:	-90.0 degrees		Mediu	m Trucks:	29.518		
	Right View:	90.0 degrees		Heav	vy Trucks:	29.547		
FHWA Noise Mode	el Calculation	is		1				
VehicleType	REMEL	Traffic Flow	Distance	e Finite	Road	Fresnel	Barrier Atte	n Berm Atten
Autos:	66.51	-10.65	3	.26	-1.20	-4.49	0.00	0.000
Medium Trucks:	77.72	-34.87	3	.33	-1.20	-4.86	0.00	0.000
Heavy Trucks:	82.99	-30.29	3	.32	-1.20	-5.77	0.00	0.000
Unmitigated Noise	e Levels (with	out Topo and ba	arrier att	enuation)				
VehicleType	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq Ni	ght	Ldn	CNEL
Autos:	57	7.9 55	.7	54.3		50.3	57.9	58.4
Medium Trucks:	45	5.0 42	.7	37.7		39.2	46.2	46.3
Heavy Trucks:	54	4.8 52	.9	47.7		47.4	55.0	55.2
Vehicle Noise:	59	9.8 57	.7	55.2		52.3	59.9	60.3
Centerline Distance	ce to Noise C	ontour (in feet)						
			7	0 dBA	65 dE	BA	60 dBA	55 dBA
		Lo	in:	6	14		29	63
		CNE	:L:	7	15		31	67

Tuesday, August 14, 2018

	FHV	VA-RD-77-108	HIGHW	AY NC	DISE P	REDICTI		DEL		_	
Scenar Road Nam Road Segme	Scenario: Existing Without Project Road Name: Robert Trent Jones Pkwy. Road Segment: w/o Winchester Rd. (SR-79)					Project Job Ni	Name: I umber:	KTM 11624			
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUTS	5	
Highway Data				Si	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	3,381 vehicl	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tru	icks (2 A	xles):	15		
Peak H	lour Volume:	338 vehicle	s		He	avy Truc	ks (3+ A	xles):	15		
Ve	hicle Speed:	40 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	12 feet			Veh	nicleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						A	utos:	71.5%	5 13.0%	15.5%	98.56%
Ba	rrier Height:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24.0%	6.37%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	30.0 feet		N	oise S	ource El	evation	s (in f	eet)		
Centerline Dist.	to Observer:	30.0 feet				Autos	. 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	: 2.2	297			
Observer Height (	Above Pad):	5.0 feet			Hear	v Trucks	: 8.0	004	Grade Adj	ustmen	t: 0.0
Pa	ad Elevation:	0.0 feet									
Roa	ad Elevation:	0.0 feet		Lá	ane Eq	uivalent	Distand	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 29.8	316			
	Left View:	-90.0 degre	es		Meaiu	m Trucks	:: 29.	518			
	Right View:	90.0 degre	es		Hea	vy Trucks	: 29.	547			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	66.51	-6.10		3.26		-1.20		-4.49	0.0	00	0.000
Medium Trucks:	77.72	-30.32		3.33		-1.20		-4.86	0.0	00	0.000
Heavy Trucks:	82.99	-25.74		3.32		-1.20		-5.77	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)	I.					
VehicleType	Leq Peak Hou	ir Leq Daj	/ L	.eq Eve	ening	Leq I	Vight		Ldn	C	NEL
Autos:	62	.5	60.2		58.8		54.8		62.5		62.9
Medium Trucks:	49	.5	47.2		42.2		43.8		50.7		50.9
Heavy Trucks:	59	.4	57.5 62.2		52.3		52.0		59.5		59.7
Contorline Dioton	04	.+	02.2		35.0		50.5		04.4		04.0
Centennie Distant	Le lo MOISE CO	uniour (in leel	9	70 dE	BA	65 0	/BA	1	60 dBA	55	5 dBA
			Ldn:	13		2	7		59		128
		C	NEL:	14		2	9		63		135

	FH\	VA-RD-77-108	HIGHW	AY N	OISE PR	EDICTI	ом ис	DEL			
Scenar	io: Existing Wi	thout Project				Project I	Vame:	ктм			
Road Nan	ne: Murrieta Ho	ot Springs Rd.				Job Nu	mber:	11624			
Road Segme	nt: w/o Winche	ester Rd. (SR-7	'9)								
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	/IODE	L INPUT	S	
Highway Data				5	Site Con	ditions (	Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	40,209 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Med	lium Tru	cks (2 /	(xles)	15		
Peak H	lour Volume:	4,021 vehicle	s		Hea	avy Truci	ks (3+ A	(xles)	15		
Ve	hicle Speed:	45 mph		١	/ehicle N	lix					
Near/Far La	ne Distance:	12 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	71.5%	5 13.0%	15.5%	98.56%
Ba	rrier Height:	0.0 feet			Me	dium Tru	icks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-V	Vall. 1-Berm):	0.0			h	leavy Tru	icks:	77.8%	5.9%	16.3%	1.07%
Centerline D	ist. to Barrier:	37.0 feet			Voico So	urco Ek	wation	e (in f	oot)		
Centerline Dist.	to Observer:	37.0 feet		1	10/36 30	Autos	· OI	3 (III I	eel)		
Barrier Distance	to Observer:	0.0 feet			Modium	Autos Trucko	. 0.1	000			
Observer Height	(Above Pad):	5.0 feet			Hoov	/ Trucks	. 2	201	Grade Ad	iustment	. 0.0
P	ad Elevation:	0.0 feet			neav,	/ ITUCKS	. 0.	504	0/000/10	dounion	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	iivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 36.	851			
	Left View:	-90.0 degree	es		Mediun	n Trucks	36.	610			
	Right View:	90.0 degree	es		Heav	/ Trucks	36.	634			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresr	el	Barrier Att	en Ber	m Atten
Autos:	68.46	4.14		1.88	3	-1.20		-4.56	0.0	000	0.000
Medium Trucks:	79.45	-20.08		1.93	3	-1.20		-4.87	0.0	000	0.000
										00	0.000
Heavy Trucks:	84.25	-15.50		1.92	2	-1.20		-5.61	0.0	000	
Heavy Trucks: Unmitigated Nois	84.25 e Levels (with	-15.50 out Topo and	barrier a	1.92 atten	uation)	-1.20		-5.61	0.0	00	
Heavy Trucks: <b>Unmitigated Nois</b> VehicleType	84.25 <b>e Levels (with</b> Leq Peak Hou	-15.50 out Topo and Ir Leq Day	barrier a	1.92 atten eq Ev	uation) vening	-1.20 Leq N	light	-5.61	0.0	CI	VEL
Heavy Trucks: Unmitigated Nois VehicleType Autos:	84.25 <b>e Levels (with</b> Leq Peak Hou 73	-15.50 out Topo and Ir Leq Day .3	<i>barrier</i> / L 71.0	1.92 atten eq Ev	uation) vening 69.6	-1.20 Leq N	light 65.6	-5.61	0.0 Ldn 73.3	CI	VEL 73.8
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	84.25 e Levels (with Leq Peak Hou 73 60	-15.50 out Topo and r Leq Day .3 .1	barrier a / L 71.0 57.8	1.92 atten eq Ev	2 vening 69.6 52.8	-1.20 Leq N	<i>light</i> 65.6 54.4	-5.61	0.0 Ldn 73.3 61.3	CI	VEL 73.8 61.5
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	84.25 e Levels (with Leq Peak Hou 73 60 69	-15.50 out Topo and ir Leq Day .3 .1 .5	barrier a / L 71.0 57.8 67.6	1.92 atteni eq Ev	2 vening 69.6 52.8 62.4	-1.20 Leg N	<i>light</i> 65.6 54.4 62.1	-5.61	0.0 Ldn 73.3 61.3 69.6	C/	VEL 73.8 61.5 69.8
Heavy Trucks: Unmitigated Nois Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	84.25 e Levels (with Leg Peak Hou 73 60 69 74	-15.50 out Topo and Ir Leq Day .3 .1 .5 .9	barrier a 71.0 57.8 67.6 72.8	1.92 atteni eq Ev	2 vening 69.6 52.8 62.4 70.5	-1.20 Leg N	<i>light</i> 65.6 54.4 62.1 67.4	-5.61	0.0 <i>Ldn</i> 73.3 61.3 69.6 75.0	C/ C/ 3 3 3	VEL 73.8 61.5 69.8 75.4
Heavy Trucks: Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	84.25 e Levels (with Leq Peak Hou 73 60 69 74 ce to Noise Co	-15.50 out Topo and ir Leq Day .3 .1 .5 .9 ontour (in feet	barrier a 71.0 57.8 67.6 72.8	1.92 atteni eq Ev	2 vening 69.6 52.8 62.4 70.5	-1.20 Leq N	<i>light</i> 65.6 54.4 62.1 67.4	-5.61	0.0 <i>Ldn</i> 73.3 61.3 69.6 75.0	C/	NEL 73.8 61.5 69.8 75.4
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	84.25 e Levels (with Leq Peak Hou 73 60 69 74 ce to Noise Co	-15.50 out Topo and ir Leq Day .3 .1 .5 .9 ontour (in feet	barrier 6 71.0 57.8 67.6 72.8	1.92 atteni eq Ev 70 d	2 vening 69.6 52.8 62.4 70.5	-1.20 Leq N	light 65.6 54.4 62.1 67.4	-5.61	0.0 <u>Ldn</u> 73.3 61.3 69.6 75.0 50 dBA	CI	NEL 73.8 61.5 69.8 75.4 dBA
Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	84.25 e Levels (with Leq Peak Hou 73 60 69 74 ce to Noise Co	-15.50 out Topo and ir Leg Day .3 .1 .5 .9 ontour (in feet	barrier a / L 71.0 57.8 67.6 72.8 ) Ldn:	1.92 atteni eq Ev 70 a 80	2 vening 69.6 52.8 62.4 70.5 IBA 0	-1.20 Leg N 65 a 17	<i>light</i> 65.6 54.4 62.1 67.4 <i>BA</i> 2	-5.61	0.0 Ldn 73.3 61.3 69.6 75.0 60 dBA 371	C/ C/ 3 3 3 5 5 7	VEL 73.8 61.5 69.8 75.4 dBA 99

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FH	WA-RD-77-108 I	HIGHWA	Y NC	DISE PI	REDICT	ION MO	DDEL			
Scenario: Existing + Road Name: Wincheste Road Segment: n/o Auld R	Project er Rd. (SR-79) d.				Project Job N	Name: lumber:	KTM 11624			
SITE SPECIFIC I	NPUT DATA				N	IOISE	MODE	L INPUT	s	
Highway Data			S	ite Cor	ditions	(Hard :	= 10, So	oft = 15)		
Average Daily Traffic (Adt): Peak Hour Percentage: Peak Hour Volume:	46,521 vehicles 10% 4,652 vehicles	5		Me He	dium Tr avy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15		
Vehicle Speed:	55 mph		14	ohiclo	Mix					
Near/Far Lane Distance:	78 feet		V	Voh	icleType		Dav	Evenina	Night	Daily
Site Data			+	VCI	ioic rypc	, Autos:	71.5%	13.0%	15.5%	98.57%
				м	, edium T	rucks	70.4%	5.6%	24.0%	0.37%
Barrier Height: Barrier Type (0-Wall, 1-Berm):	0.0 feet 0.0			1	Heavy T	rucks:	77.8%	5.9%	16.3%	1.06%
Centerline Dist. to Barrier:	92.0 feet		N	oise S	ource E	levatio	ns (in fe	eet)		
Centerline Dist. to Observer:	92.0 feet				Auto	s: 0	.000			
Barrier Distance to Observer:	0.0 feet			Mediu	m Truck	s: 2	297			
Observer Height (Above Pad):	5.0 feet			Heav	v Truck	s: 8	.004	Grade Ad	liustment	: 0.0
Pad Elevation:	0.0 feet				,					
Road Elevation:	0.0 feet		Li	ane Eq	uivalen	t Distar	nce (in	feet)		
Road Grade:	0.0%				Auto	s: 83	.475			
Left View: Right View:	-90.0 degrees 90.0 degrees	5		Mediu Heav	m Truck ry Truck	's: 83 's: 83	.368 .379			
FHWA Noise Model Calculation	ıs									
VehicleType REMEL	Traffic Flow	Distanc	е	Finite	Road	Fres	nel	Barrier Att	en Bei	rm Atten
Autos: 71.78	3.90	-3	3.44		-1.20		-4.76	0.0	000	0.00
Medium Trucks: 82.40	-20.37	-3	3.43		-1.20		-4.88	0.0	000	0.00
Heavy Trucks: 86.40	-15.77	-:	3.43		-1.20		-5.18	0.0	000	0.00
Unmitigated Noise Levels (with	hout Topo and b	arrier at	tenu	ation)						
VehicleType Leq Peak Ho	ur Leq Day	Leo	y Eve	ening	Leq	Night		Ldn	С	NEL
Autos: 7	1.0 6	8.8		67.4		63.	4	71.0	D	71.
Medium Trucks: 5	7.4 5	5.1		50.1		51.	7	58.	6	58.
Heavy Trucks: 6	6.0 6	4.1		58.9		58.	6	66.	1	66.
Vehicle Noise: 7	2.4 7	0.2		68.0		64.	8	72.4	4	72.
Centerline Distance to Noise C	contour (in feet)		70 dF	RA	65	dBA	6	SO dBA	55	dBA
	1	dn:	134		2	88	- <b>`</b>	620	1	335
	CN	EL:	142		3	06		660	1,	422

	FH)	WA-RD-77-108 F	IGHWAY	NOISE P	REDICTIO	N MODEL			
Scenai Road Nan Road Segme	rio: Existing + ne: Wincheste nt: s/o Auld Re	Project r Rd. (SR-79) d.			Project N Job Nur	ame: KTM nber: 11624	1		
SITE	SPECIFIC IN	IPUT DATA			NO	ISE MODE	EL INPUT	S	
Highway Data				Site Con	ditions (H	lard = 10, S	oft = 15)		
Average Daily	Traffic (Adt):	49,834 vehicles				Autos	: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axles)	: 15		
Peak H	lour Volume:	4,983 vehicles		He	avy Trucks	s (3+ Axles)	: 15		
Ve	hicle Speed:	55 mph		Vehicle	Mix				
Near/Far La	ne Distance:	78 feet		Veh	icleTvne	Dav	Evening	Night	Daily
Site Data					Au	tos: 71.5%	6 13.0%	15.5%	98.57%
Pa	rrior Hoight	0.0 foot		Me	edium Truc	cks: 70.4%	6 5.6%	24.0%	0.37%
Barrier Type (0-V	Vall. 1-Berm):	0.0		ŀ	leavy Truc	cks: 77.8%	6 5.9%	16.3%	1.06%
Centerline Di	ist. to Barrier:	92.0 feet		Noine Cr	uree Eler	ationa (in i	[a a 4]		-
Centerline Dist.	to Observer:	92.0 feet		NOISE 30	Autoor	0.000	eel)		
Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucks:	2 207			
Observer Height	(Above Pad):	5.0 feet		Hoo	n Trucks.	2.237	Grade Ad	iustmont.	0.0
P	ad Elevation:	0.0 feet		Tieav	y mucks.	0.004	Orade Haj	usunent.	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance (in	feet)		
	Road Grade:	0.0%			Autos:	83.475			
	Left View:	-90.0 degrees		Mediu	m Trucks:	83.368			
	Right View:	90.0 degrees		Heav	y Trucks:	83.379			
FHWA Noise Mod	lel Calculation	IS							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Att	en Beri	m Atten
Autos:	71.78	4.20	-3	.44	-1.20	-4.76	0.0	000	0.000
Medium Trucks:	82.40	-20.07	-3	.43	-1.20	-4.88	0.0	000	0.000
Heavy Trucks:	86.40	-15.47	-3	.43	-1.20	-5.18	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and b	arrier atte	enuation)					
VehicleType	Leq Peak Ho	ur Leq Day	Leq	Evening	Leq Ni	ght	Ldn	CI	VEL
Autos:	71	.3 69	9.1	67.7		63.7	71.3	3	71.8
Medium Trucks:	57	.7 55	5.4	50.4		52.0	58.9	)	59.1
Heavy Trucks:	66	6.3 64	1.4	59.2		58.9	66.4	ļ	66.6
Vehicle Noise:	72	2.7 70	0.5	68.3		65.1	72.7	,	73.1
Centerline Distan	ce to Noise C	ontour (in feet)							-
			70	0 dBA	65 dE	BA	60 dBA	55	dBA
		Le	dn:	140	301		649	1,3	398
		CN	EL:	149	321		691	1,4	189

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FH	WA-RD-77-108	HIGHW	AY NOISE	PREDICT		DEL					
Scenario: Existing + Road Name: Wincheste Road Segment: s/o Sparkr	Project er Rd. (SR-79) nan Wy.			Project Name: KTM Job Number: 11624							
SITE SPECIFIC II	NPUT DATA			1	NOISE N	/IODE	L INPUTS	s			
Highway Data			Site C	onditions	s (Hard =	10, S	oft = 15)				
Average Daily Traffic (Adt):	53,214 vehicl	es				Autos:	15				
Peak Hour Percentage:	10%		1	Medium Ti	rucks (2 A	(xles)	15				
Peak Hour Volume:	5,321 vehicle	s		Heavy Tru	ıcks (3+ A	Axles):	15				
Vehicle Speed:	55 mph		Vehic	le Mix							
Near/Far Lane Distance:	78 feet		V	ehicleTyp	е	Day	Evening	Nigh	t Daily		
Site Data					Autos:	71.5%	5 13.0%	15.5	5% 98.56%		
Barrier Height:	0.0 feet			Medium 1	Frucks:	70.4%	5.6%	24.0	0% 0.37%		
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy 7	rucks:	77.8%	5.9%	16.3	3% 1.07%		
Centerline Dist. to Barrier:	92.0 feet		Noise	Source E	levation	s (in f	eet)				
Centerline Dist. to Observer:	92.0 feet			Auto	os: 0.0	000	,				
Barrier Distance to Observer:	0.0 feet		Med	lium Truck	ks: 2.3	297					
Observer Height (Above Pad):	5.0 feet		He	avv Truck	ks: 8.0	004	Grade Adj	iustme	ent: 0.0		
Pad Elevation:	0.0 feet										
Road Elevation:	0.0 feet		Lane	Equivalen	t Distan	ce (in	feet)				
Road Grade:	0.0%			Auto	os: 83.	475					
Left View:	-90.0 degre	es	Med	num Truck	KS: 83.	368					
Right View:	90.0 degre	es	He	avy muci	(S. 83.)	379					
FHWA Noise Model Calculation	าร										
VehicleType REMEL	Traffic Flow	Distan	ce Fin	ite Road	Frest	iel	Barrier Atte	en E	Berm Atten		
Autos: 71.78	4.49		-3.44	-1.20		-4.76	0.0	00	0.000		
Medium Trucks: 82.40	-19.74		-3.43	-1.20		-4.88	0.0	00	0.000		
Heavy Trucks: 86.40	-15.15		-3.43	-1.20		-5.18	0.0	00	0.000		
Unmitigated Noise Levels (with	nout Topo and	barrier a	ttenuatio	n)							
VehicleType Leq Peak Ho	ur Leq Day	ν Le	eq Evening	Leq	Night		Ldn		CNEL		
Autos: 7	1.6	69.4	68	1.0	64.0	)	71.6	5	72.1		
Medium Trucks: 5	8.0	55.7	50	.7	52.3	3	59.2	-	59.4		
Heavy Trucks: 6	6.6 2.0	64.7 70.9	59	1.5	59.2	2	66.7		67.0		
Venicie Noise.	3.0	10.0	00	1.0	00.4	•	73.0	,	73.4		
Centerline Distance to Noise C	ontour (in feet	)	70 dBA	65	dBA		60 dBA		55 dBA		
		Ldn:	146	3	315		679	1	1.463		
	C	NEL:	156	3	336		723		1,557		

	FHV	/A-RD-77-108	HIGHW	VAY N	OISE PF	REDICTIO	N MOE	DEL _			
Scenar	io: Existing + P	roject				Project N	lame: K	TΜ			
Road Nan	ne: Winchester	Rd. (SR-79)				Job Nur	nber: 1	1624			
Road Segme	nt: s/o Hunter F	Rd.									
SITE	SPECIFIC IN	PUT DATA				NC	ISE M	ODE		s	
Highway Data				5	Site Con	ditions (H	lard = '	10, So	ft = 15)		
Average Daily	Traffic (Adt):	59,523 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	5,952 vehicles	i		Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	55 mph		1	/ehicle I	Nix					
Near/Far La	ne Distance:	78 feet		F	Vehi	cleTvpe	1	Dav	Evenina	Niaht	Dailv
Site Data						Au	tos: 7	71.5%	13.0%	15.5%	98.56%
Pa	rrior Hoight:	0.0 foot			Me	dium Tru	cks: 7	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-M	/all 1-Borm)	0.0 1001			F	leavy Tru	cks: 7	77.8%	5.9%	16.3%	1.07%
Centerline Di	st to Barrier	92.0 feet									
Centerline Dist.	to Observer:	92.0 feet		/	Voise So	ource Elev	vations	(in fe	et)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Trucks:	2.2	97			
P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	04	Grade Adj	ustment:	0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	uivalent E	Distanc	e (in f	eet)		
	Road Grade:	0.0%				Autos:	83.4	75	í		
	Left View:	-90.0 dearee	s		Mediur	n Trucks:	83.3	68			
	Right View:	90.0 degree	s		Heav	y Trucks:	83.3	79			
	-	ů									
FHWA Noise Mod	el Calculations	5	<b>D</b> <sup>1</sup> <i>i</i>			- (	-				
Venicle I ype	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresh	4 70	Barrier Att	en Ber	m Atten
Autos:	/1./8	4.97		-3.44	ł	-1.20	-	4.76	0.0	000	0.000
Medium Trucks:	82.40	-19.27		-3.43	5	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	86.40	-14.68		-3.43	5	-1.20	-	5.18	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and I	barrier	atten	uation)						
VehicleType	Leq Peak Hou	r Leq Day	L	Leq Ev	rening	Leq N	ight		Ldn	CI	VEL
Autos:	72.	1 6	9.9		68.5		64.5		72.1		72.6
Medium Trucks:	58.	5 5	6.2		51.2		52.8		59.7	7	59.9
Heavy Trucks:	67.	1 6	5.2		60.0		59.7		67.2	2	67.4
Vehicle Noise:	73.	4 7	'1.3		69.1		65.9		73.5	5	73.9
Centerline Distan	ce to Noise Co	ntour (in feet)									
				70 d	IBA	65 dE	BA	6	0 dBA	55	dBA
		l	.dn:	15	8	339	)		731	1,	576
		CA	IEL:	16	8	361			779	1,0	678
		0.1	-	.0	-	201			-	.,.	

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FHWA-RD-77-108 HIGHWA	NOISE PREDICTION MODEL
Scenario: Existing + Project Road Name: Winchester Rd. (SR-79) Road Segment: s/o Technology Dr.	Project Name: KTM Job Number: 11624
SITE SPECIFIC INPUT DATA	NOISE MODEL INPUTS
Highway Data	Site Conditions (Hard = 10, Soft = 15)
Average Daily Traffic (Adt): 57,350 vehicles Peak Hour Percentage: 10% Peak Hour Volume: 5,735 vehicles	Autos: 15 Medium Trucks (2 Axles): 15 Heavy Trucks (3+ Axles): 15
Vehicle Speed: 55 mph	Vehicle Mix
Near/Far Lane Distance: 78 feet	VehicleType Day Evening Night Daily
Site Data	Autos: 71.5% 13.0% 15.5% 98.56
Barrier Height: 0.0 feet	Medium Trucks: 70.4% 5.6% 24.0% 0.37
Barrier Type (0-Wall, 1-Berm): 0.0	Heavy Trucks: 77.8% 5.9% 16.3% 1.079
Centerline Dist. to Barrier: 92.0 feet	Noise Source Elevations (in feet)
Centerline Dist. to Observer: 92.0 feet	Autos: 0.000
Barrier Distance to Observer: 0.0 feet	Medium Trucks: 2 297
Observer Height (Above Pad): 5.0 feet	Heavy Trucks: 8 004 Grade Adjustment: 0.0
Pad Elevation: 0.0 feet	
Road Elevation: 0.0 feet	Lane Equivalent Distance (in feet)
Road Grade: 0.0%	Autos: 83.475
Left View: -90.0 degrees Right View: 90.0 degrees	Medium Trucks: 83.368 Heavy Trucks: 83.379
FHWA Noise Model Calculations	
VehicleType REMEL Traffic Flow Distance	e Finite Road Fresnel Barrier Atten Berm Atter
Autos: 71.78 4.81	.44 -1.20 -4.76 0.000 0.00
Medium Trucks: 82.40 -19.42 -3	.43 -1.20 -4.88 0.000 0.00
Heavy Trucks: 86.40 -14.83 -3	.43 -1.20 -5.18 0.000 0.00
Unmitigated Noise Levels (without Topo and barrier at	enuation)
VehicleType Leq Peak Hour Leq Day Leo	Evening Leq Night Ldn CNEL
Autos: 72.0 69.7	68.3 64.3 71.9 72
Medium Trucks: 58.3 56.0	51.1 52.6 59.5 59
Heavy Trucks: 66.9 65.0	59.8 59.5 67.1 67
Vehicle Noise: 73.3 71.1	69.0 65.8 73.3 73
Centerline Distance to Noise Contour (in feet)	
7	0 dBA 65 dBA 60 dBA 55 dBA
Ldn:	154 331 714 1,537
01/5/	164 252 760 1.627

	FH\	NA-RD-77-108 HIG	HWAY	NOISE PF	REDICTIO	on Moi	DEL						
Scenar Road Nan Road Segme	io: Existing + F le: Winchester nt: s/o Murrieta		Project Name: KTM Job Number: 11624										
SITE	SPECIFIC IN	IPUT DATA			N	DISE N	IODE		s				
Highway Data				Site Conditions (Hard = 10, Soft = 15)									
Average Daily	Traffic (Adt):	49,666 vehicles				1	Autos:	15					
Peak Hour	Percentage:	10%		Me	dium Tru	cks (2 A	xles):	15					
Peak H	lour Volume:	4,967 vehicles		He	avy Trucl	ks (3+ A	xles):	15					
Ve	hicle Speed:	55 mph	ŀ	Vahiala	Mise								
Near/Far La	ne Distance:	78 feet	-	Venicie i	icleType	1	Dav	Evening	Niah	t Daily			
Site Data				VCIII	Δ	itos.	71 5%	13.0%	15.5	% 98.56%			
One Data				Me	- dium Tri	icks:	70.4%	5 6%	24.0	0.37%			
Barrier Turne (0.14	rrier Height:	0.0 feet		F	leavy Tri	icks:	77.8%	5.9%	16.3	1.07%			
Contorlino Di	all, 1-Delli).	0.0		-	,								
Contorlino Dist	to Obsonior:	92.0 feet		Noise So	ource Ele	vations	s (in f	eet)					
Barriar Distance	to Observer:	32.0 feet			Autos.	0.0	000						
Obsonior Hoight	(Abovo Pad):	5.0 foot		Mediur	m Trucks.	2.2	297						
Diserver neight	Above Fau).	0.0 feet		Heav	y Trucks.	8.0	004	Grade Ad	justme	ent: 0.0			
Ro	ad Elevation:	0.0 feet	ŀ	Lane Eq	uivalent	Distand	e (in	feet)					
10	Road Grade:	0.0%	ŀ		Autos	83.4	175	,					
	Left View:	-90.0 degrees		Mediur	n Trucks	83.3	368						
	Right View:	90.0 degrees		Heav	y Trucks.	83.3	379						
FHWA Noise Mod	el Calculation	s											
VehicleType	REMEL	Traffic Flow D	istance	Finite	Road	Fresn	el	Barrier Att	en E	Berm Atten			
Autos:	71.78	4.19	-3.4	4	-1.20		-4.76	0.0	000	0.000			
Medium Trucks:	82.40	-20.06	-3.4	3	-1.20		-4.88	0.0	000	0.000			
Heavy Trucks:	86.40	-15.46	-3.4	3	-1.20		-5.18	0.0	000	0.000			
Unmitigated Nois	e Levels (with	out Topo and barr	rier atter	nuation)									
VehicleType	Leq Peak Hou	ur Leq Day	Leq E	vening	Leq N	light		Ldn		CNEL			
Autos:	71	.3 69.1		67.7		63.7		71.3	3	71.8			
Medium Trucks:	57	.7 55.4		50.4		52.0		58.9	3	59.1			
Heavy Trucks:	66	.3 64.4		59.2		58.9		66.4	1	66.6			
Vehicle Noise:	72	.7 70.5		68.3		65.1		72.7	7	73.1			
Centerline Distan	ce to Noise Co	ontour (in feet)											
			70	dBA	65 d	BA		50 dBA		55 dBA			
		Ldn:	1	40	30	1		648		1,397			
		CNEL:	: 1	49	32	U		690		1,487			

Tuesday, August 14, 2018

	FHV	VA-RD-77-108	HIGHW	AY NC	ISE P	REDICTI	ON MO	DEL		_	
Scenar Road Nam Road Segme	Scenario: Existing + Project Road Name: Auld Rd. Road Segment: e/o Winchester Rd. (SR-79)					Project Job Ni	Name: umber:	KTM 11624			
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	/ODE	L INPUTS	5	
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	7,954 vehicl	es					Autos.	15		
Peak Hour	Percentage:	10%			Me	edium Tru	icks (2 A	(xles)	15		
Peak H	lour Volume:	795 vehicle	s		He	eavy Truc	ks (3+ A	(xles)	15		
Ve	hicle Speed:	40 mph		Ve	hicle	Mix					
Near/Far La	ne Distance:	36 feet			Veh	nicleType		Day	Evening	Night	Daily
Site Data						A	utos:	71.5%	5 13.0%	15.5%	98.57%
Ba	rrier Heiaht:	0.0 feet			М	ledium Tr	ucks:	70.4%	5.6%	24.0%	6 0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tr	ucks:	77.8%	5.9%	16.3%	5 1.06%
Centerline Di	st. to Barrier:	50.0 feet		N	oise S	ource El	evation	s (in f	eet)		
Centerline Dist.	to Observer:	50.0 feet				Autos	: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	: 2.1	297			
Observer Height (	Above Pad):	5.0 feet			Hear	vy Trucks	: 8.0	004	Grade Adj	ustmen	t: 0.0
Pa	ad Elevation:	0.0 feet		-							
Roa	ad Elevation:	0.0 feet		Lä	ane Eq	uivalent	Distan	ce (In	feet)		
	Road Grade:	0.0%				Autos	: 46.	915			
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 46.	726			
	Right View:	90.0 degre	es		Hea	vy Trucks	: 46.	/44			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresr	el	Barrier Atte	en Be	rm Atten
Autos:	66.51	-2.38		0.31		-1.20		-4.65	0.0	00	0.000
Medium Trucks:	77.72	-26.64		0.34		-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	82.99	-22.06		0.34		-1.20		-5.43	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenu	ation)						
VehicleType	Leq Peak Hou	ır Leq Da	/ L	eq Eve	ening	Leq I	Vight		Ldn	C	NEL
Autos:	63	.2	61.0		59.6		55.6		63.2		63.7
Medium Trucks:	50	.2	47.9		42.9		44.5		51.4		51.6
Vehicle Noise:	60	.1	58.2 63.0		53.0		52.7		60.2		60.4
Conterline Distan	an te Neise Cr	ntour (in foo	00.0		00.0		57.0		00.2		00.0
Centernine Distant	Le lo Noise Co	un tee	9	70 dE	BA	65 0	IBA		60 dBA	55	5 dBA
			Ldn:	24		5	1	1	111		238
		С	NEL:	25		5	4		117		253

Scena	rio: Existing + I	Project				Project Na	me: KTM			
Road Nar	ne: Sparkman	Wy.				Job Num	ber: 1162	4		
Road Segme	ent: e/o Winche	ester Rd. (SR-7	9)							
SITE	SPECIFIC IN	IPUT DATA				NOI	SE MOD	EL INPUT	s	
Highway Data					Site Con	ditions (Ha	ard = 10, S	Soft = 15)		
Average Daily	Traffic (Adt):	1,853 vehicle	es				Autos	: 15		
Peak Hour	Percentage:	10%			Me	dium Truck	s (2 Axles	): 15		
Peak I	Hour Volume:	185 vehicles	S		Hea	avy Trucks	(3+ Axles	): 15		
Ve	ehicle Speed:	40 mph			Vehicle I	<i>lix</i>				
Near/Far La	ane Distance:	12 feet		-	Vehi	cleType	Day	Evening	Night	Daily
Site Data						Auto	os: 71.5	% 13.0%	15.5%	98.48%
Ba	rrier Height	0.0 feet			Me	dium Truci	ks: 70.4	% 5.6%	24.0%	0.35%
Barrier Type (0-V	Vall. 1-Berm):	0.0			H	leavy Truci	ks: 77.8	% 5.9%	16.3%	1.17%
Centerline D	ist. to Barrier:	30.0 feet		-	N-/ 0-			6		
Centerline Dist.	to Observer:	30.0 feet		4	Noise So	urce Eleva	ations (in	reet)		
Barrier Distance	to Observer:	0.0 feet			1.4 × 16 × 10	Autos:	0.000			
Observer Height	(Above Pad):	5.0 feet			Mealur	n Trucks:	2.297	Grado Ad	liustmont	
F	ad Elevation:	0.0 feet			Heav	y Trucks:	8.004	Grade Au	jusunen	0.0
Ro	ad Elevation:	0.0 feet		1	Lane Equ	ivalent Di	stance (ir	feet)		
	Road Grade:	0.0%				Autos:	29.816			
	Left View:	-90.0 degree	es		Mediur	n Trucks:	29.518			
	Right View:	90.0 degree	es		Heav	y Trucks:	29.547			
FHWA Noise Mod	lel Calculation	s								
FHWA Noise Mod VehicleType	lel Calculation REMEL	s Traffic Flow	Dist	tance	Finite	Road	Fresnel	Barrier Att	ten Ber	m Atten
FHWA Noise Moo VehicleType Autos:	lel Calculation REMEL 66.51	s Traffic Flow -8.71	Dist	tance 3.2	Finite	Road 1	Fresnel -4.49	Barrier Att	ten Ber 000	m Atten 0.000
FHWA Noise Moo VehicleType Autos: Medium Trucks:	lel Calculation REMEL 66.51 77.72	s Traffic Flow -8.71 -33.25	Dist	tance 3.20 3.33	Finite	Road 1 -1.20 -1.20	resnel -4.49 -4.86	Barrier Att 0.0	ten Ber 000	m Atten 0.000 0.000
FHWA Noise Moo VehicleType Autos: Medium Trucks: Heavy Trucks:	lel Calculation REMEL 66.51 77.72 82.99	s Traffic Flow -8.71 -33.25 -27.96	Dist	tance 3.20 3.33 3.33	Finite 6 3 2	Road 1. -1.20 -1.20 -1.20	Fresnel -4.49 -4.86 -5.77	Barrier Att	ten Ber 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	lel Calculation REMEL 66.51 77.72 82.99 e Levels (with	s Traffic Flow -8.71 -33.25 -27.96 out Topo and	Dist barrie	tance 3.20 3.33 3.33 er atten	<i>Finite</i> 6 3 2 <b>nuation</b>	Road 1 -1.20 -1.20 -1.20	Fresnel -4.49 -4.86 -5.77	Barrier Att 0.0 0.0	ten Ber 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	lel Calculation REMEL 66.51 77.72 82.99 e Levels (with Leq Peak Hou	s Traffic Flow -8.71 -33.25 -27.96 out Topo and Ir Leq Day	Dist barrie	tance 3.20 3.33 3.33 <b>er atten</b> Leq E	Finite 6 3 2 <b>nuation)</b> ivening	Road 1.20 -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.49 -4.86 -5.77 ht	Barrier Att	ten Ber 000 000 000 Ci	<u>m Atten</u> 0.000 0.000 0.000
FHWA Noise Moo VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	lel Calculation REMEL 66.51 77.72 82.99 e Levels (with Leg Peak Hou 59	s Traffic Flow -8.71 -33.25 -27.96 out Topo and Ir Leq Day .9	Dist barrie 57.6	tance 3.2( 3.3) 3.3) <b>er atten</b> Leq E	Finite 6 3 2 <b>nuation)</b> vening 56.2	Road 1 -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.49 -4.86 -5.77 ht 52.2	Barrier Att 0.0.0 0.0 0.0 Ldn 59.8	ten Ber 000 000 000 000 000 8	m Atten 0.000 0.000 0.000 NEL 60.3
FHWA Noise Moo VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	lel Calculation REMEL 66.51 77.72 82.99 re Levels (with Leg Peak Hou 59 46	s Traffic Flow -8.71 -33.25 -27.96 out Topo and ur Leq Day .9 .6	Dist barrie , 57.6 44.3	tance 3.2( 3.3) 3.3) er atten Leq E	Finite 6 3 2 <b>nuation)</b> vening 56.2 39.3	Road 1.20 -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.49 -4.86 -5.77 ht 52.2 40.9	Barrier Att 0 0.0 0.0 0.0 200 Ldn 59.8 47.8	ten Ber 000 000 000 000 000 000 000 000 000 0	m Atten 0.000 0.000 0.000 VEL 60.3 48.0
FHWA Noise Moo VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks:	lel Calculation REMEL 66.51 77.72 82.99 e Levels (with Leg Peak Hot 59 46 57	s Traffic Flow -8.71 -33.25 -27.96 out Topo and ur Leq Day .9 .6 .2	Dist barrie 57.6 44.3 55.3	tance 3.2( 3.3: 3.3: er atten Leq E	<i>Finite</i> 6 3 2 <b>Duation)</b> vening 56.2 39.3 50.1	Road 1 -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.49 -4.86 -5.77 ht 52.2 40.9 49.7	Barrier Att 0 0.0 0.0 0.0 Ldn 59.1 47.1 57.5	ten Ber 000 000 000 Ci 8 8 3	<u>m Atten</u> 0.000 0.000 0.000 <u>NEL</u> 60.3 48.0 57.5
FHWA Noise Moc Vehicle Type Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	lel Calculation REMEL 66.51 77.72 82.99 te Levels (with Leq Peak Hou 59 46 57 61	s Traffic Flow -8.71 -33.25 -27.96 out Topo and Ir Leq Day .9 .6 .2 .9	Dist barrie 57.6 44.3 55.3 59.7	tance 3.2( 3.3) 3.3) er atten Leg E	Finite 6 3 2 wening 56.2 39.3 50.1 57.2	Road 1. -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.49 -4.86 -5.77 ht 52.2 40.9 49.7 54.4	Barrier Atte 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	ten Ber 000 000 000 8 8 8 3 9	m Atten 0.000 0.000 0.000 VEL 60.3 48.0 57.5 62.3
FHWA Noise Moc VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	lel Calculation REMEL 66.51 77.72 82.99 re Levels (with Leg Peak Hou 59 46 57 61 cc to Noise Co	s Traffic Flow -8.71 -33.25 -27.96 out Topo and ir Leq Day .6 .2 .9 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	Dist barrie 57.6 44.3 55.3 59.7	tance 3.2( 3.3; 3.3; er atten Leg E	Finite 6 3 2 <b>ivening</b> 56.2 39.3 50.1 57.2	Road   1.20 -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.49 -5.77 ht 52.2 40.9 49.7 54.4	Barrier Atte 0.0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	ten Ber 2000 2000 2000 8 8 8 3 9	m Atten 0.000 0.000 0.000 VEL 60.3 48.0 57.5 62.3
FHWA Noise Moc VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	tel Calculation REMEL 66.51 77.72 82.99 e Levels (with Leg Peak Hot 59 46 57 61 ce to Noise C	s Traffic Flow -8.71 -33.25 -27.96 out Topo and Ir Leq Day .9 .2 .9 ontour (in feet	Dist barrie 57.6 44.3 55.3 59.7 )	tance 3.2( 3.3; 3.3; er atten Leq E 70 c	Finite           6           3           2           auation)           ivening           56.2           39.3           50.1           57.2           dBA	Road 1.20 -1.20 -1.20 -1.20 Leq Nig 65 dB/	Fresnel -4.49 -4.86 -5.77 ht 52.2 40.9 49.7 54.4	Barrier Att           0.0 </td <td>ten Ber 000 000 000 8 8 8 3 9 9 55</td> <td>m Atten 0.000 0.000 0.000 VEL 60.3 48.0 57.5 62.3 dBA</td>	ten Ber 000 000 000 8 8 8 3 9 9 55	m Atten 0.000 0.000 0.000 VEL 60.3 48.0 57.5 62.3 dBA
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Heavy Trucks: Vehicle Noise: Centerline Distan	tel Calculation REMEL 66.51 77.72 82.99 e Levels (with Leg Peak Hot 59 46 57 61 cc to Noise C	s Traffic Flow -8.71 -33.25 -27.96 out Topo and Ir Leq Day 9 .6 .2 .9 pontour (in feet	Dist barrie 57.6 44.3 55.3 59.7 ) Ldn:	tance 3.2( 3.3: 3.3: ar atten Leq E 70 c	<i>Finite</i> 6 3 2 <b>suation</b> 56.2 39.3 50.1 57.2 <i>dBA</i>	Road 1 -1.20 -1.20 -1.20 Leq Nig 65 dB/ 19	Fresnel -4.45 -4.86 -5.77 ht 52.2 40.9 49.7 54.4	Barrier Att           0         0.0           i         0.0           i         0.0           Ldn         59.1           47.1         57.3           61.3         60 dBA           40         40	ten Ber 000 000 000 8 8 8 3 9 9 55	m Atten 0.000 0.000 0.000 VEL 60.3 48.0 57.5 62.3 dBA 37

Tuesday, August 14, 2018

	FHV	VA-RD-77-108 I	HIGHWA	YN	OISE P	REDICT	ON MO	DEL			
Scenari	o: Existing + F	Project			Project Name: KTM						
Road Nam	e: Robert Trer	nt Jones Pkwy.				Job N	umber:	11624			
Road Segmer	nt: w/o Winche	ster Rd. (SR-79	))								
SITE S	SPECIFIC IN	PUT DATA				N	IOISE I	NODE	L INPUT	S	
Highway Data				S	Site Cor	ditions	(Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	3,454 vehicles	5					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	ıcks (2 i	Axles):	15		
Peak H	our Volume:	345 vehicles			He	avy Truc	cks (3+ )	Axles):	15		
Vel	hicle Speed:	40 mph		V	/ehicle	Mix					
Near/Far Lar	ne Distance:	12 feet		F	Veh	icleType		Day	Evening	Night	Daily
Site Data						4	Autos:	71.5%	5 13.0%	15.5%	98.59%
Bar	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	all, 1-Berm):	0.0			1	Heavy Ti	ucks:	77.8%	5.9%	16.3%	1.05%
Centerline Dis	st. to Barrier:	30.0 feet			loise S	ource El	evation	s (in fe	eet)		
Centerline Dist.	to Observer:	30.0 feet				Autos	s: 0.	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2.	297			
Observer Height (J	Above Pad):	5.0 feet			Heav	v Truck	s: 8.	004	Grade Ad	justment	: 0.0
Pa	ad Elevation:	0.0 feet		-							
Roa	ad Elevation:	0.0 feet		L	ane Eq.	uivalent	Distan	ce (in	feet)		
F	Road Grade:	0.0%				Autos	s: 29.	816			
	Left View:	-90.0 degree:	5		Mediu	m Truck	s: 29.	518			
	Right View:	90.0 degrees	5		Heav	/y Trucks	s: 29.	547			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distand	се	Finite	Road	Fresi	nel	Barrier Att	en Ber	m Atten
Autos:	66.51	-6.00		3.26		-1.20		-4.49	0.0	000	0.000
Medium Trucks:	77.72	-30.32		3.33		-1.20		-4.86	0.0	000	0.000
Heavy Trucks:	82.99	-25.74		3.32		-1.20		-5.77	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier at	ten	uation)			-		1	
VehicleType	Leq Peak Hou	r Leq Day	Le	q Ev	ening	Leq	Night		Ldn	C	NEL
Autos:	62.	.6 6	0.3		58.9		54.9	9	62.6	5	63.0
Medium Trucks:	49.	.5 4	7.2		42.2		43.8	5	50.	-	50.9
Heavy Trucks:	59.	4 5	7.5		52.3		52.0	)	59.5	>	59.
Vehicle Noise:	64.	.4 6	2.3		59.9		56.9	9	64.5	ō	64.9
Centerline Distance	e to Noise Co	ontour (in feet)	-	70 4	0.4	05	-10.4		0.404		-10.4
		,	da	100	DA	65	UBA		EO BA	1 55	UBA 20
			un. El ·	13	) I	2	0		62	1	29
		CN	LL.	14	•	2	3		03	1	57

	FH	WA-RD-77-108	HIGH	WAY N	IOISE PI	REDICTIO	N MODE	EL			
Scenario Road Name Road Segmen	o: Existing + e: Murrieta H ht: w/o Winch	Project ot Springs Rd. ester Rd. (SR-1	79)			Project N Job Nur	ame: K1 nber: 11	TM 1624			
SITE S	SPECIFIC I	NPUT DATA				NO	ISE MO	DDEL IN	IPUTS		
Highway Data					Site Con	ditions (H	lard = 10	0, Soft =	15)		
Average Daily	Traffic (Adt):	40,652 vehicl	es				AL	utos: 1	5		
Peak Hour I	Percentage:	10%			Me	dium Truc	ks (2 Ax	<i>les):</i> 1	5		
Peak Ho	our Volume:	4,065 vehicle	s		He	avy Truck	s (3+ Ax	<i>les):</i> 1	5		
Vet	nicle Speed:	45 mph		-	Vehicle	Mix					
Near/Far Lar	ne Distance:	12 feet			Veh	icleType	D	ay Eve	ening N	light	Daily
Site Data						Au	tos: 71	1.5% 1	3.0% 1	5.5%	98.56%
Bar	rier Heiaht:	0.0 feet			Me	edium True	cks: 70	0.4%	5.6% 2	4.0%	0.37%
Barrier Type (0-Wa	all, 1-Berm):	0.0			ŀ	Heavy True	cks: 71	7.8%	5.9% 1	6.3%	1.07%
Centerline Dis	t. to Barrier:	37.0 feet		5	Noise So	ource Elev	ations	(in feet)			
Centerline Dist. t	o Observer:	37.0 feet		F		Autos:	0.00	0			
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Trucks:	2.29	7			
Observer Height (/	Above Pad):	5.0 feet			Heav	v Trucks:	8.00	4 Gra	de Adjus	tment:	0.0
Pa	d Elevation:	0.0 feet		H					,		
Roa	d Elevation:	0.0 feet		4	Lane Eq	uivalent L	vistance	e (in feet)	)		
F	Road Grade:	0.0%				Autos:	36.85	51			
	Left View:	-90.0 degre	es		Mediui	m Trucks:	36.61	0			
	Right View:	90.0 degre	es		Heav	y Trucks:	36.63	34			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dist	tance	Finite	Road	Fresnel	l Bari	rier Atten	Berr	n Atten
Autos:	68.46	4.19		1.88	8	-1.20	-4	1.56	0.000		0.000
Medium Trucks:	79.45	-20.05		1.93	3	-1.20	-4	1.87	0.000		0.000
Heavy Trucks:	84.25	-15.45		1.92	2	-1.20	-5	5.61	0.000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrie	r atten	uation)						
VehicleType	Leq Peak Ho	ur Leq Daj	/	Leq E	vening	Leq Ni	ght	Ldr	ו	C٨	IEL
Autos:	73	3.3	71.1		69.7		65.7		73.3		73.8
Medium Trucks:	60	).1	57.8		52.8		54.4		61.3		61.5
Heavy Trucks:	69	9.5	67.6		62.4		62.1		69.7		69.9
Vehicle Noise:	75	5.0	72.8		70.5		67.5		75.1		75.5
Centerline Distanc	e to Noise C	ontour (in fee	)								
				70 c	dBA	65 dE	BA	60 dl	BA	55 (	dBA
			Ldn:	8	0	173		374	Ļ	80	)5
		С	NEL:	8	5	184		397	,	85	55

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	FHV	VA-RD-77-108	HIGHWA	Y NOIS	SE PI	REDICTI	ON MO	DEL				
Scenar Road Nan Road Segme	io: EA 2020 W ne: Winchester nt: n/o Auld Ro	ithout Project Rd. (SR-79) d.				Project Job N	Name: I umber:	KTM 11624	Ļ			
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	/IODE	L INPUT	s		
Highway Data				Site	Con	ditions	(Hard =	10, S	oft = 15)			
Average Daily	Traffic (Adt):	47,792 vehicl	es					Autos.	15			
Peak Hour	Percentage:	10%			Me	dium Tru	icks (2 A	(xles)	: 15			
Peak H	lour Volume:	4,779 vehicle	s		He	avy Truc	cks (3+ A	(xles)	15			
Ve	hicle Speed:	55 mph		Veh	icle	Mix						
Near/Far La	ne Distance:	78 feet			Veh	icleTvpe		Dav	Evenina	Niał	t D	ailv
Site Data						F	Autos:	71.5%	6 13.0%	15.5	5% 98	.56%
Ba	rrier Height:	0.0 feet			M	edium Tr	ucks:	70.4%	6 5.6%	24.0	0% 0	.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	Heavy Ti	ucks:	77.8%	6 5.9%	16.3	3% 1	.07%
Centerline Di	st. to Barrier:	92.0 feet		Nois	se So	ource El	evation	s (in f	eet)			
Centerline Dist.	to Observer:	92.0 feet				Autos	s: 0.0	000				
Barrier Distance	to Observer:	0.0 feet		М	lediui	m Truck	s: 2.2	297				
Observer Height	(Above Pad):	5.0 feet		1	Heav	v Trucks	s: 8.0	004	Grade Adj	iustme	ent: 0.0	)
P	ad Elevation:	0.0 feet		1			Distant	//	6			
Ro	ad Elevation:	0.0 feet		Lan	e Eq	uivaiem	Distant	ce (In	reet)			
	Road Grade:	0.0%				Autos	s: 83.4	475				
	Left View:	-90.0 degre	es	IVI	leaiui	T Truck	5: 83.	368				
	Right view:	90.0 degre	es		neav	y muck	5. 83.	379				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distan	ce F	inite	Road	Fresn	el	Barrier Atte	en l	Berm A	tten
Autos:	71.78	4.02	-	3.44		-1.20		-4.76	0.0	00	(	0.000
Medium Trucks:	82.40	-20.20	-	3.43		-1.20		-4.88	0.0	00	(	0.000
Heavy Trucks:	86.40	-15.62	-	3.43		-1.20		-5.18	0.0	00	(	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	tenuati	ion)			1				
Vehicle I ype	Leq Peak Hou	Ir Leq Day	Le	q Eveni	ing	Leq	Night		Ldn		CNEL	=
Autos:	/1	.2	68.9		67.5		63.5		/1.1			/1.6
Medium Trucks:	57	.0	55.3 64.2		50.3		51.8		58.8	5		58.9
Vehicle Noise:	72	.1	64.3 70.3		59.1 68.2		58.7		72.6	; ;		73.0
Centerline Distan	ce to Noise Co	ontour (in feel	)									
			,	70 dBA		65	dBA		60 dBA		55 dBA	4
			Ldn:	136		29	93		632		1,362	
		Ci	VEL:	145		3	12		673		1,450	

	FRV	VA-RD-77-108 F	IIGHW/	AT N	OISE PR	EDICTIC		JEL			
Scenar	io: EA 2020 W	ithout Project				Project N	lame: I	ΚТМ			
Road Nam	e: Winchester	Rd. (SR-79)				Job Nu	nber: '	1624			
Road Segme	nt: s/o Auld Ro	l.									
SITE	SPECIFIC IN	IPUT DATA				NC	ISE N	IODE	L INPUTS	5	
Highway Data				5	Site Con	ditions (F	lard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	51,239 vehicles						Autos:	15		
Peak Hour	Percentage:	10%			Med	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	5,124 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	55 mph		1	/ehicle N	<i>lix</i>					
Near/Far La	ne Distance:	78 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						AL	tos:	71.5%	13.0%	15.5%	98.56%
Bai	rrier Height	0.0 feet			Me	dium Tru	cks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	all. 1-Berm):	0.0			H	leavy Tru	cks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	92.0 feet							4)		
Centerline Dist.	to Observer:	92.0 feet			voise So	urce Ele	vation		eet)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos:	0.0	00			
Observer Height (	Above Pad):	5.0 feet			Hoov	Trucks.	2.2	97	Grade Adi	ustment	0.0
Pa	ad Elevation:	0.0 feet			neav,	y mucks.	0.0	/04	0/000/10	uoumonn	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	ivalent L	Distand	e (in	feet)		
1	Road Grade:	0.0%				Autos:	83.4	175			
	Left View:	-90.0 degrees			Mediun	n Trucks:	83.3	368			
	Right View:	90.0 degrees			Heav	y Trucks:	83.3	379			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	се	Finite	Road	Fresn	el	Barrier Atte	en Ber	m Atten
Autos:	71.78	4.32		-3.44	ţ	-1.20		-4.76	0.0	00	0.000
Medium Trucks:	82.40	-19.90		-3.43	3	-1.20		4.88	0.0	00	0.000
Heavy Trucks:	86.40	-15.32		-3.43	3	-1.20		-5.18	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier a	tten	uation)						VEL
Unmitigated Noise VehicleType	e Levels (with Leq Peak Hou	out Topo and b Ir Leq Day	arrier a	eq Ev	vening	Leq N	ight		Ldn		
Unmitigated Noise VehicleType Autos:	e <b>Levels (with</b> Leq Peak Hou 71	out Topo and b r Leq Day .5 6!	arrier a Le 9.2	eq Ev	vening 67.8	Leq N	ight 63.8		Ldn 71.4		71.9
Unmitigated Noise VehicleType Autos: Medium Trucks:	e Levels (with Leq Peak Hou 71 57	out Topo and b r Leq Day .5 69 .9 59	2.2 5.6	eq Ev	<i>vening</i> 67.8 50.6	Leq N	<i>ight</i> 63.8 52.1		Ldn 71.4 59.1	- Ci	71.9 59.2
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	e Levels (with Leq Peak Hou 71 57 66	out Topo and b           Ir         Leq Day           .5         6:           .9         5:           .4         6:	2.2 5.6 4.6	eq Ev	67.8 50.6 59.4	Leq N	ight 63.8 52.1 59.0		Ldn 71.4 59.1 66.6		71.9 59.2 66.8
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	e Levels (with Leq Peak Hou 71 57 66 72	Leq Day           .5         63           .9         55           .4         66           .8         71	2.2 5.6 4.6 0.6	eq Ev	67.8 50.6 59.4 68.5	Leq N	ight 63.8 52.1 59.0 65.3		Ldn 71.4 59.1 66.6 72.9		71.9 59.2 66.8 73.3
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	e Levels (with Leg Peak Hou 71 57 66 72 72 72	Leq Day           .5         69           .9         51           .4         66           .8         70           Ontour (in feet)         70	202 25.6 4.6 0.6	eq Ev	vening 67.8 50.6 59.4 68.5	Leq N	ight 63.8 52.1 59.0 65.3		Ldn 71.4 59.1 66.6 72.9		71.9 59.2 66.8 73.3
Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distanc	e Levels (with Leg Peak Hou 71 57 66 72 ce to Noise Co	Out Topo and b           Ir         Leq Day           .5         68           .9         58           .4         66           .8         70           Dontour (in feet)         100	<i>arrier a</i> <i>Le</i> 9.2 5.6 4.6 0.6	rtteni eq Ev 70 d	vening 67.8 50.6 59.4 68.5	Leq N 65 dl	ight 63.8 52.1 59.0 65.3 BA		Ldn 71.4 59.1 66.6 72.9	55	71.9 59.2 66.8 73.3 dBA
Unmitigated Noiss VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise Centerline Distanc	e Levels (with Leg Peak Hou 71 57 66 72 ce to Noise Co	Out Topo and b           out Topo and b           r         Leq Day           5         6i           9         5i           4         6i           8         7i           Ontour (in feet)         L	arrier a Le 9.2 5.6 4.6 0.6	70 a	vening 67.8 50.6 59.4 68.5 IBA 3	Leq N 65 dl 307	ight 63.8 52.1 59.0 65.3 3A		Ldn 71.4 59.1 66.6 72.9 60 dBA 662	55	71.9 59.2 66.8 73.3 dBA 427

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	FHV	VA-RD-77-108 HI	GHWAY	NOISE PI	REDICTIO	N MO	DEL				
Scenar Road Narr Road Segme	rio: EA 2020 W ne: Winchester nt: s/o Sparkm	ithout Project Rd. (SR-79) an Wy.			Project N Job Nur	ame: nber:	KTM 11624				
SITE	SPECIFIC IN	PUT DATA			NO	ISE N	NODE	L INPU	TS		
Highway Data				Site Con	ditions (H	lard =	10, Sc	oft = 15)			
Average Daily	Traffic (Adt):	54,672 vehicles					Autos:	15			
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 A	Axles):	15			
Peak H	lour Volume:	5,467 vehicles		He	avy Truck	s (3+ A	Axles):	15			
Ve	hicle Speed:	55 mph		Vehicle	Mix						
Near/Far La	ne Distance:	78 feet		Venicle	icleType		Dav	Evening	Nio	ht	Dailv
Site Data					Au	tos:	71.5%	13.0%	5 15	.5%	98.56%
Pa	rrior Hoight:	0.0 foot		М	edium Trud	cks:	70.4%	5.6%	24	.0%	0.37%
Barrier Type (0-W	/all_1-Rerm) <sup>.</sup>	0.0 1001		1	Heavy True	cks:	77.8%	5.9%	5 16	.3%	1.07%
Centerline Di	ist, to Barrier:	92.0 feet		Noise C			- 11- 6-	- 41			
Centerline Dist.	to Observer:	92.0 feet		NOISe 3	Jurce Elev	auon		el)			
Barrier Distance	to Observer:	0.0 feet		Madiu	Autos:	0.0	207				
Observer Height	(Above Pad):	5.0 feet		Neulu	III TTUCKS.	2	297	Grado A	diucto	ont.	0.0
P	ad Elevation:	0.0 feet		near	ly muchs.	0.0	004	Orade A	ajasai	ioni.	0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent D	Distan	ce (in f	feet)			
	Road Grade:	0.0%			Autos:	83.	475				
	Left View:	-90.0 degrees		Mediu	m Trucks:	83.	368				
	Right View:	90.0 degrees		Heav	y Trucks:	83.	379				
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresr	nel	Barrier A	tten	Bern	n Atten
Autos:	71.78	4.61	-3.4	44	-1.20		-4.76	0	.000		0.000
Medium Trucks:	82.40	-19.61	-3.4	43	-1.20		-4.88	0	.000		0.000
Heavy Trucks:	86.40	-15.03	-3.4	43	-1.20		-5.18	0	.000		0.000
Unmitigated Nois	e Levels (with	out Topo and bai	rier atte	nuation)							
VehicleType	Leq Peak Hou	r Leq Day	Leq E	Evening	Leq Ni	ght		Ldn		CN	EL
Autos:	71	.7 69.	5	68.1		64.1		71	.7		72.2
Medium Trucks:	58	.2 55.	В	50.9		52.4	1	59	.3		59.5
Heavy Trucks:	66	.7 64.	В	59.6		59.3	3	66	i.9		67.1
Vehicle Noise:	73	.1 70.5	9	68.8		65.6	6	73	6.1		73.
Centerline Distan	ce to Noise Co	ontour (in feet)									
			70	dBA	65 dE	BA	6	0 dBA		55 c	1BA
		Ldr	n: 1	49	321			691		1,4	90
		CNEL	.: 1	59	342			736		1,5	86

	FHV	VA-RD-77-108 HI	GHWAY N	NOISE PI	REDICTIC	ION MOE	DEL			
Scenai Road Nan Road Segme	Scenario: EA 2020 Without Project Road Name: Winchester Rd. (SR-79) Road Segment: s/o Hunter Rd. SITE SPECIFIC INPUT DATA					lame: k mber: 1	TM 1624			
SITE	SPECIFIC IN	PUT DATA			NC	DISE M	ODE	INPUTS	5	
Highway Data				Site Con	ditions (F	lard =	10, So	ft = 15)		
Average Daily Peak Hou Peak I Veak I	Traffic (Adt): Percentage: Hour Volume:	61,084 vehicles 10% 6,108 vehicles 55 mph	_	Me He	dium Truc avy Truck	A ks (2 A s (3+ A	utos: xles): xles):	15 15 15		
Near/Far La	ane Distance:	78 feet	-	Vehicle I	Mix		2	Currentered	Allerlat	Delle
				ven	icie i ype		Jay	Evening	Night	Daily
Barrier Type (0-V	<b>rrier Height:</b> Vall, 1-Berm):	0.0 feet 0.0		Me F	au edium Tru Heavy Tru	cks: T cks: T cks: T	70.4% 70.8%	5.6% 5.9%	15.5% 24.0% 16.3%	6 98.56% 6 0.37% 6 1.07%
Centerline D	ist. to Barrier:	92.0 feet	-	Noise Sc	ource Fle	vations	(in fe	et)		
Centerline Dist. Barrier Distance Observer Height	to Observer: to Observer: (Above Pad): ad Elevation:	92.0 feet 0.0 feet 5.0 feet		Mediui Heav	Autos: m Trucks: ry Trucks:	0.0 2.2 8.0	00 97 04	Grade Adj	ustmer	nt: 0.0
Ro	ad Elevation:	0.0 feet	Ē	Lane Eq	uivalent I	Distanc	e (in f	eet)		
	Road Grade: Left View: Right View:	0.0% -90.0 degrees 90.0 degrees		Mediui Heav	Autos: m Trucks: y Trucks:	83.4 83.3 83.3	75 68 79			
FHWA Noise Mod	lel Calculation	s							-	
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresne	el I	Barrier Atte	en Be	erm Atten
Autos:	71.78	5.09	-3.4	4	-1.20	-	4.76	0.0	00	0.000
Medium Trucks: Heavy Trucks:	82.40 86.40	-19.13 -14.55	-3.4 -3.4	3 3	-1.20 -1.20	-	4.88 5.18	0.0 0.0	00	0.000 0.000
Unmitigated Nois	e Levels (with	out Topo and bar	rrier atter	nuation)						
VehicleType	Leq Peak Hou	r Leq Day	Leq E	vening	Leq N	ight		Ldn	(	ONEL
Autos:	72	.2 70.0	0	68.6		64.6		72.2	!	72.7
Medium Trucks:	58	.6 56.3	3	51.4		52.9		59.8	í.	60.0
Heavy Trucks:	67	.2 65.3	3	60.1		59.8		67.3	i	67.6
Vehicle Noise:	73	.6 71.4	4	69.2		66.0		73.6	i i	74.0
Centerline Distan	ce to Noise Co	ontour (in feet)							_	
			70	dBA	65 dl	BA	6	0 dBA	5	5 dBA
		Ldr. CNEL	n: 10 .: 11	60 71	346 368	5 8		744 793	1	,604 1,708
		0.122			000	-				

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	FHV	VA-RD-77-108	HIGHW	AY NO	ISE P	REDICTI	ON MO	DEL				
Scenario Road Name Road Segmen	b: EA 2020 W e: Winchester t: s/o Techno	ithout Project Rd. (SR-79) logy Dr.				Project Job Ni	Name: I umber:	KTM 11624				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	/IODE		s		
Highway Data				Sit	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily 1	Fraffic (Adt):	58,899 vehicl	es				,	Autos.	15			
Peak Hour I	Percentage:	10%			Me	edium Tru	icks (2 A	Axles).	15			
Peak Ho	our Volume:	5,890 vehicle	s		He	avy Truc	:ks (3+ A	Axles).	15			
Veh	nicle Speed:	55 mph		Ve	hicle	Mix						
Near/Far Lar	e Distance:	78 feet			Veh	nicleTvpe		Dav	Evenina	Nia	ht	Dailv
Site Data						A	lutos:	71.5%	5 13.0%	15.	5% 9	98.56%
Bar	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24.	0%	0.37%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	77.8%	5.9%	16.	3%	1.07%
Centerline Dis	t. to Barrier:	92.0 feet		No	oise S	ource El	evation	s (in f	eet)			
Centerline Dist. t	o Observer:	92.0 feet				Autos	c: 0.0	200				
Barrier Distance t	o Observer:	0.0 feet			Mediu	m Trucks	: 2.3	297				
Observer Height (A	Above Pad):	5.0 feet			Hea	v Trucks	s: 8.0	004	Grade Ad	iustm	ent:	0.0
Pa	d Elevation:	0.0 feet										
Roa	d Elevation:	0.0 feet		La	ne Eq	uivalent	Distand	ce (in	feet)			
F	Road Grade:	0.0%				Autos	8: 83.4	475				
	Left View:	-90.0 degre	es		Mediu	m Trucks	8: 83.3	368				
	Right View:	90.0 degre	es		Hear	vy Trucks	8: 83.3	379				
FHWA Noise Mode	l Calculation	s										
VehicleType	REMEL	Traffic Flow	Distar	се	Finite	Road	Fresn	iel	Barrier Att	en	Berm	Atten
Autos:	71.78	4.93		-3.44		-1.20		-4.76	0.0	000		0.000
Medium Trucks:	82.40	-19.29		-3.43		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	86.40	-14.71		-3.43		-1.20		-5.18	0.0	000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier a	ttenua	ation)							
VehicleType	Leq Peak Hou	ir Leq Day	/ Le	eq Eve	ning	Leq I	Night		Ldn		CN	EL
Autos:	72	.1	69.8		68.4		64.4		72.1			72.5
Medium Trucks:	58	.5	56.2		51.2		52.7	,	59.7	7		59.8
Heavy Trucks:	67	.1	65.2		60.0		59.6	6	67.2	2		67.4
Vehicle Noise:	73	.4	71.2		69.1		65.9	)	73.5	Ď		73.9
Centerline Distanc	e to Noise Co	ontour (in feet	)			05	10.4	1		1		
			Ldou	10 dB	А	65 0	JBA 7		DU dBA	1	35 d	БA
		0	Lan:	157		33	57		121		1,50	00
		Ci	VEL:	107		35	59		114		1,00	01

	FH	VA-RD-77-108	HIGHWA	AY NO						
Scenar	<i>io:</i> EA 2020 W	ithout Project			Proje	ect Name	: KTM			
Road Nan	ne: Winchester	Rd. (SR-79)			Job	Number	: 11624			
Road Segme	nt: s/o Murrieta	a Hot Springs F	Rd.							
SITE	SPECIFIC IN	IPUT DATA				NOISE	MODE		S	
Highway Data				S	ite Conditio	ns (Hard	= 10, S	oft = 15)		
Average Daily	Traffic (Adt):	51,367 vehicle	es				Autos	15		
Peak Hour	Percentage:	10%			Medium	Trucks (2	Axles)	15		
Peak F	lour Volume:	5,137 vehicle	s		Heavy T	rucks (34	Axles)	15		
Ve	hicle Speed:	55 mph		V	ehicle Mix					
Near/Far La	ne Distance:	78 feet			VehicleTy	pe	Day	Evening	Night	Daily
Site Data					,	Autos:	71.5%	6 13.0%	15.5%	98.56%
Ba	rrier Height:	0.0 feet			Medium	Trucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-V	/all. 1-Berm):	0.0			Heavy	Trucks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	92.0 feet				<b>Flauretia</b>		41		
Centerline Dist.	to Observer:	92.0 feet		N	oise Source	Elevatio		eet)		
Barrier Distance	to Observer:	0.0 feet			AL	nos: (	0.000			
Observer Height	(Above Pad):	5.0 feet			Wealum Tru	CKS:	2.297	Grada Ad	iustmont	0.0
P	ad Elevation:	0.0 feet			Heavy Iru	CKS: 0	3.004	Grade Auj	usunem.	0.0
Ro	ad Elevation:	0.0 feet		Li	ane Equival	ent Dista	nce (in	feet)		
	Road Grade:	0.0%			AL	itos: 8	3.475			
	Left View:	-90.0 degree	es		Medium Tru	cks: 8	3.368			
	Right View:	90.0 degree	es		Heavy Tru	cks: 8	3.379			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distan	се	Finite Road	Fre.	snel	Barrier Att	en Ber	m Atten
Autos:	71.78	4.33		-3.44	-1.2	0	-4.76	0.0	000	0.000
										0.000
Medium Trucks:	82.40	-19.89		-3.43	-1.2	0	-4.88	0.0	000	0.000
Medium Trucks: Heavy Trucks:	82.40 86.40	-19.89 -15.30		-3.43 -3.43	-1.2 -1.2	:0 :0	-4.88 -5.18	0.0 0.0	000	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois	82.40 86.40 e Levels (with	-19.89 -15.30 out Topo and	barrier a	-3.43 -3.43 ttenu	-1.2 -1.2 ation)	:0 :0	-4.88 -5.18	0.0	000	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	82.40 86.40 e Levels (with Leq Peak Hou	-19.89 -15.30 out Topo and Ir Leq Day	barrier a	-3.43 -3.43 • <b>ttenu</b> eq Eve	-1.2 -1.2 H <b>ation)</b> Ening Lo	0 0 eq Night	-4.88 -5.18	0.0 0.0 Ldn	000 000 <i>CI</i>	0.000
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	82.40 86.40 <u>e Levels (with</u> Leq Peak Hou 71	-19.89 -15.30 out Topo and Ir Leq Day .5	barrier a	-3.43 -3.43 ttenu eq Eve	-1.2 -1.2 nation) ening Lo 67.8	0 0 eq Night 63	-4.88 -5.18	0.0 0.0 <i>Ldn</i> 71.5	000 000 <i>CI</i>	0.000 0.000 <u>VEL</u> 71.9
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	82.40 86.40 e Levels (with Leq Peak Hou 71 57	-19.89 -15.30 out Topo and r Leq Day .5 .9	<i>barrier a</i> / Le 69.2 55.6	-3.43 -3.43 ttenu eq Eve	-1.2 -1.2 ening Lo 67.8 50.6	0 0 eq Night 63 52	-4.88 -5.18 .8	0.0 0.0 <i>Ldn</i> 71.5 59.1	000 000 <i>C1</i>	0.000 0.000 VEL 71.9 59.2
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	82.40 86.40 e Levels (with Leg Peak Hou 71 57 66	-19.89 -15.30 out Topo and r Leq Day .5 .9 .5	barrier a / Le 69.2 55.6 64.6	-3.43 -3.43 t <b>tenu</b> eq Eve	-1.2 -1.2 ening Lu 67.8 50.6 59.4	0 0 eq Night 63 52 59	-4.88 -5.18 .8 .1 .0	0.0 0.0 <u>Ldn</u> 71.5 59.1 66.6	000 000 <i>CI</i>	0.000 0.000 VEL 71.9 59.2 66.8
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	82.40 86.40 e Levels (with Leq Peak Hou 71 57 66 72	-19.89 -15.30 out Topo and ir Leq Day .5 .5 .8	barrier a / Le 69.2 55.6 64.6 70.6	-3.43 -3.43 ttenu eq Eve	-1.2 -1.2 ening Lu 67.8 50.6 59.4 68.5	0 0 eq Night 63 52 59 65	-4.88 -5.18 0.8 0.1 0.0 0.3	0.0 0.0 71.5 59.1 66.6 72.9	000 000 <i>CI</i>	0.000 0.000 <u>VEL</u> 71.9 59.2 66.8 73.3
Medium Trucks: Heavy Trucks: Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	82.40 86.40 e Levels (with Leg Peak Hou 71 57 66 72 ce to Noise Co	-19.89 -15.30 out Topo and ir Leq Day .5 .9 .5 .8 ontour (in feet	barrier a / Le 69.2 55.6 64.6 70.6 )	-3.43 -3.43 ttenu	-1.2 -1.2 Paning Lu 67.8 50.6 59.4 68.5	0 0 <i>eq Night</i> 63 52 59 65	-4.88 -5.18 	0.0 0.0 71.5 59.1 66.6 72.9	000 000 5 5	0.000 0.000 VEL 71.9 59.2 66.8 73.3
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	82.40 86.40 e Levels (with Leq Peak Hou 71 57 66 72 cce to Noise Co	-19.89 -15.30 out Topo and ir Leg Day .5 .9 .5 .5 .8 ontour (in feet	barrier a / Le 69.2 55.6 64.6 70.6 )	-3.43 -3.43 ttenu eq Eve 70 dE	-1.2 -1.2 ation) ening Lu 67.8 50.6 59.4 68.5 	0 0 60 63 52 59 65 65 65 65	-4.88 -5.18 .8 .1 .0 .3	0.0 0.0 71.5 59.1 66.6 72.5	000 000 C <i>I</i> 5 5 5 5 5 5 5 5 5	0.000 VEL 71.9 59.2 66.8 73.3 dBA
Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	82.40 86.40 e Levels (with Leq Peak Hou 71 57 66 72 cce to Noise Co	-19.89 -15.30 out Topo and ir Leg Day 5 .9 .5 .8 ontour (in feet	barrier a / Le 69.2 55.6 64.6 70.6 ) Ldn:	-3.43 -3.43 <u>ttenu</u> eq Eve 70 dE 143	-1.2 -1.2 ening Lu 67.8 50.6 59.4 68.5 BA 68.5	0 0 <i>eq Night</i> 63 52 55 65 65 65 35 <i>dBA</i> 308	-4.88 -5.18 	0.0 0.0 71.5 59.1 66.6 72.5 60 dBA 663	000 000 Cr 5 5 5 9 55 1,'	0.000 VEL 71.9 59.2 66.8 73.3 dBA 429

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	FH\	VA-RD-77-108 H	IIGHWA	Y NC	ISE P	REDICTI	ON MO	DEL			
Scenar	<i>io:</i> EA 2020 W	ithout Project				Project	Name:	KTM			
Road Nan	ne: Auld Rd.					Job Ni	umber:	11624			
Road Segme	nt: e/o Winche	ster Rd. (SR-79	)								
SITE	SPECIFIC IN	IPUT DATA				N	OISE I	NODE	L INPUT	s	
Highway Data				Si	te Cor	ditions	(Hard =	10, Se	oft = 15)		
Average Daily	Traffic (Adt):	8,199 vehicles	5					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	icks (2 /	Axles):	15		
Peak H	lour Volume:	820 vehicles			He	avy Truc	ks (3+ /	Axles):	15		
Ve	hicle Speed:	40 mph		V	hiclo	Mix					
Near/Far La	ne Distance:	36 feet		-	Veh	icleTvpe		Dav	Evenina	Night	Dailv
Site Data				+		A	utos:	71.5%	13.0%	15.5%	98.56%
Ra	rrier Heiaht <sup>.</sup>	0.0 feet		1	М	edium Tr	ucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-V	Vall, 1-Berm):	0.0			1	Heavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	ist. to Barrier:	50.0 feet		N	oise S	ource El	evation	s (in f	eet)		
Centerline Dist.	to Observer:	50.0 feet				Autos	. 0.	000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	2	297			
Observer Height	(Above Pad):	5.0 feet			Heav	/v Trucks	. 8.	004	Grade Ad	justment	: 0.0
P	ad Elevation:	0.0 feet									
Ro	ad Elevation:	0.0 feet		Lá	ane Eq	uivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 46.	915			
	Left View:	-90.0 degrees	3		Mediu	m Trucks	:: 46.	726			
	Right View:	90.0 degrees	6		Heav	/y Trucks	: 46.	744			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distance	е	Finite	Road	Fresr	nel	Barrier Att	en Ber	rm Atten
Autos:	66.51	-2.25	0	).31		-1.20		-4.65	0.0	000	0.00
Medium Trucks:	77.72	-26.47	0	).34		-1.20		-4.87	0.0	000	0.00
Heavy Trucks:	82.99	-21.89	0	).34		-1.20		-5.43	0.0	000	0.00
Unmitigated Nois	e Levels (with	out Topo and b	arrier att	enu	ation)						
VehicleType	Leq Peak Hou	ır Leq Day	Leq	Eve	ening	Leq I	Vight		Ldn	C	NEL
Autos:	63	.4 6	1.1		59.7		55.7	7	63.4	4	63.
Medium Trucks:	50	.4 4	8.1		43.1		44.6	6	51.6	6	51.
Heavy Trucks:	60	.2 5	8.4		53.1		52.8	3	60.4	1	60.0
Vehicle Noise:	65	.2 6	3.1		60.7		57.7	7	65.3	3	65.
Centerline Distan	ce to Noise C	ontour (in feet)	-	10 -15		05	10.4	ı .	0.404		-10.4
		,	/	U dE	5A	65 0	1BA 2		112	55	aBA
			un: =1 ·	24		5	∠ ۵		113	2	143 059
		CIVI	EL.	20		5	D		120	4	200

	FH)	NA-RD-77-108	HIGHWA	Y NOIS	E PREDICTI	ON MOD	EL			
Scenar Road Narr Road Segme	io: EA 2020 W e: Sparkman nt: e/o Winche	/ithout Project Wy. ester Rd. (SR-79	))		Project Job Nu	Name: K umber: 1	TM 1624			
SITE	SPECIFIC IN	IPUT DATA			N	OISE M	ODEL	INPUTS	6	
Highway Data				Site	Conditions (	(Hard = 1	10, Sof	ft = 15)		
Average Daily	Traffic (Adt):	1,234 vehicle	s			A	utos:	15		
Peak Hour	Percentage:	10%			Medium Tru	icks (2 A)	xles):	15		
Peak H	lour Volume:	123 vehicles			Heavy Truc	ks (3+ A)	xles):	15		
Ve	hicle Speed:	40 mph		Veh	icle Mix					
Near/Far La	ne Distance:	12 feet		ven	VehicleTvpe	L	Dav	Evenina	Night	Dailv
Site Data					A	utos: 7	1.5%	13.0%	15.5%	98.56%
Ba	rrier Height	0.0 feet			Medium Tr	ucks: 7	0.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			Heavy Tr	ucks: 7	7.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	30.0 feet		Nois	e Source El	ovations	(in for	af)		
Centerline Dist.	to Observer:	30.0 feet		110/3	Autos	. 0.0	00	50		
Barrier Distance	to Observer:	0.0 feet		M	edium Trucks	: 0.0	97			
Observer Height	Above Pad):	5.0 feet			Heavy Trucks	· 2.2	04 (	Grade Adi	ustment	0.0
Pa	ad Elevation:	0.0 feet			ioury muono	. 0.0				
Roi	ad Elevation:	0.0 feet		Lane	e Equivalent	Distance	e (in fe	eet)		
	Road Grade:	0.0%			Autos	: 29.8	16			
	Left View:	-90.0 degree	s	M	edium Trucks	8: 29.5	18			
	Right View:	90.0 degree	s		Heavy Trucks	29.5	47			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distanc	e F	inite Road	Fresne	el E	Barrier Atte	en Ber	m Atten
Autos:	66.51	-10.48	3	3.26	-1.20	-	4.49	0.0	00	0.000
Medium Trucks:	77.72	-34.70	3	3.33	-1.20	-	4.86	0.0	00	0.000
Heavy Trucks:	82.99	-30.11	3	3.32	-1.20	-	5.77	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and I	parrier at	tenuati	on)					
VehicleType	Leq Peak Ho	ır Leq Day	Leq	l Evenii	ng Leq I	Night	1	Ldn	CI	VEL
Autos:	58	.1 5	5.9	:	54.5	50.5		58.1		58.6
Medium Trucks:	45	.1 4	2.8	;	37.9	39.4		46.3		46.5
Heavy Trucks:	55	.0 5	3.1		47.9	47.6		55.1		55.3
Vehicle Noise:	60	.0 5	7.8		55.4	52.5		60.1		60.4
Centerline Distan	ce to Noise C	ontour (in feet)								
			. 7	r0 dBA	65 0	1BA	60	) dBA	55	dBA
			an:	7	1-	4		30	6	55
		CN	EL:	1	1:	C		32	6	99

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	FH\	WA-RD-77-108	BHIGH	NAY NC	DISE P	REDICTI		DEL		_	
Scenar Road Nam Road Segme	io: EA 2020 W ne: Robert Tre nt: w/o Winch	/ithout Project nt Jones Pkwy ester Rd. (SR-	79)			Project Job Ni	Name: I umber:	KTM 11624			
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	/IODE	L INPUTS	5	
Highway Data				Si	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	3,518 vehicl	es					Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tru	icks (2 A	xles):	15		
Peak H	lour Volume:	352 vehicle	s		He	eavy Truc	ks (3+ A	(xles)	15		
Ve	hicle Speed:	40 mph		Ve	ehicle	Mix					
Near/Far La	ne Distance:	12 feet		-	Veh	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	71.5%	5 13.0%	15.5%	98.56%
Ba	rrier Height:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24.0%	6.37%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	30.0 feet		N	oise S	ource El	evation	s (in f	eet)		
Centerline Dist.	to Observer:	30.0 feet				Autos	: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	: 2.2	297			
Observer Height (	Above Pad):	5.0 feet			Hear	vy Trucks	: 8.0	004	Grade Adj	ustmen	t: 0.0
Pa	ad Elevation:	0.0 feet		-							
Roa	ad Elevation:	0.0 feet		La	ane Eq	uivalent	Distand	ce (in	feet)		
	Road Grade:	0.0%				Autos	.: 29.8	316			
	Left View:	-90.0 degre	es		Mediu	m Trucks	: 29.	518			
	Right View:	90.0 degre	es		Hea	y Trucks	29.	547			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	66.51	-5.93		3.26		-1.20		-4.49	0.0	00	0.000
Medium Trucks:	77.72	-30.15		3.33		-1.20		-4.86	0.0	00	0.000
Heavy Trucks:	82.99	-25.57		3.32		-1.20		-5.77	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	r attenu	ation)			1			
Vehicle I ype	Leq Peak Hou	ur Leq Da	y i	Leq Eve	ening	Leq I	Vight		Ldn	C	NEL
Autos:	62		60.4		59.0		55.0		62.6		63.1
Medium Trucks:	49	1.7	47.4		42.4		44.0		50.9		51.1
Vehicle Noise:	55	1.5	62.4		52.5		52.1	1	59.7 64.6		59.9 65.0
Centerline Distan	ce to Noise C	ontour (in fee	t)				2.10		2.110		20.0
			~	70 dE	BA	65 0	/BA		60 dBA	55	5 dBA
			Ldn:	13		2	8		61		131
		С	NEL:	14		3	0		65		139

	FH\	VA-RD-77-108	HIGHW	AY N	OISE PR	EDICTI	ON MO	DEL			
Scenar	<i>io:</i> EA 2020 W	ithout Project				Project	Name:	KTM			
Road Nan	ne: Murrieta Ho	ot Springs Rd.				Job Ni	umber:	11624			
Road Segme	nt: w/o Winche	ester Rd. (SR-7	'9)								
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	/ODE	L INPUT	5	
Highway Data				S	Site Con	ditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	41,834 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Med	dium Tru	icks (2 A	Axles):	15		
Peak H	lour Volume:	4,183 vehicle	s		Hea	avy Truc	ks (3+ A	Axles):	15		
Ve	hicle Speed:	45 mph		ν	ehicle N	/ix					
Near/Far La	ne Distance:	12 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	71.5%	5 13.0%	15.5%	98.56%
Ba	rrier Height:	0.0 feet			Me	dium Tr	ucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-V	Vall. 1-Berm):	0.0			h	leavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	ist. to Barrier:	37.0 feet			loiso So	urco El	ovation	e (in f	oot)		
Centerline Dist.	to Observer:	37.0 feet		-	10/36 30	Autor		3 (III I	eel)		
Barrier Distance	to Observer:	0.0 feet			Modium	Autos n Trucka	. 0.1	207			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks	. 2.	201	Grade Ad	iustment	0.0
P	ad Elevation:	0.0 feet			neav,	y mucho	. 0.	504	,		0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	iivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 36.	851			
	Left View:	-90.0 degre	es		Mediun	n Trucks	: 36.	610			
	Right View:	90.0 degre	es		Heav	y Trucks	: 36.	634			
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	ice	Finite	Road	Fresr	nel	Barrier Att	en Ber	m Atten
Autos:	68.46	4.31		1.88		-1.20		-4.56	0.0	000	0.000
Medium Trucks:	79.45	-19.91		1.93		-1.20		-4.87	0.0	000	0.000
Heavy Trucks	94.25	-15.32		1.92		-1.20		-5.61	0.0	000	0.000
moury maono.	04.20										
Unmitigated Nois	e Levels (with	out Topo and	barrier a	attenu	uation)						
Unmitigated Nois VehicleType	e Levels (with Leq Peak Hou	out Topo and Ir Leq Day	barrier a	etten. Ev	uation) ening	Leq I	Vight		Ldn	CI	VEL
Unmitigated Nois VehicleType Autos:	e Levels (with Leq Peak Hou 73	out Topo and Ir Leq Day .5	<i>barrier a</i> / <i>L</i> e 71.2	attenu eq Ev	ening 69.8	Leq I	Vight 65.8	3	Ldn 73.4	CI	VEL 73.9
Unmitigated Nois VehicleType Autos: Medium Trucks:	e Levels (with Leq Peak Hou 73 60	out Topo and Ir Leq Day .5 .3	<i>barrier a</i> / <i>Le</i> 71.2 58.0	attenu əq Ev	ening 69.8 53.0	Leq I	Vight 65.8 54.5	3	Ldn 73.4 61.5	CI L	VEL 73.9 61.6
Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	e Levels (with Leq Peak Hou 73 60	out Topo and Ir Leq Day .5 .3 .7	<i>barrier a</i> / <i>Le</i> 71.2 58.0 67.8	attenu eq Ev	<i>ening</i> 69.8 53.0 62.6	Leq I	Vight 65.8 54.5 62.2	3	Ldn 73.4 61.5 69.8	C1	VEL 73.9 61.6 70.0
Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	e Levels (with Leg Peak Hou 73 60 69 75	out Topo and Ir Leq Day .5 .3 .7 .1	barrier a / Le 71.2 58.0 67.8 73.0	eq Ev	ening 69.8 53.0 62.6 70.6	Leq I	Vight 65.8 54.5 62.2 67.6	3	Ldn 73.4 61.5 69.8 75.2	<i>CI</i>	VEL 73.9 61.6 70.0 75.6
Unmitigated Nois Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 73 60 69 75 ce to Noise Co	out Topo and Ir Leq Day .5 .3 .7 .1 ontour (in feet	barrier a / Le 71.2 58.0 67.8 73.0	attenu eq Ev	ening 69.8 53.0 62.6 70.6	Leq I	Vight 65.8 54.5 62.2 67.6	3	Ldn 73.4 61.5 69.8 75.2		VEL 73.9 61.6 70.0 75.6
Unnitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 73 60 69 75 ce to Noise Co	out Topo and Ir Leq Day .5 .3 .7 .1 Dontour (in feet	barrier a / Le 71.2 58.0 67.8 73.0 )	attenu eq Ev 70 d	uation) ening 69.8 53.0 62.6 70.6 BA	Leq 1	Vight 65.8 54.5 62.2 67.6	3	Ldn 73.4 61.5 69.8 75.2	C/	VEL 73.9 61.6 70.0 75.6 dBA
Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leg Peak Hou 73 60 69 75 ce to Noise Co	out Topo and Ir Leq Day 5 3 7 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1	barrier a / Le 71.2 58.0 67.8 73.0 ) Ldn:	70 d.	<i>uation)</i> ening 69.8 53.0 62.6 70.6 <i>BA</i>	Leq 1 65 0	Vight 65.8 54.5 62.2 67.6 IBA 7	3	Ldn 73.4 61.5 69.8 75.2 60 dBA 381	C/	VEL 73.9 61.6 70.0 75.6 dBA 20

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	FHV	VA-RD-77-108	HIGHW	/AY N	OISE PI	REDICT		DEL			
Scenar Road Nan Road Segme	rio: EA 2020 W ne: Winchester ent: n/o Auld Ro	ith Project Rd. (SR-79) I.				Project Job N	Name: lumber:	KTM 11624			
SITE	SPECIFIC IN	IPUT DATA				N	IOISE	MODE	L INPUT	s	
Highway Data				9	Site Cor	ditions	(Hard =	= 10, Sc	oft = 15)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: Hour Volume:	48,377 vehicle 10% 4,838 vehicles	is		Me He	dium Tr avy Tru	ucks (2 cks (3+	Autos: Axles): Axles):	15 15 15		
Ve	ehicle Speed:	55 mph		1	/ohiclo	Mix					
Near/Far La	ane Distance:	78 feet		-	Veh	icleType		Dav	Evenina	Night	Daily
Site Data				_	VCI	ioic rypc	Autos:	71.5%	13.0%	15.5%	98.57%
0.00 2010		0.0 ()			м	edium T	rucks:	70.4%	5.6%	24.0%	0.37%
ва Barrier Type (0-И	Vall, 1-Berm):	0.0 feet			1	leavy T	rucks:	77.8%	5.9%	16.3%	1.06%
Centerline Di	ist. to Barrier:	92.0 feet		٨	Voise S	ource E	levatior	ns (in fe	eet)		
Centerline Dist.	to Observer:	92.0 feet				Auto	s: 0	.000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	s: 2	.297			
Observer Height	(Above Pad):	5.0 feet			Heav	v Truck	s: 8	.004	Grade Ad	justment	: 0.0
P	ad Elevation:	0.0 feet					Distan		( 4)		
Ro	ad Elevation:	0.0 feet		1	.ane Eq	uivalen	t Distar	ice (in i	reet)		
	Road Grade:	0.0%				Auto	s: 83	.475			
	Left View: Right View:	-90.0 degree 90.0 degree	is is		Mediu Heav	m Truck ry Truck	s: 83 s: 83	.368 .379			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fres	nel	Barrier Att	en Ber	m Atten
Autos:	71.78	4.07		-3.44	Ļ	-1.20		-4.76	0.0	000	0.00
Medium Trucks:	82.40	-20.20		-3.43	3	-1.20		-4.88	0.0	000	0.00
Heavy Trucks:	86.40	-15.60		-3.43	3	-1.20		-5.18	0.0	000	0.00
Unmitigated Nois	e Levels (with	out Topo and	barrier	atten	uation)						
VehicleType	Leq Peak Hou	ir Leq Day	L	.eq Ev	rening	Leq	Night		Ldn	C	NEL
Autos:	71	.2 (	69.0		67.6		63.	6	71.:	2	71.
Medium Trucks:	57	.6	55.3		50.3		51.	8	58.	3	58.
Heavy Trucks:	66	.2 (	64.3		59.1		58.	8	66.	3	66.
Vehicle Noise:	72	.5	70.4		68.2		65.	0	72.	6	73.
Centerline Distan	ce to Noise Co	ontour (in feet)		70 d	IRA	65	dBA	F	0 dBA	55	dBA
			dn.	13	7	2	95	1 0	636	1 30	371
		CI	IEL:	14	6	3	14		677	1,	460

	FH\	WA-RD-77-108 HIC	GHWAY I	NOISE PF	REDICTIO	N MODEL			
Scenar Road Nam Road Segme	io: EA 2020 W ne: Winchester nt: s/o Auld Ro	/ith Project r Rd. (SR-79) d.			Project N Job Nur	ame: KTM nber: 1162	4		
SITE	SPECIFIC IN	IPUT DATA			NC	ISE MOD	EL INPUT	s	
Highway Data				Site Con	ditions (H	lard = 10, S	Soft = 15)		
Average Daily	Traffic (Adt):	51,824 vehicles				Autos	s: 15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Axles	): 15		
Peak H	lour Volume:	5,182 vehicles		He	avy Truck	s (3+ Axles	): 15		
Ve	hicle Speed:	55 mph	ŀ	Vehicle I	Mix				
Near/Far La	ne Distance:	78 feet	ŀ	Veh	icleType	Dav	Evenina	Night	Daily
Site Data					Au	tos: 71.5	% 13.0%	15.5%	98.57%
Ba	rrier Heiaht <sup>.</sup>	0.0 feet		Me	edium Tru	cks: 70.4	% 5.6%	24.0%	0.37%
Barrier Type (0-W	/all. 1-Berm):	0.0		ŀ	leavy Tru	cks: 77.8	% 5.9%	16.3%	1.06%
Centerline Di	st. to Barrier:	92.0 feet	ŀ	Noiso Se		ations (in	foot)		
Centerline Dist.	to Observer:	92.0 feet	-	NOISE SU	Autor	0.000	leel)		
Barrier Distance	to Observer:	0.0 feet		Modiu	m Trucks:	2 207			
Observer Height	Above Pad):	5.0 feet		Heav	n Trucks.	8 004	Grade Ad	iustment:	0.0
Pa	ad Elevation:	0.0 feet		neav	y mucho.	0.004	0/000/10	Juoumonia	0.0
Roi	ad Elevation:	0.0 feet		Lane Eq	uivalent L	Distance (ir	1 feet)		
	Road Grade:	0.0%			Autos:	83.475			
	Left View:	-90.0 degrees		Mediur	m Trucks:	83.368			
	Right View:	90.0 degrees		Heav	y Trucks:	83.379			
FHWA Noise Mod	el Calculation	IS							
VehicleType	REMEL	Traffic Flow D	Distance	Finite	Road	Fresnel	Barrier Att	en Berr	n Atten
Autos:	71.78	4.37	-3.4	4	-1.20	-4.76	6 0.0	000	0.000
Medium Trucks:	82.40	-19.90	-3.4	3	-1.20	-4.88	3 0.0	000	0.000
Heavy Trucks:	86.40	-15.30	-3.4	3	-1.20	-5.18	3 0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and bar	rier atter	nuation)					
VehicleType	Leq Peak Hou	ur Leq Day	Leq E	vening	Leq N	ight	Ldn	CN	IEL
Autos:	71	.5 69.3	3	67.9		63.9	71.	5	72.0
Medium Trucks:	57	.9 55.6	6	50.6		52.1	59.1	1	59.2
Heavy Trucks:	66	6.5 64.6	6	59.4		59.1	66.0	6	66.8
Vehicle Noise:	72	2.8 70.7	7	68.5		65.3	72.9	Э	73.3
Centerline Distan	ce to Noise C	ontour (in feet)							
			70	dBA	65 dE	BA	60 dBA	55 (	dBA
		Ldn	c 1-	144 309 666 1,4			35		
		CNEL	: 1	53	329	)	709	1,5	28

Tuesday, August 14, 2018

	FH\	VA-RD-77-108	HIGHV	VAY NC	DISE P	REDICT	ION MO	DEL			
Scenar Road Nan Road Segme	rio: EA 2020 W ne: Winchester ent: s/o Sparkm	'ith Project r Rd. (SR-79) nan Wy.				Project Job N	Name: lumber:	KTM 11624	Ļ		
SITE	SPECIFIC IN	IPUT DATA				P	IOISE N	/IODE	L INPUT	s	
Highway Data				Si	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	55,337 vehicl	es					Autos	15		
Peak Hour	Percentage:	10%			Me	edium Tr	ucks (2 A	(xles	: 15		
Peak H	lour Volume:	5,534 vehicle	s		He	eavy Tru	cks (3+ A	(xles	: 15		
Ve	ehicle Speed:	55 mph		Ve	ehicle	Mix					
Near/Far La	ane Distance:	78 feet		Ē	Veh	nicleTvpe	e	Dav	Evenina	Niał	nt Dailv
Site Data							Autos:	71.5%	6 13.0%	15.	5% 98.56%
Ba	rrier Height:	0.0 feet			М	edium T	rucks:	70.4%	6 5.6%	24.0	0% 0.37%
Barrier Type (0-V	Vall, 1-Berm):	0.0				Heavy T	rucks:	77.8%	6 5.9%	16.3	3% 1.07%
Centerline Di	ist. to Barrier:	92.0 feet		N	oise S	ource E	levation	s (in i	eet)		
Centerline Dist.	to Observer:	92.0 feet				Auto	s: 0.0	200			
Barrier Distance	Barrier Distance to Observer: 0.0 feet				Mediu	m Truck	s: 2.3	297			
Observer Height (Above Pad): 5.0 feet				Hea	v Truck	s: 8.0	004	Grade Ad	iustm	ent: 0.0	
Pad Elevation: 0.0 feet									,		
Ro	ad Elevation:	0.0 feet		Lá	ane Eq	uivalen	t Distan	ce (in	feet)		
	Road Grade:	0.0%				Auto	s: 83.	475			
	Left View:	-90.0 degre	es		Mediu	m Truck	s: 83.	368			
	Right View:	90.0 degre	es		Hear	vy Truck	s: 83.	379			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresr	iel	Barrier Atte	en l	Berm Atten
Autos:	71.78	4.66		-3.44		-1.20		-4.76	0.0	00	0.000
Medium Trucks:	82.40	-19.57		-3.43		-1.20		-4.88	0.0	00	0.000
Heavy Trucks:	86.40	-14.98		-3.43		-1.20		-5.18	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Hou	ir Leq Daj	/ 1	Leq Eve	ening	Leq	Night		Ldn		CNEL
Autos:	71	.8	69.6		68.2		64.2	-	71.8	3	72.3
Medium Trucks:	58	.2	55.9		50.9		52.5		59.4		59.6
Heavy Trucks:	66	.8	64.9 71.0		59.7		59.4		66.9	)	67.1
Controlling Distor	7.5		71.0		00.0		03.0	,	13.2		73.0
Centerine Distan	Ce LU NOISE CI	uniour (in teel	9	70 dF	BA	65	dBA		60 dBA		55 dBA
			Ldn:	150	)	3	24		697	1	1,502
	CNEL:			160	)	3	44		742		1,599

	FHV	VA-RD-77-108	HIGH\	NAY N	OISE PF	REDICTIO	N MOE	DEL			
Scenar	io: EA 2020 W	ith Project				Project N	ame: K	TM			
Road Nan	ne: Winchester	Rd. (SR-79)				Job Nur	nber: 1	1624			
Road Segme	nt: s/o Hunter I	Rd.									
SITE	SPECIFIC IN	PUT DATA				NC	ISE M	ODE		s	
Highway Data				5	Site Con	ditions (H	lard = '	10, So	ft = 15)		
Average Daily	Traffic (Adt):	61,895 vehicle	es				A	utos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	6,189 vehicle	S		Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	55 mph		1	/ehicle I	Nix					
Near/Far La	ne Distance:	78 feet		F	Vehi	cleTvpe	1	Dav	Evenina	Niaht	Dailv
Site Data				Au	tos: 7	71.5%	13.0%	15.5%	98.56%		
Pa	rrior Hoight:	0.0 foot			Me	dium Tru	cks: 7	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-M	/all_1_Borm):	0.0 1001			F	leavy Tru	cks: 1	77.8%	5.9%	16.3%	1.07%
Centerline Di	st to Barrier:	92.0 feet									
Centerline Dist.	to Observer:	92.0 feet		/	loise So	ource Elev	vations	(in fe	et)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Trucks:	2.2	97			
P	ad Flevation:			Heav	y Trucks:	8.0	04	Grade Adj	ustment:	0.0	
Ro	ad Elevation:		L	ane Equ	uivalent L	Distanc	e (in f	eet)			
	Road Grade:	0.0%				Autos:	83.4	75			
	Left View:	-90.0 deare	-s		Mediur	n Trucks:	83.3	68			
	Right View:	90.0 degree	es		Heav	y Trucks:	83.3	79			
	0										
FHWA Noise Mod	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fresne	el i	Barrier Att	en Ber	m Atten
Autos:	71.78	5.14		-3.44		-1.20	-	4.76	0.0	000	0.000
Medium Trucks:	82.40	-19.09		-3.43	5	-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	86.40	-14.51		-3.43	5	-1.20	-	5.18	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	ening	Leq N	ight		Ldn	CI	VEL
Autos:	72	.3	70.0		68.6		64.6		72.3	3	72.8
Medium Trucks:	58	.7	56.4		51.4		52.9		59.9	9	60.0
Heavy Trucks:	67.	.3	65.4		60.2		59.8		67.4	1	67.6
Vehicle Noise:	73	.6	71.5		69.3		66.1		73.7	7	74.1
Centerline Distan	ce to Noise Co	ontour (in feet	)								
-				70 a	BA	65 dE	BA	6	0 dBA	55	dBA
			Ldn:	16	2	348			751	1,0	617
	CNEL:			17	2	371			799	1,	722

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	FHV	VA-RD-77-108	HIGHW	VAY N	IOISE PI	REDICTI	ON MC	DDEL				
Scenario: Road Name: Road Segment:	EA 2020 W Winchester s/o Techno	ith Project Rd. (SR-79) logy Dr.				Project Job N	Name: Imber:	KTM 11624	ŀ			
SITE SP	ECIFIC IN	PUT DATA				N	OISE	MODE	L INPU	TS		
Highway Data				;	Site Con	ditions	'Hard =	= 10, S	oft = 15)			
Average Daily Tra Peak Hour Pe Peak Hour	ffic (Adt): rcentage: r Volume:	59,637 vehicle 10% 5,964 vehicles	s		Me He	dium Tru avy Truc	cks (2 ks (3+	Autos: Axles): Axles):	15 15 15			
Vehic	le Speed:	55 mph		-	Vehiele							
Near/Far Lane	Distance:	78 feet		-	Venicie I Veh	icleType		Dav	Evening	Nia	ht	Dailv
Site Data					ven	A	utos:	71.5%	6 13.0%	15	5%	98.56%
Barria	r Hoimhti	0.0 (act			M	edium Tr	ucks:	70.4%	6 5.6%	24.	0%	0.37%
Barrier Type (0-Wall,	1-Berm):	0.0 1001			ŀ	Heavy Tr	ucks:	77.8%	6 5.9%	5 16.	3%	1.079
Centerline Dist. t	o Barrier:	92.0 feet			Noise Si	ource El	avatio	ne (in f	(aat)			
Centerline Dist. to	Observer:	92.0 feet		F	10/30 00	Autos	. 0	000	001/			
Barrier Distance to	Barrier Distance to Observer: 0.0 feet					m Trucks	. 0	207				
Observer Height (Above Pad): 5.0 feet					Hoo	n Trucks	. <u>2</u>	004	Grade A	diustm	ent <sup>.</sup>	0.0
Pad		near	y mucho	. 0	.004	0/000/	ajaoan	0///1.	0.0			
Road I	1	Lane Eq	uivalent	Distar	nce (in	feet)						
Roa	ad Grade:	0.0%				Autos	: 83	.475				
l	eft View:	-90.0 degree	s		Mediu	m Trucks	: 83	.368				
Ri	ght View:	90.0 degree	s		Heav	ry Trucks	: 83	.379				
FHWA Noise Model C	Calculation	s		-								
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fres	nel	Barrier A	tten	Berr	m Atten
Autos:	71.78	4.98		-3.44	4	-1.20		-4.76	C	.000		0.00
Medium Trucks:	82.40	-19.25		-3.43	3	-1.20		-4.88	C	.000		0.00
Heavy Trucks:	86.40	-14.66		-3.43	3	-1.20		-5.18	C	.000		0.00
Unmitigated Noise L	evels (with	out Topo and	barrier	atten	uation)							
VehicleType Le	q Peak Hou	r Leq Day	L	Leq Ei	vening	Leq I	Vight		Ldn		C٨	IEL
Autos:	72	.1 6	6.9		68.5		64.	5	72	.1		72.
Medium Trucks: 58.5 56.2					51.2		52.	8	59	.7		59.
Heavy Trucks: 67.1 65.2					60.0		59.	7	67	.2		67.
Vehicle Noise:	73	.5	71.3		69.1		65.	9	73	1.5		73.
Centerline Distance	o Noise Co	ontour (in feet)										
				70 /	dRΔ	65 (	łRΔ		60 dBA		55	dBA
			Ldn:			00 0	ыл		00 00/1			
			dn:	15	58	34	0		732		1,5	578

Scenario:         EA 2020 With Project         Project Name:         KTM           Road Name:         Wintrieta Hot Springs Rd.         Job Number:         11624           Site Specific INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt):         51,661 vehicles         Autos::         15           Peak Hour Percentage:         10%         Medium Trucks: (24 ke):         15           Peak Hour Volume:         5,166 vehicles         Autos::         15           Vehicle Speed:         55 mph         Medium Trucks: (24 ke):         15           Site Data         Autos::         71.5%         13.0%         15.5%           Barrier Type (0-Wall, 1-Barm):         0.0 feet         Medium Trucks:         70.4%         5.6%         24.0%         0.           Barrier Dist. to Doserver:         92.0 feet         Autos::         71.5%         13.0%         15.3%         15           Pad Elevation:         0.0 feet         Noise Source Elevations (in feet)         Autos::         2.297           Observer Height (Above Pad):         5.0 feet         Heavy Trucks:         83.345         Heavy Trucks:         83.368           Heavy Trucks:         83.3		FH\	NA-RD-77-108	HIGHW	AY NO	DISE PF	REDICTIO	N MO	DEL				
Road Name:         Winchester RA (SR-79)         Job Number:         11624           Road Segment:         s/or Murriteta Hot Springs Rd.         NOISE MODEL         INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)         Autos:         15           Average Daily Traffic (Adt):         51,661 vehicles         Autos:         15           Peak Hour Procentage:         10%         Medium Trucks: (24 Axles):         15           Peak Hour Volume:         5,166 vehicles         Autos:         15           Vehicle Speed:         55 mph         Medium Trucks: (24 Axles):         15           Site Data         Autos:         13.0%         15.5%           Barrier Height:         0.0 feet         Autos:         71.5%         13.0%         15.5%           Barrier Distance to Observer:         92.0 feet         Autos:         0.000         Medium Trucks:         2.97           Observer Height (Above Pad):         5.0 feet         Autos:         83.475         Medium Trucks:         83.475           Left View:         -90.0 degrees         Medium Trucks:         83.368         Heavy Trucks:         83.379           FHWA Noise Model Calcutations         Vehicle Type         Instance         Finite Road         Fresnel         Barrier A	Scenar	io: EA 2020 W	ith Project				Project N	ame:	KTM				
Bada Segment: sio Murrieta Hoti Springs Rd.           Site SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt):         51,661 vehicles         Autos: 15           Peak Hour Opercentage:         10%         Hedium Trucks (2 Axles): 15           Peak Hour Opercentage:         10%         Hedium Trucks (2 Axles): 15           Vehicle Speed:         55 mph         Medium Trucks (2 Axles): 15           Near/Far Lane Distance:         78 feet         Vehicle Type         Day         Evening         Night         De           Site Data         Autos:         71.5%         13.0%         15.5%         98.           Barrier Type (0-Wall, 1-Berm):         0.0 feet         Medium Trucks:         0.0%         Heavy Trucks:         0.0%         14.00%         16.3%         1.1           Centerline Dist. to Barrier:         92.0 feet         Autos:         0.000         Medium Trucks:         8.004         Grade Adjustment:         0.0           Barrier Distance to Observer:         0.0 feet         Autos:         8.004         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Autos:         83.045         Heavy Trucks:         83.368	Road Nam	e: Winchester	r Rd. (SR-79)				Job Nur	nber:	11624				
SITE SPECIFIC INPUT DATA         NOISE MODEL INPUTS           Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt):         51,661 vehicles           Peak Hour Percentage:         10%           Peak Hour Percentage:         10%           Vehicle Speed:         55 mph           Near/Far Lane Distance:         78 feet           Vehicle Speed:         55 mph           Near/Far Lane Distance:         78 feet           Vehicle Mix         Medium Trucks (2 Axles):           Centerline Dist. to Barrier:         92.0 feet           Barrier Type (0-Wall, 1-Berm):         0.0           Centerline Dist. to Observer:         0.0 feet           Barrier Velight (Above Pad):         5.0 feet           Centerline Dist. to Observer:         0.0 feet           Road Grade:         0.0 feet           Reavy Trucks:         83.	Road Segme	nt: s/o Murrieta	a Hot Springs F	łd.									
Highway Data         Site Conditions (Hard = 10, Soft = 15)           Average Daily Traffic (Adt):         51,661 vehicles           Peak Hour Percentage:         10%           Peak Hour Volume:         5,166 vehicles           Vehicle Speed:         55 mph           Near/Far Lane Distance:         78 feet           Site Data         Autos:           Barrier Height:         0.0 feet           Barrier Type (0-Wall, 1-Berm):         0.0 feet           Barrier Distance to Observer:         92.0 feet           Observer Height (Above Pad):         5.0 feet           Pad Elevation:         0.0 feet           Road Grade:         0.0%           Left View:         90.0 degrees           Right View:         90.0 degrees           FHWA Noise Model Calculations           Vehicle Type         REMEL           Vehicle Type         Left View:           90.0 degrees         Fresnel           Heavy Trucks:         83.368           Heavy Trucks:         83.379           FHWA Noise Model Calculations         Vehicle Type           Vehicle Type         Left View:           90.0 degrees         Finite Road           Reavy Trucks:         83.368           Heavy	SITE	SPECIFIC IN	IPUT DATA				NO	ISE I	NODE	L INPU	TS		
Average Daily Traffic (Adt):         51,661 vehicles         Autos:         15           Peak Hour Opercentage:         10%         Medium Trucks (2 Axles):         15           Peak Hour Opure:         5,166 vehicles         Heavy Trucks (2 Axles):         15           Vehicle Speed:         55 mph         Vehicle Type         Day         Evening         Night         Do           Site Data         Vehicle Type         Day         Evening         Night         Do           Barrier Height:         0.0 feet         Autos:         71.5%         13.0%         15.5%         98.           Barrier Type (0-Wall, 1-Berm):         0.0         feet         Medium Trucks:         70.4%         5.5%         24.0%         0.           Barrier Distance to Observer:         0.0 feet         Moise Source Elevations (in feet)         60.00         10.3%           Road Elevation:         0.0 feet         Autos:         8.004         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Autos:         83.368         Heavy Trucks:         83.368           Heavy Trucks:         82.40         -19.89         -3.43         -1.20         -4.76         0.000         0           Heavy Trucks:         86.40 <td< th=""><th>Highway Data</th><th></th><th></th><th></th><th>S</th><th>ite Con</th><th>ditions (H</th><th>lard =</th><th>10, S</th><th>oft = 15)</th><th></th><th></th><th></th></td<>	Highway Data				S	ite Con	ditions (H	lard =	10, S	oft = 15)			
Peak Hour Volume:         5,166         vehicles         Medium Trucks:         15           Vehicle Speed:         55 mph         Heavy Trucks (2 Avles):         15           Site Data         Vehicle Speed:         55 mph           Barrier Tar Lane Distance:         78 feet         Vehicle Type         Day         Evening         Night         Dat           Barrier Type (0-Wall, 1-Berm):         0.0         editor         Medium Trucks:         0.0%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.5%         98.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%         10.3%         15.0%	Average Daily	Traffic (Adt):	51,661 vehicle	es					Autos:	15			
Peak Hour Volume:         5,166         vehicles           Vehicle Speed:         55         75         mph           Near/Far Lane Distance:         78         feet         Vehicle Mix           Site Data         Autos:         71.5%         13.0%         15.5%         98.           Barrier Height:         0.0         feet         Medium Trucks:         70.4%         5.6%         24.0%         0.0           Barrier Type (0-Wall, 1-Berm):         0.0         Medium Trucks:         70.4%         5.6%         24.0%         0.0           Centerline Dist. to Observer:         92.0 feet         Moles Source         1.000         Medium Trucks:         2.97         16.3%         1.1           Observer Height (Above Pad):         5.0 feet         Autos:         8.3.45         Medium Trucks:         8.0.04         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Left View:         90.0 degrees         Medium Trucks:         83.375           Heavy Trucks:         8.3.45         Medium Trucks:         83.375         Medium Trucks:         83.375           Left View:         90.0 degrees         Finite Road         Fresnel         Barrier Atten         Bern Attal           Autos:         71.78	Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 /	Axles):	15			
Vehicle Speed:         55 mph         Vehicle Mix           Site Data         Autos:         71.5%         13.0%         15.5%         98.           Barrier Height:         0.0 feet         Medium Trucks:         77.8%         5.9%         16.3%         10.5%         98.           Barrier Type (0-Wall, 1-Berm):         0.0         Medium Trucks:         77.8%         5.9%         16.3%         1.3           Centerline Dist. to Barrier:         92.0 feet         Medium Trucks:         77.8%         5.9%         16.3%         1.3           Barrier Distance to Observer:         92.0 feet         Moise Source Elevations (in feet)         Medium Trucks:         8.000         Medium Trucks:         8.004         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Medium Trucks:         8.3.475         Medium Trucks:         8.3.68           Road Grade:         0.0%         Autos:         83.368         Heavy Trucks:         83.368           Heavy Trucks:         82.40         -19.89         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Medium Trucks:	Peak H	lour Volume:	5,166 vehicles	S		Hea	avy Truck	s (3+ /	Axles):	15			
Near/Far Lane Distance:         78 feet         VehicleType         Day         Evening         Night         Date           Site Data         Autos:         71.5%         13.0%         15.5%         98.1           Barrier Type (0-Wall, 1-Berm):         0.0         Medium Trucks:         77.8%         5.9%         16.3%         11.1           Centerline Dist. to Barrier:         92.0 feet         Moles Source Elevations (in feet)         Heavy Trucks:         0.00           Barrier Height (Above Pad):         5.0 feet         Autos:         0.000         Medium Trucks:         2.297           Observer Height (Above Pad):         5.0 feet         Autos:         8.04         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Autos:         8.3475         Medium Trucks:         83.368           Heavy Trucks:         82.40         -19.89         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.76         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Heavy Trucks:         86.40         -15.	Ve	hicle Speed:	55 mph		v	ehicle I	Mix						
Site Data         Autos:         71.5%         13.0%         15.5%         98.1           Barrier Height:         0.0 feet         Medium Trucks:         70.4%         5.5%         24.0%         0.0           Barrier Type (0-Wall, 1-Berm):         0.0         Heavy Trucks:         71.5%         13.0%         15.5%         98.1           Centerline Dist. to Barrier 20.0 feet         Moles Source Elevations:         (Incomposition 10.0%)         Heavy Trucks:         2.97           Observer Height (Above Pad):         5.0 feet         Autos:         2.97         Heavy Trucks:         8.004         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Medium Trucks:         8.3475         Medium Trucks:         8.3475           Road Clevations:         0.0 degrees         Heavy Trucks:         83.368         Heavy Trucks:         83.379           FHWA Noise Model Calculations         Vehicle Type         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Attal           Autos:         71.78         4.36         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         82.40         -19.88         -3.43         -1.20         -4.76	Near/Far La	ne Distance:	78 feet		-	Vehi	icleType		Day	Evenin	q Ni	ight	Daily
Barrier Height:         0.0 feet           Barrier Type (0-Wall, 1-Berm):         0.0           Centerline Dist. to Barrier:         92.0 feet           Barrier Distance to Observer:         92.0 feet           Pad Elevation:         0.0 feet           Road Grade:         0.0%           Left View:         -90.0 degrees           Right View:         90.0 degrees           Heavy Trucks:         83.465           Heavy Trucks:         83.368           Heavy Trucks:         83.475           Medium Trucks:         83.368           Heavy Trucks:         83.460           17.8         4.36         -3.44           Autos:         71.76         0.000           Medium Trucks:         86.40         -15.29         -3.43           120         -4.76         0.000         0           Heavy Trucks:	Site Data						Au	tos:	71.5%	5 13.09	% 1!	5.5%	98.56%
Barrier Type (0-Wall, 1-Berm):         0.0         Heavy Trucks:         77.8%         5.9%         16.3%         1.1           Centerline Dist. to Barrier:         92.0 feet         Noise Source Elevations (in feet)         Autos:         0.000           Barrier Dist. to Observer:         0.0 feet         Autos:         0.000         Medium Trucks:         2.97           Observer Height (Above Pad):         5.0 feet         Autos:         8.004         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Autos:         8.004         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Autos:         8.3.868         Heavy Trucks:         8.3.875           Left View:         90.0 degrees         Medium Trucks:         8.3.388         Heavy Trucks:         8.3.379           FHWA Noise Model Calculations         VerliceType         REMEL         Traffic Flow         Distance         Fine Road         Fresnel         Barrier Atten         Berm Atten           Weilum Trucks:         82.40         -19.89         -3.43         -1.20         -4.76         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0      <	Ba	rrior Hoight	0.0 feet			Me	edium True	cks:	70.4%	5.69	% 2/	4.0%	0.37%
Centerline Dist. to Barrier:         92.0 feet           Centerline Dist. to Observer:         92.0 feet           Barrier Distance to Observer:         92.0 feet           Barrier Distance to Observer:         0.0 feet           Observer Height (Above Pad):         5.0 feet           Pad Elevation:         0.0 feet           Road Elevation:         0.0 feet           Road Grade:         0.0%           Left View:         90.0 degrees           Right View:         90.0 degrees           Right View:         90.0 degrees           Reduim Trucks:         83.475           Left View:         90.0 degrees           Reduim Trucks:         83.379           FHWA Noise Model Calculations         Finite Road           VehicleType         REIMEL           Autos:         71.78           4.36         -3.44           -1.20         -4.76           Autos:         86.40           -15.29         -3.43           -120         -4.88           0.000         0           Medium Trucks:         86.40           -15.29         -3.43           -120         -5.18           0.000         0	Barrier Type (0-W	/all, 1-Berm):	0.0			H	leavy Tru	cks:	77.8%	5.99	6 16	6.3%	1.07%
Centerline Dist to Observer:         92.0 feet         Autos::         0.000           Barrier Distance to Observer:         0.0 feet         Autos::         0.000           Observer Height (Above Pad):         5.0 feet         Medium Trucks::         2.297           Observer Height (Above Pad):         5.0 feet         Heavy Trucks::         2.04         Grade Adjustment:         0.0           Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)         Autos::         8.3475           Road Grade:         0.0%         Autos::         83.368         Heavy Trucks::         83.375           FHWA Noise Model Calculations         Vehicle Type         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Attal           Vehicle Type         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Attal           Autos:         71.78         4.36         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -4.88         0.000         0           Immitigated Noise Levels (without Topo and barrier attenuation)         Urap Variage Stops	Centerline Di	st. to Barrier:	92.0 feet		N	loise So	ource Elev	/ation	s (in f	eet)			
Barrier Distance to Observer:         0.0 feet           Observer Height (Above Pad):         5.0 feet           Pad Elevation:         0.0 feet           Road Grade:         0.0%           Left View:         -90.0 degrees           Right View:         90.0 degrees           Read Grade:         0.0%           Left View:         -90.0 degrees           Medium Trucks:         83.475           Medium Trucks:         83.368           Heavy Trucks:         83.368           Heavy Trucks:         83.379           FHWA Noise Model Calculations         Medium Trucks:           VehicleType         REMEL         Traftic Flow           Distance         Finite Road           Heavy Trucks:         82.40           -15.29         -3.43           -120         -4.76           0.000         0           Heavy Trucks:         86.40           -15.29         -3.43           -120         -5.18           0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)           VehicleType         Leq Peak Hour           Leq Peak Hour         Leq Peak           Leq Peak Hour         Leq	Centerline Dist.	to Observer:		-		Autos:	0.	000	,				
Observer Height (Above Pad):         5.0 feet         Heary Trucks:         8.004         Grade Adjustment:         0.0           Road Elevation:         0.0 feet         Lane Equivalent Distance (in feet)         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Autos:         83.475           Left View:         90.0 degrees         Medium Trucks:         83.368           WeiholeType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Autos:         7.178         4.36         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -4.76         0.000         0           Unnitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Night         Ldn         CNEL           VehicleType         Cop Peak Hour         Leq Day         Leq Evening         Eq Night         Ldn         CNEL           Medium Trucks:         57.9         55.6         50.6         52.1         59.1         66.6	Barrier Distance	to Observer:			Mediur	n Trucks:	2.	297					
Pad Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Carde:         0.0%         Autos:         83.475           Left View:         90.0 degrees         Medium Trucks:         83.368           Right View:         90.0 degrees         Heavy Trucks:         83.379           FHWA Noise Model Calculations         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Atten           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.76         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)         Ueq Virucks:         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1         66.6           Medium Trucks:         57.9         55.6         50.4         59.1         66.6	Observer Height (	Observer Height (Above Pad): 5.0 feet						8	004	Grade	Adiust	ment:	0.0
Road Elevation:         0.0 feet         Lane Equivalent Distance (in feet)           Road Grade:         0.0%         Autos::         83.475           Left View:         -90.0 degrees         Medium Trucks::         83.368           Right View:         90.0 degrees         Medium Trucks::         83.379           FHWA Noise Model Calcutations         Vehicle Type         REMEL         Traftic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Attance           Autos:         71.76         4.36         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         82.40         -19.83         -3.43         -1.20         -4.76         0.000         0           Heavy Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)         Vehicle Type         Leq Peak Hour         Leq Evening         Leq Night         Ldn         CNEL           Autos:         77.5         69.3         67.9         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1         66.6	Pa	ad Elevation:				,							
Road Grade:         0.0%         Autos:         83.475           Left View:         -90.0 degrees         Medium Trucks:         83.368           FHWA Noise Model Calculations         Medium Trucks:         83.379           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berm Att           Autos:         71.78         4.36         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.88         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unnitigated Noise Levels (without Topo and barrier attenuation)         Leq Night         Ldn         CNEL           VehicleType         Leq Peak Hour         Leq Day         Leq Night         Ldn         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1         66.6           Medium Trucks:         65.5         64.6         59.4         59.1	Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent D	Distan	ce (in	feet)			
Left View:         -90.0 degrees         Medium Trucks:         83.368           Right View:         90.0 degrees         Heavy Trucks:         83.379           FHWA Noise Model Calculations         Heavy Trucks:         83.379           VehicleType         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Atten           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.76         0.000         0           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.76         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)         -5.18         0.000         0           VehicleType         Leq Peak Hour         Leq Qay         Leq Evening         Leq Night         Ldn         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         59.4         59.1	1	Road Grade:	0.0%				Autos:	83.	475				
Right View:         90.0 degrees         Heavy Trucks:         83.379           FHWA Noise Model Calculations         Vehicle Type         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berrn Att           Autos:         71.76         4.36         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.76         0.000         0           Medium Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unnitigated Noise Levels (without Topo and barrier attenuation)         Vehicle Type         Leq Peak Hour         Leq Evening         Leq Night         Ldn         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         54.6         59.4         59.1         66.6		Left View:	-90.0 degree	es		Mediur	n Trucks:	83.	368				
Interview           Vehicle Type         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Bern Att           Autos:         71.78         4.36         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.88         0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)         Use Vehicle Type         Leq Peak Hour         Leq Day         Leq Night         Ldn         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5         Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         57.9         55.6         50.4         59.4         59.1         66.6		Right View:	90.0 degree	es		Heav	y Trucks:	83.	379				
Vehicle Type         REMEL         Traffic Flow         Distance         Finite Road         Fresnel         Barrier Atten         Berra Atten           Autos:         71.78         4.36         -3.44         -1.20         -4.76         0.000         00           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.76         0.000         0           Heavy Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)         Vehicle Type         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Lch         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         64.6         59.4         59.1         66.6	FHWA Noise Mod	el Calculation	s								-		
Autos:         71.78         4.36         -3.44         -1.20         -4.76         0.000         0           Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.88         0.000         0           Heavy Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)         VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Lch         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5         Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         64.6         59.4         59.1         66.6         64.6         59.4         59.1         66.6	VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Frest	nel	Barrier /	Atten	Beri	m Atten
Medium Trucks:         82.40         -19.89         -3.43         -1.20         -4.88         0.000         0           Heavy Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)	Autos:	71.78	4.36		-3.44		-1.20		-4.76		0.000		0.000
Heavy Trucks:         86.40         -15.29         -3.43         -1.20         -5.18         0.000         0           Unmitigated Noise Levels (without Topo and barrier attenuation)         Use (Marrier attenuation)         Use (Marrier attenuation)         Use (Marrier attenuation)         Use (Marrier attenuation)         CNEL           VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5         Marrier attenuation)           Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         64.6         59.4         59.1         66.6	Medium Trucks:	82.40	-19.89		-3.43		-1.20		-4.88		0.000		0.000
Unmitigated Noise Levels (without Topo and barrier attenuation)           VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         64.6         59.4         59.1         66.6	Heavy Trucks:	86.40	-15.29		-3.43		-1.20		-5.18		0.000		0.000
VehicleType         Leq Peak Hour         Leq Day         Leq Evening         Leq Night         Ldn         CNEL           Autos:         71.5         69.3         67.9         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         64.6         59.4         59.1         66.6	Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)							
Autos:         71.5         69.3         67.9         63.9         71.5           Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         64.6         59.4         59.1         66.6	VehicleType	Leq Peak Hou	ır Leq Day	' L	eq Ev	ening	Leq Ni	ght		Ldn		CI	VEL
Medium Trucks:         57.9         55.6         50.6         52.1         59.1           Heavy Trucks:         66.5         64.6         59.4         59.1         66.6	Autos:	71	.5	69.3		67.9		63.9	9	7	1.5		72.0
Heavy Trucks: 66.5 64.6 59.4 59.1 66.6	Medium Trucks: 57.9 55.6					50.6		52.1	I	5	Э.1		59.2
	Heavy Trucks:		59.4		59.1		6	ô.6		66.8			
Vehicle Noise: 72.8 70.7 68.5 65.3 72.9	Vehicle Noise:		68.5		65.3	3	7	2.9		73.3			
Centerline Distance to Noise Contour (in feet)	Centerline Distant	ce to Noise Co	ontour (in feet	)									
70 dBA 65 dBA 60 dBA 55 dBA					70 di	BA	65 dE	BA	(	60 dBA		55	dBA
Ldn: 143 309 665 1,434				Ldn:	143	3	309			665		1,4	134
CNEL: 153 329 709 1,526		CNEL:								709		1,5	526

Tuesday, August 14, 2018

	FH\	NA-RD-77-108	BHIGHW	VAY NC	DISE PI	REDICTI	ON MO	DEL			
Scenan Road Nam Road Segmei	io: EA 2020 W ne: Auld Rd. nt: e/o Winche	/ith Project ester Rd. (SR-7	79)			Project Job N	Name: I umber:	KTM 11624	Ļ		
SITE	SPECIFIC IN	IPUT DATA				N	OISE N	/IODE	L INPUTS	5	
Highway Data				Si	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	8,272 vehicl	es					Autos.	15		
Peak Hour	Percentage:	10%			Me	edium Tru	icks (2 A	(xles)	: 15		
Peak H	lour Volume:	827 vehicle	s		He	avy Truc	:ks (3+ A	(xles)	: 15		
Ve	hicle Speed:	40 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	36 feet		Ē	Veh	nicleTvpe		Dav	Evenina	Niaht	Dailv
Site Data							lutos:	71.5%	6 13.0%	15.59	% 98.57%
Bai	rrier Height:	0.0 feet			М	edium Tr	ucks:	70.4%	6 5.6%	24.09	% 0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			1	Heavy Tr	ucks:	77.8%	5.9%	16.39	% 1.06%
Centerline Dis	st. to Barrier:	50.0 feet		N	oise S	ource El	evation	s (in f	eet)		
Centerline Dist.	Centerline Dist. to Observer: 50.0 feet Barrier Distance to Observer: 0.0 feet					Autos	s: 0.0	000	í		
Barrier Distance	Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet				Mediu	m Trucks	: 2.2	297			
Observer Height (	Observer Height (Above Pad): 5.0 feet				Heav	v Trucks	s: 8.0	004	Grade Adj	ustmei	nt: 0.0
Pa	Pad Elevation: 0.0 feet										
Roa	ad Elevation:	0.0 feet		Lä	ane Eq	uivalent	Distant	ce (in	teet)		
	Road Grade:	0.0%				Autos	3: 46.9	915			
	Left View:	-90.0 degre	es		Mediu	m Trucks	3: 46.	726			
	Right View:	90.0 degre	es		Heav	vy Trucks	3: 46.	744			
FHWA Noise Mode	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Atte	en B	erm Atten
Autos:	66.51	-2.21		0.31		-1.20		-4.65	0.0	00	0.000
Medium Trucks:	77.72	-26.47		0.34		-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	82.99	-21.89		0.34		-1.20		-5.43	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)	r.					
VehicleType	Leq Peak Hou	ur Leq Da	y L	Leq Eve	ening	Leq	Night		Ldn	(	CNEL
Autos:	63	.4	61.2		59.8		55.8		63.4		63.9
Medium Trucks:	50	0.4	48.1		43.1		44.6		51.6		51.7
Vehicle Noise:	60	1.2	58.4 63.1		53.1 60.7		52.8		60.4		60.6
Centerline Distan	ce to Noise C	ontour (in fee	t)		50.1		07.0		00.0		00.7
Contentine Distant		enten (milee	~	70 dE	BA	65 0	dBA		60 dBA	5	5 dBA
			Ldn:	24		5	3		113		244
	CNEL:					5	6		120		259

Scenar	io: EA 2020 W	ith Project				Project Na	me: KTN			
Road Nan	e: Sparkman	Wy.				Job Num	ber: 1162	4		
Road Segme	nt: e/o Winche	ster Rd. (SR-79	)							
SITE	SPECIFIC IN	IPUT DATA				NO	SE MOD	EL INPUT	s	
Highway Data				5	Site Con	ditions (H	ard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	1,901 vehicles	6				Auto	s: 15		
Peak Hour	Percentage:	10%			Me	dium Truck	s (2 Axles	<i>:):</i> 15		
Peak H	lour Volume:	190 vehicles			Hea	avy Trucks	(3+ Axles	:): 15		
Ve	hicle Speed:	40 mph		١	Vehicle I	<i>lix</i>				
Near/Far La	ne Distance:	12 feet			Vehi	cleType	Day	Evening	Night	Daily
Site Data						Aut	os: 71.5	% 13.0%	15.5%	98.48%
Ba	rrier Height	0.0 feet			Me	dium Truc	ks: 70.4	% 5.6%	24.0%	0.35%
Barrier Type (0-W	/all. 1-Berm):	0.0			F	leavy Truc	ks: 77.8	% 5.9%	16.3%	1.17%
Centerline Di	st. to Barrier:	30.0 feet			Naina Ca	uree Elev	ationa (in	fact)		
Centerline Dist.	to Observer:	30.0 feet		'	voise su	Autoor		ieel)		
Barrier Distance	to Observer:	0.0 feet			Modium	Autos.	0.000			
Observer Height	(Above Pad):	5.0 feet			Hear	Trucks.	2.297	Grade An	liustmont	
P	ad Elevation:	0.0 feet			neav	y mucks.	0.004	Orade Ad	justition	0.0
Ro	ad Elevation:	0.0 feet		L	Lane Equ	ivalent D	istance (i	n feet)		
	Road Grade:	0.0%				Autos:	29.816			
	Left View:	-90.0 degrees	8		Mediur	n Trucks:	29.518			
	Right View:	90.0 degrees	6		Heav	y Trucks:	29.547			
FHWA Noise Mod	el Calculation	s								
FHWA Noise Mod VehicleType	REMEL	s Traffic Flow	Distar	nce	Finite	Road	Fresnel	Barrier At	ten Ber	m Atten
FHWA Noise Mod VehicleType Autos:	REMEL 66.51	s Traffic Flow -8.60	Distar	nce 3.26	Finite	Road -1.20	Fresnel -4.4	Barrier Att	ten Ber 000	m Atten 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks:	REMEL 66.51 77.72	s Traffic Flow -8.60 -33.13	Distar	nce 3.26 3.33	Finite	Road -1.20 -1.20	Fresnel -4.4 -4.8	Barrier Att 9 0.0 6 0.0	ten Ber 000 000	m Atten 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation REMEL 66.51 77.72 82.99	s Traffic Flow -8.60 -33.13 -27.86	Distar	3.26 3.33 3.32	Finite	Road -1.20 -1.20 -1.20	Fresnel -4.4 -4.8 -5.7	Barrier Att           9         0.1           6         0.1           7         0.1	ten Ber 000 000 000	<u>m Atten</u> 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois	el Calculation REMEL 66.51 77.72 82.99 e Levels (with	s Traffic Flow -8.60 -33.13 -27.86 out Topo and b	Distar	3.26 3.33 3.32 atten	Finite	Road -1.20 -1.20 -1.20	Fresnel -4.4 -4.8 -5.7	Barrier Att 9 0.1 6 0.1 7 0.1	ten Ber 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType	el Calculation REMEL 66.51 77.72 82.99 e Levels (with Leq Peak Hou	s Traffic Flow -8.60 -33.13 -27.86 out Topo and b r Leq Day	Distar	nce 3.26 3.33 3.32 atteni eq Ev	Finite 5 3 2 <b>uation)</b> vening	Road -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.4 -4.8 -5.7	Barrier Att 9 0.1 6 0.1 7 0.1 Ldn	ten Ber 000 000 000 000	m Atten 0.000 0.000 0.000
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos:	el Calculation REMEL 66.51 77.72 82.99 e Levels (with Leq Peak Hou 60	s Traffic Flow -8.60 -33.13 -27.86 out Topo and b ir Leq Day .0 5	Distar	nce 3.26 3.33 3.32 atteni eq Ev	Finite 5 3 2 uation) vening 56.3	Road -1.20 -1.20 -1.20 <i>Leq Nig</i>	Fresnel -4.4 -4.8 -5.7 ht 52.3	Barrier Ati 9 0.1 6 0.1 7 0.1 <u>Ldn</u> 60.1	ten Ber 000 000 000 000 Ci	<u>m Atten</u> 0.000 0.000 0.000 <u>0.000</u> <u>VEL</u> 60.4
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks:	el Calculation <u>REMEL</u> 66.51 77.72 82.99 e Levels (with Leq Peak Hou 60 46	s Traffic Flow -8.60 -33.13 -27.86 out Topo and b ir Leq Day .0 5 .7 4	Distar	nce 3.26 3.33 3.32 attent eq Ev	Finite Finite a a a a a a a a a a a a a	Road -1.20 -1.20 -1.20 <i>Leq Nig</i>	Fresnel -4.4 -4.8 -5.7 ht 52.3 41.0	Barrier Ati 9 0.1 6 0.1 7 0.1 <u>Ldn</u> 60.1 47.5	ten Ber 000 000 000 000 000 Ci 0 9	<u>m Atten</u> 0.000 0.000 0.000 VEL 60.4 48.1
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	lel Calculation <u>REMEL</u> 66.51 77.72 82.99 e Levels (with Leq Peak Hou 60 46 57	s Traffic Flow -8.60 -33.13 -27.86 out Topo and b rr Leq Day .0 5 .7 4 .3 5	Distar arrier a 1.6 7.7 4.4 5.4	nce 3.26 3.33 3.32 attenu eq Ev	Finite 5 2 uation) vening 56.3 39.4 50.2	Road -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.4 -4.8 -5.7 ht 52.3 41.0 49.8	Barrier Att 9 0.1 6 0.1 7 0.1 <u>Ldn</u> 60.1 47.1 57.2	ten Ber 000 000 000 000 000 00 0 9 4	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 60.4 48.1 57.6
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	lel Calculation <u>REMEL</u> 66.51 77.72 82.99 e Levels (with Leq Peak Hou 60 46 57 62	s Traffic Flow 8.60 -33.13 -27.86 out Topo and b rr 4.9 .7 4 .3 5 .0 5	Distar arrier a Le 7.7 4.4 5.4 9.8	ace 3.26 3.33 3.32 atteni eq Ev	Finite 5 3 2 uation) vening 56.3 39.4 50.2 57.3	Road -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.4 -4.8 -5.7 ht 52.3 41.0 49.8 54.5	Barrier Atti 9 0.0 6 0.0 7 0.0 <u>Ldn</u> 60.0 47.: 57. 62.0	ten Ber 000 000 000 000 000 00 9 4 0	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 60.4 48.5 57.6
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	lel Calculation <u>REMEL</u> 66.51 77.72 82.99 e Levels (with Leg Peak Hou 60 46 57 62 ce to Noise Co	s Traffic Flow -8.60 -33.13 -27.86 out Topo and b rr Leq Day 0 5 7 4 .3 5 .0 5 pontour (in feet)	Distar arrier a Le 7.7 4.4 5.4 9.8	nce 3.26 3.33 3.32 atten eq Ev	Finite Finite	Road -1.20 -1.20 -1.20 -1.20 Leq Nig	Fresnel -4.4 -4.8 -5.7 52.3 41.0 49.8 54.5	Barrier Att 9 0.1 6 0.1 7 0.1 <u>Ldn</u> 60.1 47.1 57.6 2.1	ten Ber 000 000 000 000 000 00 0 9 4 0	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 60.4 48. 57.6 62.4
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	lel Calculation. <u>REMEL</u> 66.51 77.72 82.99 e Levels (with Leq Peak Hou 60 46 57 62 ce to Noise Co	s Traffic Flow -8.60 -33.13 -27.86 out Topo and b rr Leq Day 0. 5 7. 4 7. 4 3. 5 0. 5 ontour (in feet)	Distar barrier a Le 7.7 4.4 5.4 9.8	70 a	Finite           6           3           2           uation)           rening           56.3           39.4           50.2           57.3           IBA	Road -1.20 -1.20 -1.20 Leq Nig 65 dB	Fresnel -4.4 -4.8 -5.7 52.3 41.0 49.8 54.5 4	Barrier Att 9 0.1 6 0.1 7 0.1 <i>Ldn</i> 60. 47.: 57. 62.	ten Ber 000 000 000 000 000 00 0 9 4 0 0 55	m Atten 0.000 0.000 0.000 VEL 60.4 48.1 57.6 62.4 dBA
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Heavy Trucks: Vehicle Noise: Centerline Distan	lel Calculation <u>REMEL</u> 66.51 77.72 82.99 e Levels (with Leq Peak Hou 60 46 57 62 ce to Noise Co	s Traffic Flow -8.60 -33.13 -27.86 out Opo and b ir Leq Day 0.5 .7 4 .3 .5 .0 .5 .0 .5 .0 .5 .0 .5 .0 .5 .0 .5 .0 .5 .0 .0 .5 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0	Distar	70 a	Finite           6           3           2           uation)           rening           56.3           39.4           50.2           57.3           IBA	Road -1.20 -1.20 -1.20 -1.20 <i>Leq Nig</i> 65 dB 19	Fresnel -4.4 -4.8 -5.7 52.3 41.0 49.8 54.5 44.	Barrier Att 9 0.1 6 0.1 7 0.1 <u>Ldn</u> 60.1 47.1 57. 62.1 60 dBA 41	ten Ber 000 000 000 CC 0 9 4 0 55 3	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 60.4 48.1 57.6 62.4 dBA

Tuesday, August 14, 2018

	FHW	/A-RD-77-108 I	HIGHV	NAY N	IOISE PI	REDICTIO	ON MO	DEL				
Scenar Road Narr Road Segme	rio: EA 2020 Wi ne: Robert Tren nt: w/o Winche	ith Project It Jones Pkwy. ster Rd. (SR-79	ə)			Project I Job Nu	lame: mber:	KTM 11624				
SITE	SPECIFIC IN	PUT DATA				N	DISE	MODE	L INP	JTS		
Highway Data				3	Site Con	ditions (	Hard =	: 10, Se	oft = 15	)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	3,591 vehicle 10% 359 vehicles	S		Me He	dium Truc avy Truck	cks (2 . ks (3+ .	Autos: Axles): Axles):	15 15 15			
Ve	hicle Speed:	40 mph		-	Vehicle	Mix						
Near/Far La	ne Distance:	12 feet		-	Veh	icleTvpe		Dav	Fvenir	na N	liaht	Dailv
Site Data						A	utos:	71.5%	13.0	% 1	5.5%	98.59%
Pa	rrior Hoight:	0.0 foot			M	edium Tru	icks:	70.4%	5.6	% 2	24.0%	0.37%
Barrier Type (0-N	Vall, 1-Berm):	0.0			ŀ	leavy Tru	icks:	77.8%	5.9	% 1	6.3%	1.05%
Centerline Di	ist. to Barrier:	30.0 feet		1	Noise So	ource Ele	vation	is (in f	eet)			
Centerline Dist.	to Observer:	30.0 feet				Autos:	0.	000	í			
Barrier Distance	Barrier Distance to Observer: 0.0 feet Observer Height (Above Pad): 5.0 feet				Mediu	n Trucks.	2.	297				
Observer Height (Above Pad):		5.0 feet			Heav	y Trucks	8.	004	Grade	Adjus	tment.	0.0
Pad Elevation: 0.0 feet										-		
Ro	Road Elevation: 0.0 feet			1	Lane Eq	uivalent	Distan	ce (In	feet)			
	Road Grade:	0.0%				Autos:	29	.816				
	Left View: Right View:	-90.0 degree 90.0 degree	s s		Mediui Heav	n Trucks. y Trucks:	29	.518 .547				
FHWA Noise Mod	el Calculations	:										
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresi	nel	Barrier	Atten	Ber	m Atten
Autos:	66.51	-5.84		3.26	6	-1.20		-4.49		0.000	)	0.000
Medium Trucks:	77.72	-30.15		3.33	3	-1.20		-4.86		0.000	)	0.000
Heavy Trucks:	82.99	-25.57		3.32	2	-1.20		-5.77		0.000	)	0.000
Unmitigated Nois	e Levels (with	out Topo and L	barrier	r atten	uation)							
VehicleType	Leq Peak Hou	r Leq Day		Leq E	/ening	Leq N	light		Ldn		CI	VEL
Autos:	62.	7 6	0.5		59.1		55.	1	6	62.7		63.2
Medium Trucks:	49.	7 4	7.4		42.4		44.0	D	ŧ	50.9		51.1
Heavy Trucks: 59.6 57.7				52.5		52.	1	Ę	59.7		59.9	
Vehicle Noise:	64.	6 6	2.5		60.0		57.	1	6	64.7		65.0
Centerline Distan	ce to Noise Co	ntour (in feet)		70	104	05.1	04		0.40*	-		-/04
			_	70 0	3BA	65 d	BA		50 dBA		55	aBA 00
			an:	1:	3	28			61		1	32
	CNEL:				4	30	,		CO		1	40

	FHV	VA-RD-77-108 HI	GHWAY	NOISE P	REDICTIO	N MODEL			
Scenar Road Nan	io: EA 2020 W	ith Project			Project Na	ame: KTN	1		
Road Segme	nt: w/o Winche	ster Rd. (SR-79)			300 Mun	IDEI: 1102	-4		
SITE	SPECIFIC IN	PUT DATA			NO	ISE MOD	EL INPUT	s	
Highway Data				Site Cor	nditions (H	ard = 10,	Soft = 15)		
Average Daily	Traffic (Adt):	42,277 vehicles				Auto	s: 15		
Peak Hour	Percentage:	10%		Me	dium Truck	is (2 Axles	s): 15		
Peak H	lour Volume:	4,228 vehicles		He	avy Trucks	(3+ Axles	s): 15		
Ve	hicle Speed:	45 mph		Vohiclo	Mix				
Near/Far La	ne Distance:	12 feet		Venicle	icleType	Dav	Evening	Night	Daily
Site Data					Aut	os: 71.5	13.0%	15.5%	% 98.56%
0.00 2000		0.0 ()		м	edium Truc	ks: 70.4	% 5.6%	24.09	% 0.37%
Barrier Turne (0.14	rrier Height:	0.0 feet			Heavy Truc	ks: 77.8	% 5.9%	16.39	% 1.07%
Centerline D	ist to Barrier:	37.0 feet			,				
Centerline Dist	to Observer:	37.0 feet		Noise S	ource Elev	ations (in	feet)		
Barrier Distance	to Observer:	0.0 feet			Autos:	0.000			
Observer Height	(Above Pad):	5.0 feet		Mediu	m Trucks:	2.297			
P	ad Flevation:	0.0 feet		Heav	/y Trucks:	8.004	Grade Ad	justmer	nt: 0.0
Ro	ad Elevation:	0.0 feet		Lane Eq	uivalent D	istance (i	n feet)	-	
	Road Grade:	0.0%			Autos:	36.851			
	Left View:	-90.0 degrees		Mediu	m Trucks:	36.610			
	Right View:	90.0 degrees		Hear	/y Trucks:	36.634			
FHWA Noise Mod	el Calculations	S							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier At	ten Be	erm Atten
Autos:	68.46	4.36	1.	88	-1.20	-4.5	6 0.0	000	0.000
Medium Trucks:	79.45	-19.88	1.	93	-1.20	-4.8	7 0.0	000	0.000
Heavy Trucks:	84.25	-15.28	1.	92	-1.20	-5.6	1 0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and ba	rrier atte	enuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Nig	ght	Ldn	0	CNEL
Autos:	73.	.5 71	.3	69.9		65.9	73.	5	74.0
Medium Trucks:	60.	.3 58	.0	53.0		54.6	61.	5	61.7
Heavy Trucks:	69.	.7 67	.8	62.6		62.3	69.	в	70.0
Vehicle Noise:	75.	.2 73	.0	70.7		67.7	75.:	2	75.6
Centerline Distan	ce to Noise Co	ontour (in feet)	7(	ABA	6E dD	4	60 dBA	5	EdDA
		1.4	L /(	02	05 dB.	м	202 UBA	5	926
			n. 1 -	00	1/8		303		020
		ONE	L.	00	189		407		010

Tuesday, August 14, 2018

	FH\	VA-RD-77-108	HIGHV	VAY NO	ISE P	REDICTI	ON MO	DEL				
Scenario Road Name Road Segmen	b: EAC 2020 e: Winchester t: n/o Auld Ro	Without Projec r Rd. (SR-79) d.	t			Project Job Ni	Name: I umber:	KTM 11624				
SITE S	PECIFIC IN	IPUT DATA				N	OISE N	IODE	L INPUT	s		
Highway Data				Si	te Cor	nditions	(Hard =	10, S	oft = 15)			
Average Daily	raffic (Adt):	63,678 vehicl	es					Autos:	15			
Peak Hour I	Percentage:	10%			Me	edium Tru	icks (2 A	(xles)	15			
Peak Ho	our Volume:	6,368 vehicle	s		He	eavy Truc	ks (3+ A	(xles)	15			
Veh	icle Speed:	55 mph		Ve	hicle	Mix						
Near/Far Lar	e Distance:	78 feet		-	Veh	nicleTvpe		Dav	Evenina	Nic	tht	Dailv
Site Data						A	utos:	71.5%	5 13.0%	15	.5%	98.56%
Bar	rier Heiaht:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24	.0%	0.37%
Barrier Type (0-Wa	all, 1-Berm):	0.0				Heavy Tr	ucks:	77.8%	5.9%	16	.3%	1.07%
Centerline Dis	t. to Barrier:	92.0 feet		No	oise S	ource El	evation	s (in f	eet)			
Centerline Dist. t	Centerline Dist. to Observer: 92.0 feet Barrier Distance to Observer: 0.0 feet						. 0.0	000				
Barrier Distance t	Barrier Distance to Observer: 0.0 feet					m Trucks	: 2.3	97				
Observer Height (A	Observer Height (Above Pad): 5.0 feet				Hea	v Trucks	: 8.0	004	Grade Ad	justn	nent:	0.0
Pa	Pad Elevation: 0.0 feet											
Roa	d Elevation:	0.0 feet		La	ine Eq	uivalent	Distand	ce (in	feet)			
F	Road Grade:	0.0%				Autos	: 83.4	475				
	Left View:	-90.0 degre	es		Mediu	m Trucks	83.3	368				
	Right View:	90.0 degre	es		Hear	vy Trucks	83.3	379				
FHWA Noise Mode	l Calculation	s		-								
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el	Barrier Att	en	Bern	n Atten
Autos:	71.78	5.27		-3.44		-1.20		-4.76	0.0	000		0.000
Medium Trucks:	82.40	-18.95		-3.43		-1.20		-4.88	0.0	000		0.000
Heavy Trucks:	86.40	-14.37		-3.43		-1.20		-5.18	0.0	000		0.000
Unmitigated Noise	Levels (with	out Topo and	barrier	attenua	ation)							
VehicleType	Leq Peak Hou	ır Leq Da	/ 1	Leq Eve	ning	Leq I	Vight		Ldn		CN	EL
Autos:	72	.4	70.2		68.8		64.8		72.4	1		72.9
Medium Trucks:	58	.8	56.5		51.5		53.1		60.0	)		60.2
Heavy Trucks:	67	.4	65.5		60.3		60.0		67.5	5		67.7
Vehicle Noise:	73	.7	71.6		69.4		66.2		73.8	3		74.2
Centerline Distanc	e to Noise Co	ontour (in fee	t)	=0		07						
			L	70 dB	BA	65 0	1BA	1	50 dBA	1	55 0	IBA
		0	Lan:	165		35	00		/65		1,6	49 50
	CNEL:					37	8		815		1,7	00

Scenari Road Nam Road Segmer	io: EAC 2020 V e: Winchester nt: s/o Auld Rd	Without Project Rd. (SR-79) I.				Project N Job Nu	lame: H mber: 1	(TM 1624			
SITE	SPECIFIC IN	IPUT DATA				N	DISE N	IODE		S	
Highway Data				Si	ite Con	ditions (	Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	60,092 vehicles	5				A	Autos:	15		
Peak Hour	Percentage:	10%			Med	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	6,009 vehicles			Hea	avy Truck	is (3+ A	xles):	15		
Ve	hicle Speed:	55 mph		Ve	ehicle A	<i>lix</i>					
Near/Far La	ne Distance:	78 feet		-	Vehi	cleType	1	Day	Evening	Night	Daily
Site Data						A	itos:	71.5%	13.0%	15.5%	98.56%
Bai	rrier Height	0.0 feet			Me	dium Tru	cks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	all. 1-Berm):	0.0			H	leavy Tru	cks:	77.8%	5.9%	16.3%	1.07%
Centerline Dis	st. to Barrier:	92.0 feet		AL	oloo Co	uree Ele	votions	lint	0.041		
Centerline Dist.	to Observer:	92.0 feet		///	uise su	urce Ele	vauons		eel)		
Barrier Distance	to Observer:	0.0 feet			Modium	Autos:	0.0	00			
Observer Height (	Above Pad):	5.0 feet			wealun	Trucks:	2.2	97	Grado Ad	iustmont.	0.0
Pa	ad Elevation:			neav	y mucks.	0.0	04	Grade Adj	usunent.	0.0	
Roa	Road Elevation: 0.0 feet						Distanc	e (in	feet)		
I	Road Grade:	0.0%				Autos:	83.4	75			
	Left View:	-90.0 degrees	5		Mediun	n Trucks:	83.3	68			
	Right View:	90.0 degrees	5		Heav	y Trucks:	83.3	879			
				_							
FHWA Noise Mode	el Calculation:	s									
FHWA Noise Mode VehicleType	el Calculation REMEL	s Traffic Flow	Distand	æ	Finite	Road	Fresn	e/	Barrier Att	en Beri	m Atten
FHWA Noise Mode VehicleType Autos:	el Calculation REMEL 71.78	s Traffic Flow 5.02	Distano -	хе 3.44	Finite	Road -1.20	Fresn	el -4.76	Barrier Att 0.0	en Beri 100	m Atten 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks:	el Calculation REMEL 71.78 82.40	s Traffic Flow 5.02 -19.20	Distano - -	ce 3.44 3.43	Finite	Road -1.20 -1.20	Fresn	el -4.76 -4.88	Barrier Att 0.0 0.0	en Ben 100	m Atten 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks:	El Calculation REMEL 71.78 82.40 86.40	s Traffic Flow 5.02 -19.20 -14.62	Distano - -	xe 3.44 3.43 3.43	Finite	Road -1.20 -1.20 -1.20	Fresn	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0	en Ben 100 100	m Atten 0.000 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise	el Calculation: REMEL 71.78 82.40 86.40 e Levels (with	s Traffic Flow 5.02 -19.20 -14.62 out Topo and b	Distand - - - arrier at	2e 3.44 3.43 3.43	Finite	Road -1.20 -1.20 -1.20	Fresn	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0	en Ben 100 100	m Atten 0.000 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType	el Calculation REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou	s Traffic Flow 5.02 -19.20 -14.62 out Topo and b rr Leq Day	Distand - - - arrier at	xe 3.44 3.43 3.43 t <b>tenu</b> q Eve	Finite	Road -1.20 -1.20 -1.20 Leq N	Fresn	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0 0.0	en Berr 000 000 000 Ch	m Atten 0.000 0.000 0.000
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos:	el Calculations REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 72	s Traffic Flow 5.02 -19.20 -14.62 out Topo and b rr Leq Day .2 65	Distand - - - arrier at Let 9.9	ce 3.44 3.43 3.43 t <b>tenu</b> q Eve	Finite ation) ening 68.5	Road -1.20 -1.20 -1.20 Leg N	Fresn ight 64.5	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0 0.0 Ldn 72.1	en Ben 000 000 000 Ch	m Atten 0.000 0.000 0.000 VEL 72.6
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unnitigated Noise VehicleType Autos: Medium Trucks:	el Calculations REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 72 58	s Traffic Flow 5.02 -19.20 -14.62 out Topo and b rr Leq Day .2 68 .6 50	Distand - - - - - - - - - - - - - - - - - - -	xe 3.44 3.43 3.43 <b>tenu</b> q Eve	Finite ation) ening 68.5 51.3	Road -1.20 -1.20 -1.20 Leq N	Fresn ight 64.5 52.8	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 72.1 59.8	en Ben 000 000 000 Ch	<u>m Atten</u> 0.000 0.000 0.000 <u>VEL</u> 72.6 59.9
FHWA Noise Mod VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks:	el Calculation: REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 72 58 67	s Traffic Flow 5.02 -19.20 -14.62 out Topo and b rr Leq Day .2 66 .6 56 .1 65	Distance - - - - - - - - - - - - - - - - - - -	xe 3.44 3.43 3.43 t <b>tenu</b> q Eve	Finite ation) ening 68.5 51.3 60.0	Road -1.20 -1.20 -1.20 Leq N	Fresh ight 64.5 52.8 59.7	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	en Ben 000 000 000 Ch	m Atten 0.000 0.000 0.000 VEL 72.6 59.9 67.5
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	el Calculation: REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 72 58. 67. 73	s Traffic Flow 5.02 -19.20 -14.62 out Topo and b rr Leq Day 2. 6 5 1. 6 55 7	Distant - - arrier at 9.9 6.3 5.3 1.3	xe 3.44 3.43 3.43 t <b>tenu</b> q Eve	Finite ation) ening 68.5 51.3 60.0 69.2	Road -1.20 -1.20 -1.20 Leq N	Fresh ight 64.5 52.8 59.7 66.0	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 59.8 67.3 73.5	en Ben 000 000 000 Ch	m Atten 0.000 0.000 0.000 VEL 72.6 59.9 67.5 74.0
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distance	el Calculation: <u>REMEL</u> 71.78 82.40 86.40 e Levels (with Leq Peak Hou 72 58 67 73 ce to Noise Co	s Traffic Flow 5.02 -19.20 -14.62 out Topo and b rr 6.55 .1 66 .5 7 ontour (in feet)	Distance 	2e 3.44 3.43 3.43 t <b>tenu</b> q Eve	Finite : ation) ening 68.5 51.3 60.0 69.2	Road -1.20 -1.20 -1.20 Leq N	Fresh ight 64.5 52.8 59.7 66.0	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0 <u>Ldn</u> 72.1 59.8 67.3 73.5	en Ben 000 000 000 000 Ch	m Atten 0.000 0.000 0.000 VEL 72.6 59.5 67.5 74.0
FHWA Noise Mode VehicleType Autos: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distance	el Calculation: REMEL 71.78 82.40 86.40 a Levels (with Leq Peak Hou 72 58 67 73 50 to Noise Co	S           Traffic Flow           5.02           -19.20           -14.62           Out Topo and b           r         Leq Day           .2         6           .6         50           .1         6           .5         7           Dentour (in feet)	Distance 	2e 3.44 3.43 3.43 ttenut q Eve	Finite ation) ening 68.5 51.3 60.0 69.2 3A	Road -1.20 -1.20 -1.20 Leq N	Fresh ight 64.5 52.8 59.7 66.0 BA	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0 0.0 72.1 59.8 67.3 73.8 50 dBA	en Ben 1000 100	m Atten 0.000 0.000 0.000 VEL 72.6 59.9 67.5 74.0 dBA
FHWA Noise Mode VehicleType Autos: Medium Trucks: Heavy Trucks: Unmitigated Noise VehicleType Autos: Medium Trucks: Vehicle Noise: Centerline Distance	el Calculation: REMEL 71.78 82.40 86.40 e Levels (with Leq Peak Hou 72 58 67 73 72 73 76 to Noise Co	s Traffic Flow 5.02 -19.20 -14.62 out Topo and b I' Leq Day .2 66 .6 50 .1 66 .5 7 ontour (in feet)	Distance 	20 3.44 3.43 3.43 ttenuu q Eve 70 dE 159	Finite           ation)           ening           68.5           51.3           60.0           69.2           3A	Road -1.20 -1.20 -1.20 -1.20 -1.20 -1.20 	Freshi ight 64.5 52.8 59.7 66.0 BA	el -4.76 -4.88 -5.18	Barrier Att 0.0 0.0 0.0 1 2 4 59.8 67.3 73.5 73.5 73.5 73.5 73.5	en Ben 1000 1000 1000 1000 1000 1000 1000 1000 1,55 1,55	m Atten 0.000 0.000 0.000 VEL 72.6 59.9 67.5 74.0 dBA

Tuesday, August 14, 2018

	FHW	/A-RD-77-108 H	IGHWA	ΥN	OISE PI	REDICT	ION M	ODEL				
Scenari Road Nam Road Segmei	io: EAC 2020 V e: Winchester nt: s/o Sparkm:				Project Job N	Name. umber	KTM 11624					
SITE	SPECIFIC IN	PUT DATA				N	IOISE	MODE	L INP	UTS		
Highway Data				5	Site Con	ditions	(Hard	= 10, Se	oft = 15	5)		
Average Daily	Traffic (Adt):	67,494 vehicles						Autos:	15			
Peak Hour	Percentage:	10%			Me	dium Tri	ucks (2	Axles):	15			
Peak H	our Volume:	6,749 vehicles			He	avy Tru	cks (3+	Axles):	15			
Ve	hicle Speed:	55 mph			/ohiclo	Mix						
Near/Far La	ne Distance:	78 feet		- H	Veh	icleType	.	Dav	Eveni	na I	Viaht	Daily
Site Data				+	1011		Autos:	71.5%	13.0	0%	15.5%	98.56%
Ba	wier Height	0.0 (act			M	edium Ti	rucks:	70.4%	5.6	5%	24.0%	0.37%
Date Parriar Tuna (0.14	all 1 Porm):	0.0 1001			ŀ	leavv T	rucks:	77.8%	5.9	9%	16.3%	1.07%
Centerline Di	all, 1-Denn).	02.0 feet				,						
Centerline Dist	to Observer:	92.0 feet		^	Voise So	ource El	levatio	ns (in f	eet)			
Barrier Distance	to Observer:	0.0 feet				Auto	s: (	0.000				
Observer Height (	5.0 feet			Mediu	m Truck	S: 2	2.297	0 de	A			
Pa			Heav	y Truck	s: t	5.004	Grade	Adjus	stment.	0.0		
Roa	Pad Elevation: 0.0 feet Road Elevation: 0.0 feet						t Dista	nce (in	feet)			
1	Road Grade:	0.0%				Auto	s: 83	3.475				
	Left View:	-90.0 degrees			Mediu	m Truck	s: 83	3.368				
	Right View:	90.0 degrees			Heav	y Truck	s: 83	3.379				
FHWA Noise Mod	el Calculations	5										
VehicleType	REMEL	Traffic Flow	Distanc	е	Finite	Road	Free	snel	Barrier	Atten	Ber	m Atten
Autos:	71.78	5.52	÷	3.44	Ļ	-1.20		-4.76		0.00	0	0.00
Medium Trucks:	82.40	-18.70		3.43	3	-1.20		-4.88		0.00	0	0.00
Heavy Trucks:	86.40	-14.12	-:	3.43	3	-1.20		-5.18		0.00	0	0.00
Unmitigated Noise	e Levels (witho	out Topo and ba	arrier at	ten	uation)							
VehicleType	Leq Peak Hou	r Leq Day	Leo	q Ev	rening	Leq	Night		Ldn		CI	NEL
Autos:	72.	7 70	.4		69.0		65	.0		72.6		73.
Medium Trucks:	59.	1 56	.8		51.8		53	.3		60.3		60.
Heavy Trucks:	67.	6 65	.8		60.6		60	.2		67.8		68.
Vehicle Noise:	74.	0 71	.8		69.7		66	.5		74.1		74.
Centerline Distand	ce to Noise Co	ntour (in feet)										
				/0 d	IBA	65	aBA	(	SU dBA		55	aBA
		Lo	in:	17	1	3	69		796		1,	/14
	CNEL:				3	3	93		847		1,	825

	FHV	VA-RD-77-108	HIGHW	AY N	OISE PF	REDICTI	ON MC	DEL				
Scenar Road Narr Road Segme	io: EAC 2020 ne: Winchester nt: s/o Hunter				Project I Job Nu	Name: ımber:	KTM 11624					
SITE	SPECIFIC IN	IPUT DATA				N	OISE	MODE	L INPU	TS		_
Highway Data				S	Site Con	ditions (	(Hard =	: 10, S	oft = 15)			
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume: bicle Speed:	73,356 vehicle 10% 7,336 vehicles 55 mph	s		Mei Hei	dium Tru avy Truc	icks (2 ks (3+	Autos: Axles): Axles):	15 15 15			
Near/Far I a	ne Distance:	78 feet		١	/ehicle l	Mix		_				
noun u za	no Biotanoo.	10 1001			Vehi	cle l ype		Day	Evening	Nig	ht	Daily
Site Data						A	utos:	71.5%	5 13.0%	5 15.	5% 9	38.56%
Ba	rrier Height:	0.0 feet			Me	edium In	ucks:	70.4%	5.6%	24.	0%	0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			F	leavy In	UCKS:	77.8%	5.9%	5 16.	3%	1.07%
Centerline Di	st. to Barrier:	92.0 feet		٨	loise So	ource Ele	evatior	ns (in f	eet)			
Centerline Dist.	to Observer:				Autos	: 0	000				-	
Barrier Distance	Barrier Distance to Observer: 0.0 feet						: 2	297				
Observer Height	Observer Height (Above Pad): 5.0 feet						: 8	004	Grade A	djustm	ent: (	0.C
Pi	Pad Elevation: 0.0 feet						Distan	()	6			
Roi	ad Elevation:	0.0 feet		-	ane Equ	uivalent	Distan	ce (In	teet)			
	Road Grade:	0.0%				Autos	: 83	.475				
	Left View:	-90.0 degree	S		Mediur	n Trucks	: 83	.368				
	Right View:	90.0 degree	S		Heav	y Trucks	: 83	.379				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fres	nel	Barrier A	tten	Berm	Atten
Autos:	71.78	5.88		-3.44	l .	-1.20		-4.76	0	.000		0.000
Medium Trucks:	82.40	-18.34		-3.43	;	-1.20		-4.88	0	.000		0.000
Heavy Trucks:	86.40	-13.76		-3.43		-1.20		-5.18	0	.000		0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier a	atten	uation)							
VehicleType	Leg Peak Hou	Ir Leq Day	L	eq Ev	ening	Leg I	Vight	1	Ldn		CNE	ΞL
Autos:	73	.0	70.8		69.4		65.	4	73	.0		73.5
Medium Trucks:	59	.4	57.1		52.2		53.	7	60	.6		60.8
Heavy Trucks:	68	.0	6.1		60.9		60.	6	68	.1		68.3
Vehicle Noise:	74	.4	72.2		70.0		66.	8	74	.4		74.8
Centerline Distan	ce to Noise Co	ontour (in feet										
		, ,		70 d	BA	65 c	1BA		60 dBA		55 d	BA
			dn:	18	1	39	0		841		1,81	2
		CI	IEL:	19	3	41	6		895		1,92	29

Tuesday, August 14, 2018

	FH	WA-RD-77-108	BHIGHW	AY NC	DISE PI	REDICTIO	N MODI	EL			
Scenari Road Nam Road Segmer	o: EAC 2020 e: Wincheste nt: s/o Techno	Without Projec r Rd. (SR-79) blogy Dr.	t			Project N Job Nur	ame: K1 nber: 11	TM 1624			
SITE	SPECIFIC IN	NPUT DATA				NO	ISE MO	DDEL II	NPUTS		
Highway Data				Si	ite Con	ditions (H	lard = 1	0, Soft =	= 15)		
Average Daily	Traffic (Adt):	70,151 vehic	es				AL	itos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Ax	les):	15		
Peak H	our Volume:	7,015 vehicle	s		He	avy Truck	s (3+ Ax	les):	15		
Vel	hicle Speed:	55 mph		V	ehicle	Mix					
Near/Far Lar	ne Distance:	78 feet			Veh	icleTvpe	D	av Ev	enina N	liaht	Dailv
Site Data						Au	tos: 7	1.5% 1	13.0% 1	5.5%	98.56%
Bar	rier Heiaht:	0.0 feet			M	edium Truc	cks: 70	0.4%	5.6% 2	4.0%	0.37%
Barrier Type (0-W	all, 1-Berm):	0.0			ŀ	Heavy True	cks: 71	7.8%	5.9% 1	6.3%	1.07%
Centerline Dis	st. to Barrier:	92.0 feet		N	oise Sr	ource Elev	ations	(in feet)			
Centerline Dist.	to Observer:	92.0 feet			0.00 0	Autos:	0.00	0			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks:	2 29	7			
Observer Height (J	Above Pad):	5.0 feet			Heav	N Trucks	8.00	a Gra	ade Adius	tment:	0.0
Pa	ad Elevation:	0.0 feet			mour	y maono.	0.00				
Roa	ad Elevation:	0.0 feet		Lá	ane Eq	uivalent D	oistance	(in feet	)		
F	Road Grade:	0.0%				Autos:	83.47	'5			
	Left View:	-90.0 degre	es		Mediu	m Trucks:	83.36	68			
	Right View:	90.0 degre	es		Heav	/y Trucks:	83.37	'9			
FHWA Noise Mode	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresnel	Bar	rier Atten	Berr	n Atten
Autos:	71.78	5.69		-3.44		-1.20	-4	1.76	0.000	)	0.000
Medium Trucks:	82.40	-18.53		-3.43		-1.20	-4	1.88	0.000	)	0.000
Heavy Trucks:	86.40	-13.95		-3.43		-1.20	-5	5.18	0.000	)	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y L	eq Eve	ening	Leq Ni	ght	Ld	n	C٨	IEL
Autos:	72	2.8	70.6		69.2		65.2		72.8		73.3
Medium Trucks:	59	9.2	56.9		52.0		53.5		60.4		60.6
Heavy Trucks:	67	7.8	65.9		60.7		60.4		67.9		68.2
Vehicle Noise:	74	1.2	72.0		69.8		66.6		74.2		74.6
Centerline Distance	e to Noise C	ontour (in fee	t)								
				70 dE	BA	65 dE	BA	60 d	BA	55 (	dBA
			Ldn:	176 379 816			1,759				
		C	NEL:	187		403		86	9	1,8	373

	FHV	VA-RD-77-108	HIGHWA	NY NC	DISE PF	EDICTIO	N MOE	EL			
Scenar	io: EAC 2020	Without Project				Project N	ame: K	TM			
Road Nan Road Segme	ne: winchester nt: s/o Murrieta	a Hot Springs R	d.			JOD NUR	nber: 1	1624			
SITE	SPECIFIC IN	IPUT DATA				NO	ISE M	ODE		S	
Highway Data				Si	ite Con	ditions (H	lard = 1	10, So	oft = 15)		
Average Daily	Traffic (Adt):	56,277 vehicle	s				A	utos:	15		
Peak Hour	Percentage:	10%			Mee	dium Truc	ks (2 A	xles):	15		
Peak H	lour Volume:	5,628 vehicles			Hea	avy Truck	s (3+ A	xles):	15		
Ve	hicle Speed:	55 mph		V	ehicle I	Nix					
Near/Far La	ne Distance:	78 feet		-	Vehi	cleTvpe	[	Dav	Evenina	Niaht	Dailv
Site Data						Au	tos: 7	1.5%	13.0%	15.5%	98.56%
Ba	rrier Height	0.0 feet			Me	dium True	cks: 7	0.4%	5.6%	24.0%	0.37%
Barrier Type (0-V	Vall 1-Berm)	0.0			H	leavy Tru	cks: 7	7.8%	5.9%	16.3%	1.07%
Centerline Di	ist. to Barrier:	92.0 feet		-							
Centerline Dist.	to Observer:	92.0 feet		N	oise So	urce Elev	ations	(in fe	et)		
Barrier Distance	to Observer:	0.0 feet				Autos:	0.0	00			
Observer Height	(Above Pad):	5.0 feet			Mediur	n Trucks:	2.2	97	Grada Ad	iustmont	
P	ad Elevation:	0.0 feet			Heav	y Trucks:	8.0	04	Grade Auj	usuneni	0.0
Ro	ad Elevation:	0.0 feet		Lá	ane Equ	iivalent D	listanc	e (in f	eet)		
	Road Grade:	0.0%				Autos:	83.4	75			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	83.3	68			
	Right View:	90.0 degree	S		Heav	y Trucks:	83.3	79			
FHWA Noise Mod	lel Calculation	s									
VehicleType	REMEL	Traffic Flow	Distan	ce	Finite	Road	Fresne	el i	Barrier Att	en Ber	m Atten
Autos:	71.78	4.73	-	3.44		-1.20	-	4.76	0.0	000	0.000
Medium Trucks:	82.40	-19.49	-	3.43		-1.20	-	4.88	0.0	000	0.000
Heavy Trucks:	86.40	-14.91	-	3.43		-1.20	-	5.18	0.0	000	0.000
I for my life and and Mining		out Topo and	barrier a	ttenu	ation)						
Unmitigated Nois	e Levels (with			_			abt		Ldn	CI	VEL
VehicleType	e Levels (with Leq Peak Hou	r Leq Day	Le	q Eve	ening	Leq Ni	ym				
VehicleType Autos:	<b>e Levels (with</b> Leq Peak Hou 71	r Leq Day .9 6	59.6	q Eve	68.2	Leq Ni	64.2		71.9	)	72.3
VehicleType Autos: Medium Trucks:	e Levels (with Leq Peak Hou 71 58	r Leq Day .9 6 .3 5	59.6 56.0	q Eve	68.2 51.0	Leq Ni	64.2 52.5		71.9 59.5	5	72.3 59.6
VehicleType Autos: Medium Trucks: Heavy Trucks:	e Levels (with Leq Peak Hou 71 58 66	r <u>Leq Day</u> .9 6 .3 5 .9 6	Le 39.6 56.0 35.0	q Eve	68.2 51.0 59.8	Leq Ni	64.2 52.5 59.4		71.9 59.5 67.0	) 5 )	72.3 59.6 67.2
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	e Levels (with Leq Peak Hou 71 58 66 73	Leq Day           .9         6           .3         5           .9         6           .2         7	Le 39.6 56.0 35.0 71.0	q Eve	68.2 51.0 59.8 68.9	Leq Ni	64.2 52.5 59.4 65.7		71.9 59.5 67.0 73.3	) 5 ) 3	72.3 59.6 67.2 73.7
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 71 58 66 73 ce to Noise Co	r Leq Day .9 6 .3 5 .9 6 .2 7 ontour (in feet)	Le 39.6 56.0 55.0 71.0	q Eve	68.2 51.0 59.8 68.9	Leq Ni	64.2 52.5 59.4 65.7		71.9 59.5 67.0 73.3	9 5 9 8	72.3 59.6 67.2 73.7
Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 71 58 66 73 ce to Noise Co	r Leq Day .9 6 .3 5 .9 6 .2 7 ontour (in feet)	Le 39.6 56.0 55.0 71.0	q Eve	68.2 51.0 59.8 68.9 3A	65 dE	64.2 52.5 59.4 65.7	6	71.9 59.5 67.0 73.3 0 dBA	55	72.3 59.6 67.2 73.7 dBA
VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 71 58 66 73 ce to Noise Co	r Leq Day 9 6 3 5 9 6 2 7 0 ntour (in feet)	Le 59.6 56.0 55.0 71.0 Ldn:	70 dE	68.2 51.0 59.8 68.9	65 dE	64.2 52.5 59.4 65.7	6	71.9 59.5 67.0 73.3 0 dBA 705	5 5 5 5 5 5 5 5 5 5 5	72.3 59.6 67.2 73.7 dBA 519

Tuesday, August 14, 2018

	FHV	VA-RD-77-108	HIGH	WAY I	NOISE PI	REDICTI	ON MO	DDEL			
Scenario. Road Name. Road Segment	: EAC 2020 \ : Auld Rd. : e/o Winche	Without Project ster Rd. (SR-7	9)			Project Job N	Name: umber:	KTM 11624			
SITE S	PECIFIC IN	PUT DATA				N	OISE	MODE	L INPUT	S	
Highway Data					Site Cor	ditions	(Hard :	= 10, S	oft = 15)		
Average Daily T	raffic (Adt):	17,144 vehicle	s					Autos:	15		
Peak Hour P	ercentage:	10%			Me	dium Tru	icks (2	Axles):	15		
Peak Ho	ur Volume:	1,714 vehicles	6		He	avy Truc	cks (3+	Axles):	15		
Vehi	icle Speed:	40 mph		H	Vohiclo	Mix					
Near/Far Lane	e Distance:	36 feet			Veh	icleType		Dav	Evenina	Night	Daily
Site Data							lutos:	71.5%	13.0%	15.5%	98.56%
Borr	ior Hoimht	0.0 (act			М	edium Tr	ucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-Wa	Il 1-Borm)	0.0 1001				Heavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Dist	to Barrier	50.0 feet		-							
Centerline Dist. to	Observer:	50.0 feet		L	Noise S	ource El	evatio	ns (in f	eet)		
Barrier Distance to	Observer:	0.0 feet				Autos	s: 0	.000			
Observer Height (A	bove Pad):	5.0 feet			Mediu	m Truck	s: 2	.297	Crada As	livetreen	
Pac	l Elevation:	0.0 feet			Heat	y Trucks	5: 8	.004	Grade Ad	jusimen	. 0.0
Road	l Elevation:	0.0 feet			Lane Eq	uivalent	Distar	nce (in	feet)		
Re	oad Grade:	0.0%				Autos	s: 46	.915			
	Left View:	-90.0 degree	s		Mediu	m Truck	s: 46	.726			
1	Right View:	90.0 degree	es		Heav	/y Trucks	s: 46	.744			
FHWA Noise Model	Calculation	s									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fres	nel	Barrier At	ten Be	rm Atten
Autos:	66.51	0.95		0.3	1	-1.20		-4.65	0.	000	0.000
Medium Trucks:	77.72	-23.27		0.3	4	-1.20		-4.87	0.	000	0.000
Heavy Trucks:	82.99	-18.69		0.3	4	-1.20		-5.43	0.	000	0.00
Unmitigated Noise	Levels (with	out Topo and	barrie	er atter	nuation)						
VehicleType L	.eq Peak Hou	r Leq Day		Leq E	vening	Leq	Night		Ldn	C	NEL
Autos:	66	.6	64.3		62.9		58.	9	66.	6	67.0
Medium Trucks:	53	.6	51.3		46.3		47.	8	54.	8	54.9
Heavy Trucks:	63	.4	61.6		56.4		56.	0	63.	6	63.
Vehicle Noise:	68	.4	66.3		63.9		60.	9	68.	5	68.
Centerline Distance	e to Noise Co	ontour (in feet	)								
				70	dBA	65	dBA	1	60 dBA	55	i dBA
			_	-						_	
			Ldn:	4	40	8	6		185	:	398

	FHV	VA-RD-77-108 H	IIGHWA	Y NOISE	PREDICTIO	ON MO	DEL			
Scenar	io: EAC 2020	Without Project			Project I	Vame:	ктм			
Road Nam	e: Sparkman	Wy.			Job Nu	imber:	11624			
Road Segme	nt: e/o Winche	ster Rd. (SR-79	)							
SITE	SPECIFIC IN	IPUT DATA			N	OISE N	/IODE	L INPUT	s	
Highway Data				Site Co	onditions (	Hard =	10, So	oft = 15)		
Average Daily	Traffic (Adt):	5,952 vehicles	5				Autos:	15		
Peak Hour	Percentage:	10%		٨	ledium Tru	cks (2 /	Axles):	15		
Peak H	lour Volume:	595 vehicles		ŀ	leavy Truck	ks (3+ A	Axles):	15		
Ve	hicle Speed:	40 mph		Vehicle	e Mix					
Near/Far La	ne Distance:	12 feet		Ve	hicleType		Day	Evening	Night	Daily
Site Data					A	utos:	71.5%	13.0%	15.5%	98.56%
Bai	rrier Height	0.0 feet			Medium Tru	icks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			Heavy Tru	icks:	77.8%	5.9%	16.3%	1.07%
Centerline Dis	st. to Barrier:	30.0 feet		Noise	Source Ele	vation	s (in fe	eet)		
Centerline Dist.	to Observer:	30.0 feet			Autos	: 0.0	000			
Barrier Distance	to Observer:	0.0 feet		Med	ium Trucks	. 2	297			
Observer Height (	Above Pad):	5.0 feet		He	avv Trucks	8.0	004	Grade Ad	liustment	: 0.0
Pa	ad Elevation:	0.0 feet							, 	
Roa	ad Elevation:	0.0 feet		Lane E	quivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%			Autos.	: 29.	816			
	Left View:	-90.0 degrees	5	Med	ium Trucks.	: 29.	518			
	Right View:	90.0 degrees	6	He	avy Trucks.	: 29.	547			
FHWA Noise Mod	el Calculation	s								
VehicleType	REMEL	Traffic Flow	Distand	e Fini	te Road	Fresr	nel	Barrier At	ten Be	rm Atten
Autos:	66.51	-3.64		3.26	-1.20		-4.49	0.	000	0.000
Medium Trucks:	77.72	-27.86		3.33	-1.20		-4.86	0.0	000	0.000
Heavy Trucks:	82.99	-23.28		3.32	-1.20		-5.77	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and b	arrier at	tenuation	l)					
VehicleType	Leq Peak Hou	r Leq Day	Le	q Evening	Leq N	light		Ldn	С	NEL
Autos:	64	.9 6	2.7	61.	.3	57.3	3	64.	9	65.4
Medium Trucks:	52	.0 4	9.7	44.	.7	46.2	2	53.	2	53.3
Heavy Trucks:	61	.8 6	0.0	54.	.7	54.4	ļ	62.	0	62.2
Vehicle Noise:	66	.8 6	4.7	62.	.2	59.3	3	66.	9	67.3
Centerline Distant	ce to Noise Co	ontour (in feet)								
				70 dBA	65 d	BA	6	60 dBA	55	dBA
		L	dn:	19	40	)		86		186
		CN	EL:	20	43	3		92		197

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FH	WA-RD-77-108	HIGHW	Y NOISE	PREDICT		DEL		_	_
Scenario: EAC 2020 Road Name: Robert Tre Road Segment: w/o Winch	Scenario: EAC 2020 Without Project Road Name: Robert Trent Jones Pkwy. Road Segment: w/o Winchester Rd. (SR-79) SITE SPECIFIC INPUT DATA				Name: k umber: 1	KTM 11624			
SITE SPECIFIC II	NPUT DATA			N	IOISE N	IODEL	INPUTS	5	
Highway Data			Site C	onditions	(Hard =	10, Sof	t = 15)		
Average Daily Traffic (Adt):	4,206 vehicl	es			A	Autos:	15		
Peak Hour Percentage:	10%			Medium Tru	ucks (2 A	xles):	15		
Peak Hour Volume:	421 vehicle	s		Heavy Truc	cks (3+ A	xles):	15		
Vehicle Speed:	40 mph		Vehic	le Mix					
Near/Far Lane Distance:	12 feet		V	ehicleTvpe		Dav	Evenina	Night	Dailv
Site Data				A	Autos:	71.5%	13.0%	15.5%	98.56%
Barrier Height:	0.0 feet			Medium Tr	rucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-Wall, 1-Berm):	0.0			Heavy Tr	rucks:	77.8%	5.9%	16.3%	1.07%
Centerline Dist. to Barrier:	30.0 feet		Noise	Source El	levations	s (in fee	et)		
Centerline Dist. to Observer:	30.0 feet			Autos	s: 0.0	000	/		
Barrier Distance to Observer:	0.0 feet		Med	lium Truck	s: 2.2	297			
Observer Height (Above Pad):	5.0 feet		He	avv Truck	s: 8.0	004	Grade Adj	ustment.	0.0
Pad Elevation:	0.0 feet								
Road Elevation:	0.0 feet		Lane	Equivalent	t Distanc	ce (in fe	et)		
Road Grade:	0.0%			Autos	s: 29.8	316			
Left View:	-90.0 degre	es	Med	lium Truck	s: 29.5	518			
Right View:	90.0 degre	es	He	avy Truck	s: 29.5	547			
FHWA Noise Model Calculation	ıs								
VehicleType REMEL	Traffic Flow	Distan	ce Fin	ite Road	Fresn	el E	Barrier Atte	en Ber	m Atten
Autos: 66.51	-5.15		3.26	-1.20		-4.49	0.0	00	0.000
Medium Trucks: 77.72	-29.37		3.33	-1.20		-4.86	0.0	00	0.000
Heavy Trucks: 82.99	-24.79		3.32	-1.20		-5.77	0.0	00	0.000
Unmitigated Noise Levels (with	nout Topo and	barrier a	ttenuatio	n)					
VehicleType Leq Peak Ho	ur Leq Day	/ Le	eq Evening	Leq	Night		Ldn	CI	VEL
Autos: 63	3.4	61.2	59	.8	55.8		63.4		63.9
Medium Trucks: 50	0.5	48.2	43	1.2	44.7		51.7		51.8
Heavy Trucks: 60	).3	58.4	53	.2	52.9		60.5		60.7
venicie Noise: 65	5.3	b3.2	ы	1.7	57.8		65.4		65.8
Centerline Distance to Noise C	ontour (in feet	)	70 dBA	65	dBA	60	dBA	55	dBA
		I dn:	15 32		2		69	1	48
	C	VEL:	15 32 69 16 34 73				73	1	57

	FH\	VA-RD-77-108	HIGHW	AY N	OISE PR	EDICTI	ON MO	DEL			
Scenar	Scenario: EAC 2020 Without Project					Project	Name:	ктм			
Road Nan	ne: Murrieta Ho	ot Springs Rd.				Job N	umber:	11624			
Road Segme	nt: w/o Winche	ester Rd. (SR-7	'9)								
SITE	SPECIFIC IN	IPUT DATA				N	OISEI	NODE	L INPUT	S	
Highway Data				S	Site Con	ditions	(Hard =	: 10, S	oft = 15)		
Average Daily	Traffic (Adt):	48,220 vehicle	es					Autos:	15		
Peak Hour	Percentage:	10%			Med	lium Tru	cks (2 )	Axles).	15		
Peak H	lour Volume:	4,822 vehicle	s		Hea	avy Truc	ks (3+ )	Axles).	15		
Ve	hicle Speed:	45 mph		٧	/ehicle N	lix					
Near/Far La	ne Distance:	12 feet			Vehi	cleType		Day	Evening	Night	Daily
Site Data						A	utos:	71.5%	5 13.0%	15.5%	98.56%
Ba	rrier Heiaht:	0.0 feet			Me	dium Tr	ucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-V	/all. 1-Berm):	0.0			н	leavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	37.0 feet			laisa Sa	urco El	ovation	e (in f	oot)		
Centerline Dist.	to Observer:	37.0 feet		-	10/36 30	Autor		000	eel)		
Barrier Distance	to Observer:	0.0 feet			Modium	Autos Trucka	. U.	207			
Observer Height	(Above Pad):	5.0 feet			Heav	/ Trucks	. 2. . g	004	Grade Ad	iustment	0.0
P	ad Elevation:	0.0 feet			neavy	mucks	. 0.	004	,		0.0
Ro	ad Elevation:	0.0 feet		L	ane Equ	iivalent	Distan	ce (in	feet)		
	Road Grade:	0.0%				Autos	: 36.	851			
	Left View:	-90.0 degre	es		Mediun	n Trucks	: 36.	610			
	Right View:	90.0 degree	es		Heavy	/ Trucks	: 36.	634			
FHWA Noise Mod	el Calculation	s		_							
VehicleType	REMEL	Traffic Flow	Distan	ice	Finite I	Road	Fresi	nel	Barrier Att	en Ber	m Atten
Autos:	68.46	4.93		1.88		-1.20		-4.56	0.0	000	0.000
Medium Trucks:	79.45	-19.29		1.93	:	-1.20		-4.87	0.0	000	0.000
Heavy Trucks:	84.25	-14.71		1.92		-1.20		-5.61	0.0	000	0.000
, , , , , , , , , , , , , , , , , , , ,	04.20										
Unmitigated Nois	e Levels (with	out Topo and	barrier a	atteni	uation)						
Unmitigated Nois VehicleType	e Levels (with Leq Peak Hou	out Topo and Ir Leq Day	barrier a	atteni eq Ev	uation) rening	Leq	Vight		Ldn	CI	VEL
Unmitigated Nois VehicleType Autos:	e Levels (with Leq Peak Hou 74	out Topo and Ir Leq Day .1	<i>barrier a</i> / <i>Le</i> 71.8	etteni eq Ev	vation) rening 70.4	Leq I	Vight 66.4	1	Ldn 74.1	CI	VEL 74.5
Unmitigated Nois VehicleType Autos: Medium Trucks:	e Levels (with Leq Peak Hou 74 60	out Topo and Ir Leq Day .1 .9	<i>barrier a</i> / <i>L</i> e 71.8 58.6	atteni eq Ev	vening 70.4 53.6	Leq I	Vight 66.4 55.1	1	Ldn 74.1 62.1	CI	VEL 74.5 62.2
Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks:	e Levels (with Leq Peak Hou 74 60 70	out Topo and Ir Leq Day .1 .9 .3	<i>barrier a</i> / <i>Le</i> 71.8 58.6 68.4	eq Ev	vening 70.4 53.6 63.2	Leq I	Vight 66.4 55.7 62.9	4 1 9	Ldn 74.1 62.1 70.4	CI	VEL 74.5 62.2 70.6
Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise:	e Levels (with Leg Peak Hou 74 60 70 75	out Topo and Ir Leq Day .1 .9 .3 .7	barrier a / Le 71.8 58.6 68.4 73.6	atteni eq Ev	vening 70.4 53.6 63.2 71.3	Leq I	Vight 66.4 55.7 62.9 68.2	4 1 9 2	Ldn 74.1 62.1 70.4 75.8	CI L	VEL 74.5 62.2 70.6 76.2
Unmitigated Nois Vehicle Type Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hot 74 60 70 75 ce to Noise Co	out Topo and Ir Leq Day .1 .3 .7 ontour (in feet	barrier a / Le 71.8 58.6 68.4 73.6 )	atteni eq Ev	rening 70.4 53.6 63.2 71.3	Leq I	Vight 66.4 55.7 62.9 68.2	4 1 9 2	Ldn 74.1 62.1 70.4 75.8		VEL 74.5 62.2 70.6 76.2
Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 74 60 70 75 ce to Noise Co	out Topo and Ir Leq Day .1 .3 .7 Dontour (in feet	barrier a / Le 71.8 58.6 68.4 73.6 )	atteni eq Ev 70 d	vening 70.4 53.6 63.2 71.3	Leq 1	Vight 66.4 55.7 62.9 68.7	4 1 2	Ldn 74.1 62.1 70.4 75.8	CI	VEL 74.5 62.2 70.6 76.2 dBA
Unmitigated Nois VehicleType Autos: Medium Trucks: Heavy Trucks: Vehicle Noise: Centerline Distan	e Levels (with Leq Peak Hou 74 60 70 75 ce to Noise Co	out Topo and Ir Leq Day .1 .9 .3 .7 ontour (in feet	barrier a / Le 71.8 58.6 68.4 73.6 ) Ldn:	atteni eq Ev 70 d 90	vening 70.4 53.6 63.2 71.3	Leg I 65 0	Vight 66.4 55.7 62.9 68.7 IBA	4 1 2	Ldn 74.1 62.1 70.4 75.8 50 dBA 419	CI 55 9	VEL 74.5 62.2 70.6 76.2 dBA 02

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	FHV	VA-RD-77-108	HIGH	NAY N	IOISE PI	REDICTIO	ON MO	DEL				
Scenar Road Nan Road Segme	io: EAC 2020 V ne: Winchester nt: n/o Auld Ro	With Project Rd. (SR-79) I.				Project I Job Nu	Vame: mber:	KTM 11624				
SITE	SPECIFIC IN	PUT DATA				N	DISE	MODE	L INP	UTS		
Highway Data					Site Con	ditions (	Hard :	= 10, So	oft = 15	5)		
Average Daily Peak Hour Peak H	Traffic (Adt): Percentage: lour Volume:	64,263 vehicle 10% 6,426 vehicles	S		Me He	dium True avy Truck	cks (2 ks (3+	Autos: Axles): Axles):	15 15 15			
Ve	hicle Speed:	55 mph		-	Vehicle	Mix						
Near/Far La	ne Distance:	78 feet		F	Veh	icleTvne		Dav	Eveni	na I	Viaht	Daily
Site Data				-	10/1	A	itos:	71.5%	13.0	<del>9</del> . )%	15.5%	98.57%
Bo	rrior Hoight	0.0 feet			M	edium Tru	icks:	70.4%	5.6	5%	24.0%	0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tru	icks:	77.8%	5.9	9%	16.3%	1.06%
Centerline Di	st. to Barrier:	92.0 feet			Noise So	ource Ele	vatio	ns (in fe	eet)			
Centerline Dist.	to Observer:	92.0 feet		F		Autos	0	.000				
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks	. 2	297				
Observer Height	(Above Pad):	5.0 feet			Heau	v Trucks		004	Grade	Adiu	stment	0.0
P	ad Elevation:	0.0 feet			mour	<i>y maono.</i>						
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalent	Distar	nce (in i	feet)			
	Road Grade:	0.0%				Autos:	83	.475				
	Left View: Right View:	-90.0 degree 90.0 degree	s s		Mediu Heav	n Trucks. y Trucks:	83 83	.368 .379				
FHWA Noise Mod	el Calculation	s										
VehicleType	REMEL	Traffic Flow	Dist	ance	Finite	Road	Fres	nel	Barrier	Atter	Ber	m Atten
Autos:	71.78	5.31		-3.4	4	-1.20		-4.76		0.00	0	0.00
Medium Trucks:	82.40	-18.95		-3.4	3	-1.20		-4.88		0.00	0	0.00
Heavy Trucks:	86.40	-14.36		-3.4	3	-1.20		-5.18		0.00	0	0.00
Unmitigated Nois	e Levels (with	out Topo and I	barrie	r atten	uation)							
VehicleType	Leq Peak Hou	r Leq Day		Leq E	vening	Leq N	light		Ldn		CI	VEL
Autos:	72	.4 7	0.2		68.8		64.	8		72.4		72.
Medium Trucks:	58	.8 5	6.5		51.5		53.	1		60.0		60.
Heavy Trucks:	67	.4 6	5.5		60.3		60.	0		67.5		67.
Vehicle Noise:	73	.8 7	1.6		69.5		66.	3		73.8		74.
Centerline Distan	ce to Noise Co	ontour (in feet)										
				70 (	dBA	65 d	BA	6	50 dBA		55	dBA
		L	.dn:	16	56	35	7		769		1,	657
		CN	EL:	17	76	38	D		819		1,	764

	FH\	WA-RD-77-10	3 HIGH	IWAY N	OISE PI	REDICTIC	N MOI	DEL			
Scenar Road Narr Road Segme	io: EAC 2020 ne: Wincheste nt: s/o Auld Re	With Project r Rd. (SR-79) d.				Project N Job Nui	lame: k mber: 1	(TM 1624			
SITE	SPECIFIC IN	NPUT DATA				NC	DISE N	IODE	L INPUTS	5	
Highway Data				S	Site Con	ditions (F	lard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	60,677 vehic	les				A	lutos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	:ks (2 A	xles).	15		
Peak H	lour Volume:	6,068 vehicle	es		He	avy Truck	s (3+ A	xles).	15		
Ve	hicle Speed:	55 mph			/ohiclo	Mix					
Near/Far La	ne Distance:	78 feet		F	Veh	icleTvpe		Dav	Evenina	Niaht	Dailv
Site Data						AL	itos:	71.5%	6 13.0%	15.5%	98.57%
Ba	rrier Height	0.0 feet			Me	edium Tru	cks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	/all. 1-Berm):	0.0			ŀ	leavy Tru	cks:	77.8%	5.9%	16.3%	1.06%
Centerline Di	st. to Barrier:	92.0 feet			loiso Se		vation	(in f	oot)		
Centerline Dist.	to Observer:	92.0 feet		-	10/36 30	Autos		00	eel)		
Barrier Distance	to Observer:	0.0 feet			Modiu	n Trucks:	2.0	00			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks:	8.0	04	Grade Adi	ustment	. 0.0
Pa	ad Elevation:	0.0 feet			mour	y maono.	0.0		,		
Roi	ad Elevation:	0.0 feet		L	ane Eq.	uivalent l	Distand	e (in	feet)		
	Road Grade:	0.0%				Autos:	83.4	75			
	Left View:	-90.0 degre	es		Mediu	n Trucks:	83.3	68			
	Right View:	90.0 degre	es		Heav	y Trucks:	83.3	379			
FHWA Noise Mod	el Calculation	IS									
VehicleType	REMEL	Traffic Flow	Dis	stance	Finite	Road	Fresn	el	Barrier Atte	en Bei	m Atten
Autos:	71.78	5.06	i	-3.44	ļ.	-1.20		4.76	0.0	00	0.000
Medium Trucks:	82.40	-19.20		-3.43	5	-1.20		4.88	0.0	00	0.000
Heavy Trucks:	86.40	-14.61		-3.43	5	-1.20		-5.18	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	l barri	er atteni	uation)						
VehicleType	Leg Peak Ho	ur Leq Da	у	Leq Ev	rening	Leq N	ight		Ldn	С	NEL
Autos:	72	2.2	70.0		68.6		64.6		72.2		72.7
Medium Trucks:	58	3.6	56.3		51.3		52.8		59.8		59.9
Heavy Trucks:	67	7.2	65.3		60.1		59.7		67.3		67.5
Vehicle Noise:	73	3.5	71.4		69.2		66.0		73.6		74.0
Centerline Distan	ce to Noise C	ontour (in fee	t)								
				70 d	BA	65 dl	BA		60 dBA	55	dBA
			Ldn:	15	9	344	ļ.		740	1,	595
		C	NEL:	17	0	366	6		788	1,	698

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	FH\	WA-RD-77-108	HIGH	NAY N	OISE PI	REDICTIC	ON MOD	DEL			
Scenar Road Nan Road Segme	io: EAC 2020 ne: Winchester nt: s/o Sparkm	With Project r Rd. (SR-79) nan Wy.				Project N Job Nu	lame: K mber: 1	TM 1624			
SITE	SPECIFIC IN	IPUT DATA				NC	DISE M	ODE	L INPUTS	;	
Highway Data				S	Site Cor	ditions (l	Hard = 1	10, So	ft = 15)		
Average Daily	Traffic (Adt):	68,159 vehicl	es				A	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	cks (2 A	xles):	15		
Peak H	lour Volume:	6,816 vehicle	s		He	avy Truck	(3+ A	xles):	15		
Ve	hicle Speed:	55 mph		v	/ehicle	Mix					
Near/Far La	ne Distance:	78 feet		-	Veh	icleTvpe	[	Dav	Evenina	Niaht	Dailv
Site Data						AL	itos: 7	1.5%	13.0%	15.5%	98.56%
Ba	rrier Heiaht:	0.0 feet			М	edium Tru	icks: 7	0.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			1	Heavy Tru	icks: 7	7.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	92.0 feet			laise S	ource Ele	vations	(in fe	of)		
Centerline Dist.	to Observer:	92.0 feet		-		Autos:	0.0	00			
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	04	Grade Adj	ustmen	t: 0.0
P	ad Elevation:	0.0 feet		-							
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent l	Distanc	e (in f 	eet)		
	Road Grade:	0.0%			1 4 m all 1	Autos:	83.4	/5			
	Left View:	-90.0 degre	es		Mealu	m Trucks:	83.3	68 70			
	Right view:	90.0 degre	es		near	ly TTUCKS.	83.3	79			
FHWA Noise Mod	el Calculation	S									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresne	el i	Barrier Atte	en Be	rm Atten
Autos:	71.78	5.56		-3.44		-1.20	-	4.76	0.0	00	0.000
Medium Trucks:	82.40	-18.66		-3.43		-1.20	-	4.88	0.0	00	0.000
Heavy Trucks:	86.40	-14.08		-3.43		-1.20	-	5.18	0.0	00	0.000
Unmitigated Nois	e Levels (with	out Topo and	barrier	r attenu	uation)						
VehicleType	Leq Peak Hou	ur Leq Da	/	Leq Ev	ening	Leq N	light		Ldn	С	NEL
Autos:	72	2.7	70.5		69.1		65.1		72.7		73.2
Medium Trucks:	59	0.1	56.8		51.8		53.4		60.3		60.5
Heavy Trucks:	6/	.7	55.8		60.6		60.3		67.8		68.0 74.5
Conterline Distan	na ta Naisa Ci	antour (in foo	41.5		05.1		00.0		74.1		74.0
Centernine Distan	LE 10 NUISE CI	omour (in tee	9	70 dBA 65 dBA 60 dBA 5		55	dBA				
			Ldn:	173	173 372			801	1	,725	
		С	NEL:	184	184         396         853         1,837				,837		

	FHV	VA-RD-77-108	HIGHV	VAY N		REDICTIC		DEL _			
Scenar	io: EAC 2020 V	With Project				Project N	lame: k	СТМ			
Road Nan	ne: Winchester	Rd. (SR-79) Pd				Job Nu	mber: 1	1624			
Noau Segine	n. 5/0110111011									_	
SITE Highway Data	SPECIFIC IN	PUT DATA			to Con	NC ditions (k	DISE N	10 So	L INPUT:	5	
Ingilway Dala					Sile Con	uiuoiis (i	iaiu =	10, 30	11 = 13)		
Average Daily	Traffic (Adt):	74,167 vehicle	S			-K	, (D )	utos:	15		
Peak Hour	Percentage:	10%			ivie:	aium Truc	KS (2 A	xies):	15		
Peak F	lour Volume:	7,417 vehicles			He	avy Truck	S (3+ A	xies):	15		
Ve No su/Esu ( s	nicle Speed:	55 mpn		V	/ehicle l	Vix					
Near/Far La	ne Distance:	78 teet			Vehi	icleType		Day	Evening	Night	Daily
Site Data						AL	itos:	71.5%	13.0%	15.5%	98.56%
Ba	rrier Height:	0.0 feet			Me	edium Tru	cks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			F	leavy Tru	cks:	77.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	92.0 feet			loiso Sc	urco Elo	vation	(in fo	(of)		
Centerline Dist.	to Observer:	92.0 feet		-	10/36 30		vauona		eij		
Barrier Distance	to Observer:	0.0 feet			Madiu	Autos.	0.0	00			
Observer Height	(Above Pad):	5.0 feet			Hoov	II TTUCKS.	2.2	97	Grade Ad	iustment	0.0
P	ad Elevation:	0.0 feet			Tieav	y muchs.	0.0	04	0/000/10	dournorn.	0.0
Ro	ad Elevation:	0.0 feet		L	ane Eq	uivalent I	Distand	e (in f	eet)		
	Road Grade:	0.0%				Autos:	83.4	75			
	Left View:	-90.0 degree	s		Mediur	n Trucks:	83.3	68			
	Right View:	90.0 degree	s		Heav	y Trucks:	83.3	879			
FHWA Noise Mod	el Calculations	s									
VehicleType	REMEL	Traffic Flow	Dista	ance	Finite	Road	Fresn	el .	Barrier Att	en Ber	m Atten
Autos:	71.78	5.93		-3.44		-1.20		4.76	0.0	000	0.000
Medium Trucks:	82.40	-18.31		-3.43	5	-1.20		4.88	0.0	000	0.000
Heavy Trucks:	86.40	-13.72		-3.43	6	-1.20		-5.18	0.0	000	0.000
Unmitigated Nois	e Levels (with	out Topo and I	barrier	atteni	uation)						
VehicleType	Leq Peak Hou	r Leq Day	I	Leq Ev	rening	Leq N	ight		Ldn	CI	VEL
Autos:	73.	.1 7	'0.8		69.4		65.4		73.1		73.5
Medium Trucks:	59.	.5 5	7.1		52.2		53.7		60.7	·	60.8
Heavy Trucks:	68.	.0 E	6.2		61.0		60.6		68.2	2	68.4
Vehicle Noise:	74.	.4 7	2.2		70.1		66.9		74.5	i .	74.9
Centerline Distan	ce to Noise Co	ontour (in feet)		70 -	04	05 -11	24		0 -00 4		-10.4
			da	10 0	DA D	bo di	DAI D	6	0 dBA	1 55	UBA
			an:	18	2	393	5		847 002	1,4	520 040
		Ch	EL:	19	4	419	,		902	1,9	543

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	FHW	/A-RD-77-108 H	IGHWAY	NOISE P	REDICTIO	N MODEL			
Scenari	o: EAC 2020 V	Vith Project			Project Na	ame: KTM			
Road Nam	e: Winchester	Rd. (SR-79)			Job Nun	nber: 1162	4		
Road Segmer	nt: s/o Technol	ogy Dr.							
SITE S	SPECIFIC IN	PUT DATA			NO	ISE MOD	EL INPUTS	S	
Highway Data				Site Cor	ditions (H	ard = 10, S	Soft = 15)		
Average Daily	Traffic (Adt):	70,889 vehicles				Autos	s: 15		
Peak Hour	Percentage:	10%		Me	dium Truck	ks (2 Axles	): 15		
Peak H	our Volume:	7,089 vehicles		He	avy Trucks	s (3+ Axles	): 15		
Vel	hicle Speed:	55 mph		Vehicle	Mix				
Near/Far Lar	ne Distance:	78 feet		Veh	icleType	Day	Evening	Night	Daily
Site Data					Aut	os: 71.5	% 13.0%	15.5%	98.56%
Bar	rier Heiaht:	0.0 feet		М	edium Truc	ks: 70.4	% 5.6%	24.0%	0.37%
Barrier Type (0-W	all, 1-Berm):	0.0		1	Heavy Truc	ks: 77.8	% 5.9%	16.3%	1.07%
Centerline Dis	t. to Barrier:	92.0 feet		Noise S	ource Flev	ations (in	foot)		
Centerline Dist.	to Observer:	92.0 feet		140136 3	Autor:	0.000	ieel)		
Barrier Distance	to Observer:	0.0 feet		Mediu	m Trucks	2 297			
Observer Height (J	Above Pad):	5.0 feet		Hoa	A Trucke	8 004	Grade Adi	ustment	.00
Pa	d Elevation:	0.0 feet		near	ly mucho.	0.004	erade ridj	uounone	. 0.0
Roa	d Elevation:	0.0 feet		Lane Eq	uivalent D	istance (ir	n feet)		
F	Road Grade:	0.0%			Autos:	83.475			
	Left View:	-90.0 degrees		Mediu	m Trucks:	83.368			
	Right View:	90.0 degrees		Heav	/y Trucks:	83.379			
FHWA Noise Mode	Calculations	5							
VehicleType	REMEL	Traffic Flow	Distance	Finite	Road	Fresnel	Barrier Atte	en Ber	m Atten
Autos:	71.78	5.73	-3.	44	-1.20	-4.76	6 0.0	00	0.00
Medium Trucks:	82.40	-18.50	-3.	43	-1.20	-4.88	3 0.0	00	0.000
Heavy Trucks:	86.40	-13.91	-3.	43	-1.20	-5.18	3 0.0	00	0.00
Unmitigated Noise	Levels (with	out Topo and ba	arrier atte	nuation)					
VehicleType	Leq Peak Hou	r Leq Day	Leq	Evening	Leq Ni	ght	Ldn	C	NEL
Autos:	72.	9 70	.6	69.2		65.2	72.9	)	73.3
Medium Trucks:	59.	3 57	.0	52.0		53.5	60.5	5	60.0
Heavy Trucks:	67.	9 66	.0	60.8		60.4	68.0	)	68.
Vehicle Noise:	74.	2 72	.0	69.9		66.7	74.3	3	74.
Centerline Distance	e to Noise Co	ntour (in feet)							
			70	) dBA	65 dB	A	60 dBA	55	dBA
		Ld	In: ·	177	382		822	1,	771
		CNE	:L: ·	189	406		875	1,	885

	FH\	WA-RD-77-108 H	IIGHWA	Y NOISE P	REDICTIC	N MOD	EL			
Scenar Road Nan Road Segme	Scenario: EAC 2020 With Project Road Name: Winchester Rd. (SR-79) Road Segment: s/o Murrieta Hot Springs Rd.					lame: K mber: 11	TM 1624			
SITE	SPECIFIC IN	IPUT DATA			NC	DISE M	ODEL	INPUTS	5	
Highway Data				Site Cor	nditions (I	Hard = 1	0, Soft	= 15)		
Average Dailv	Traffic (Adt):	56.571 vehicles				A	utos:	15		
Peak Hour	Percentage:	10%		Me	dium Truc	ks (2 Ax	des):	15		
Peak H	lour Volume:	5,657 vehicles		He	avy Truck	is (3+ Ax	des):	15		
Ve	hicle Speed:	55 mph		Mahlala						
Near/Far La	ne Distance:	78 feet		Venicle	IVIIX			voning	Night	Daily
Sito Data				VCI	icie i ype	100: 7	1 50/	12 0%	15 5%	09 56%
Sile Dala					nu odium Tru	103. 1 cks: 7	0.4%	5.6%	24.0%	0.37%
Ba	rrier Height:	0.0 feet		101	Heavy Tru	cks: 7	7.8%	5.9%	16.3%	1.07%
Barrier Type (U-V	all, 1-Berm):	0.0			loary na	0.10. 1	1.070	0.070	10.070	1.01 /0
Centerline Di	st. to Barrier:	92.0 feet		Noise S	ource Ele	vations	(in fee	t)		
Centerline Dist.	to Observer:	92.0 feet			Autos:	0.00	00			
Observer Usight	(About Dod)	0.0 feet		Mediu	m Trucks:	2.29	97			
	ADOVE Pau).	5.0 feet		Hea	/y Trucks:	8.00	)4 G	rade Adjı	ustment.	: 0.0
P	ad Elevation.	0.0 feet		Lane Eo	uivalent l	Distance	e (in fee	et)		
70	Bood Grado:	0.0 1661			Autos	83.47	75			
	Loft Viow:	0.0 /8		Mediu	m Trucks	83.36	38			
	Pight View.	-90.0 degrees		Heat	n Trucks:	83.37	70			
	ragin view.	Solo degrees		1100	ly maono.	00.01	0			
FHWA Noise Mod	el Calculation	IS								
VehicleType	REMEL	Traffic Flow	Distanc	e Finite	Road	Fresne	I Ba	arrier Atte	n Ber	m Atten
Autos:	71.78	4.75	-:	3.44	-1.20	-4	4.76	0.00	00	0.000
Medium Trucks:	82.40	-19.49	-	3.43	-1.20	-4	1.88	0.00	00	0.000
Heavy Trucks:	86.40	-14.89	-:	3.43	-1.20	-8	5.18	0.00	00	0.000
Unmitigated Nois	e Levels (with	out Topo and b	arrier at	tenuation)				-	-	
VehicleType	Leq Peak Hou	ur Leq Day	Lec	r Evening	Leq N	light	L	dn	CI	NEL
Autos:	71	.9 6	9.6	68.3		64.2		71.9		72.4
Medium Trucks:	58	5.3 5	5.0	51.0		52.5		59.5		59.6
Heavy Trucks:	66	6.9 6	5.0	59.8		59.5		67.0		67.2
Vehicle Noise:	73	3.2 7	1.1	68.9		65.7		73.3		73.7
Centerline Distan	ce to Noise C	ontour (in feet)								
			7	70 dBA	65 d	BA	60	dBA	55	dBA
		L	dn:	152	328	3	7	07	1,	523
		CN	EL:	162 349 753 1,			622			

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	FH	WA-RD-77-108	BHIGHW	AY NC	DISE P	REDICTI	ON MOI	DEL			
Scenan Road Nam Road Segmei	io: EAC 2020 ne: Auld Rd. nt: e/o Winch	With Project ester Rd. (SR-7	79)			Project Job Ni	Name: k umber: 1	KTM 11624			
SITE	SPECIFIC I	NPUT DATA				N	OISE N	10DE	L INPUTS	5	
Highway Data				S	ite Cor	nditions	(Hard =	10, S	oft = 15)		
Average Daily	Traffic (Adt):	17,217 vehicl	es				A	Autos:	15		
Peak Hour	Percentage:	10%			Me	edium Tru	icks (2 A	xles):	15		
Peak H	lour Volume:	1,722 vehicle	s		He	avy Truc	ks (3+ A	xles):	15		
Ve	hicle Speed:	40 mph		V	ehicle	Mix					
Near/Far La	ne Distance:	36 feet		Ē	Veł	nicleType		Dav	Evenina	Niaht	Dailv
Site Data						A	utos:	71.5%	5 13.0%	15.5%	98.56%
Bai	rrier Height:	0.0 feet			М	edium Tr	ucks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0				Heavy Tr	ucks:	77.8%	5.9%	16.3%	1.07%
Centerline Dis	st. to Barrier:	50.0 feet		N	oise S	ource El	evations	s (in f	eet)		
Centerline Dist.	to Observer:	50.0 feet				Autos	: 0.0	000	,		
Barrier Distance	to Observer:	0.0 feet			Mediu	m Trucks	: 2.2	297			
Observer Height (	Above Pad):	5.0 feet			Hear	vy Trucks	: 8.0	004	Grade Adj	ustmen	t: 0.0
Pa	ad Elevation:	0.0 feet		_							
Roa	ad Elevation:	0.0 feet		Li	ane Eq	uivalent	Distanc	e (in	teet)		
	Road Grade:	0.0%				Autos	: 46.9	915			
	Left View:	-90.0 degre	es		Mediu	m Trucks	:: 46.7	26			
	Right View:	90.0 degre	es		Hea	y Trucks	: 46.7	44			
FHWA Noise Mode	el Calculatior	IS									
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Fresn	el	Barrier Atte	en Be	rm Atten
Autos:	66.51	0.97		0.31		-1.20		-4.65	0.0	00	0.000
Medium Trucks:	77.72	-23.27		0.34		-1.20		-4.87	0.0	00	0.000
Heavy Trucks:	82.99	-18.69		0.34		-1.20		-5.43	0.0	00	0.000
Unmitigated Noise	e Levels (with	out Topo and	barrier	attenu	ation)						
VehicleType	Leq Peak Ho	ur Leq Da	y L	.eq Eve	ening	Leq I	Vight		Ldn	C	NEL
Autos:	66	6.6	64.3		63.0		58.9		66.6		67.1
Medium Trucks:	53	3.6	51.3		46.3		47.8		54.8		54.9
Heavy Trucks:	63	3.4	61.6		56.4		56.0		63.6		63.8
Contorline Distant	on to Noise C	ontour (in foo	4)		03.5		01.0		00.5		00.5
Centenine Distant	Le 10 MOISE C	ontour (III lee	9	70 dE	BA	65 0	1BA		60 dBA	55	ō dBA
			Ldn:	40		8	6		185		399
		С	NEL:	42		9	1		196		423

	FH\	VA-RD-77-108	HIGHW	AY N		REDICTIO					
Scenari	io: EAC 2020	With Project				Project I	Vame:	ктм			
Road Nam	e: Sparkman	Wy.				Job Nu	mber:	11624			
Road Segmer	nt: e/o Winche	ster Rd. (SR-79	)								
SITE	SPECIFIC IN	IPUT DATA				N	DISE	MODE	L INPUT	s	
Highway Data				S	Site Con	ditions (	Hard =	: 10, So	oft = 15)		
Average Daily	Traffic (Adt):	6,619 vehicle	s					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tru	cks (2 /	Axles):	15		
Peak H	lour Volume:	662 vehicles			Hea	avy Truci	ks (3+ /	Axles):	15		
Ve	hicle Speed:	40 mph		v	/ehicle I	Mix					
Near/Far La	ne Distance:	12 feet			Vehi	icleType		Day	Evening	Night	Daily
Site Data						A	utos:	71.5%	13.0%	15.5%	98.54%
Bai	rrier Heiaht:	0.0 feet			Me	edium Tru	icks:	70.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	/all. 1-Berm):	0.0			F	leavy Tru	icks:	77.8%	5.9%	16.3%	1.10%
Centerline Dis	st. to Barrier:	30.0 feet			laiaa Ca	uree Ek	votion	o (in f	a a 41		
Centerline Dist.	to Observer:	30.0 feet		~	voise su	Autoo	vauon	000	eel)		
Barrier Distance	to Observer:	0.0 feet			Madium	Autos	0.	207			
Observer Height (	Above Pad):	5.0 feet			Hoov	II TIUCKS	. 2.	297	Grade Ad	iustmont	
Pa	ad Elevation:	0.0 feet			Tieav	y muchs	0.	004	orado maj	dounion	0.0
Roa	ad Elevation:	0.0 feet		L	ane Equ	uivalent	Distan	ce (in	feet)		
I	Road Grade:	0.0%				Autos	29.	816			
	Left View:	-90.0 degree	s		Mediur	n Trucks	29.	518			
	Right View:	90.0 degree	s		Heav	y Trucks	29.	547			
FHWA Noise Mode	el Calculation	s									
VehicleType	REMEL	Traffic Flow	Distar	nce	Finite	Road	Fresr	nel	Barrier Att	en Ber	m Atten
Autos:	66.51	-3.18		3.26		-1.20		-4.49	0.0	000	0.000
Medium Trucks:	77.72	-27.49		3.33	:	-1.20		-4.86	0.0	000	0.000
Heavy Trucks:	82.99	-22.71		3.32		-1.20		-5.77	0.0	000	0.000
Unmitigated Noise	e Levels (with	out Topo and I	oarrier a	attenu	uation)						
VehicleType	Leq Peak Hou	ır Leq Day	L	eq Ev	ening	Leq N	light		Ldn	CI	VEL
Autos:	65	.4 6	3.1		61.8		57.7	7	65.4	1	65.9
Medium Trucks:	52	.4 5	0.0		45.1		46.6	6	53.5	5	53.7
Heavy Trucks:	62	.4 6	0.5		55.3		55.0	)	62.5	5	62.8
Vehicle Noise:	67	.3 6	5.2		62.7		59.8	В	67.4	1	67.8
				-							-
Centerline Distand	ce to Noise C	ontour (in feet)			1						
Centerline Distand	ce to Noise C	ontour (in feet)		70 d	BA	65 a	BA	e	60 dBA	55	dBA
Centerline Distand	ce to Noise C	ontour (in feet)	.dn:	70 d	IBA )	65 a 43	BA	ť	93	55	dBA 01

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	FHW	/A-RD-77-108 I	IIGHW	/AY N	OISE PI	REDICT		ODEL			
Scenar Road Narr Road Segme	rio: EAC 2020 V ne: Robert Tren nt: w/o Winches	Vith Project t Jones Pkwy. ster Rd. (SR-79	)			Projec Job N	Name lumber	: KTM : 11624			
SITE	SPECIFIC IN	PUT DATA				ſ	IOISE	MODE	L INPUT	s	
Highway Data				9	Site Con	ditions	(Hard	= 10, So	oft = 15)		
Average Daily	Traffic (Adt):	4,279 vehicles	5					Autos:	15		
Peak Hour	Percentage:	10%			Me	dium Tr	ucks (2	Axles):	15		
Peak H	lour Volume:	428 vehicles			He	avy Tru	cks (3+	Axles):	15		
Ve	hicle Speed:	40 mph		1	/ohiclo	Mix					
Near/Far La	ne Distance:	12 feet		H	Veh	icleType	,	Dav	Evenina	Night	Dailv
Site Data							Autos:	71.5%	13.0%	15.5%	98.58%
Pa	rrior Hoight:	0.0 foot			M	edium T	rucks:	70.4%	5.6%	24.0%	0.379
Barrier Type (0-N	Vall, 1-Berm):	0.0			ŀ	Heavy T	rucks:	77.8%	5.9%	16.3%	1.05%
Centerline Di	ist. to Barrier:	30.0 feet		٨	Voise So	ource E	levatio	ns (in fe	eet)		
Centerline Dist.	to Observer:	30.0 feet				Auto	s: (	0.000			
Barrier Distance	to Observer:	0.0 feet			Mediu	m Truck	's: 2	2.297			
Observer Height	(Above Pad):	5.0 feet			Heav	y Truck	's: 8	3.004	Grade Ad	justment	0.0
P	ad Elevation:	0.0 feet					4 Diata		641		
Ro	ad Elevation:	0.0 feet		-	ane Eq	uivaien	t Dista	nce (in	reet)		
	Road Grade:	0.0%				Auto	s: 29	9.816			
	Left View:	-90.0 degrees	5		Mediui	m Truck	's: 29	9.518			
	Right View:	90.0 degrees	\$		Heav	y Truck	s: 29	9.547			
FHWA Noise Mod	el Calculations										
VehicleType	REMEL	Traffic Flow	Dista	nce	Finite	Road	Free	snel	Barrier Att	en Ber	m Atten
Autos:	66.51	-5.07		3.26	6	-1.20		-4.49	0.0	000	0.00
Medium Trucks:	77.72	-29.37		3.33	3	-1.20		-4.86	0.0	000	0.00
Heavy Trucks:	82.99	-24.79		3.32	2	-1.20		-5.77	0.0	000	0.00
Unmitigated Nois	e Levels (witho	out Topo and b	arrier	atten	uation)						
VehicleType	Leq Peak Hour	r Leq Day	L	.eq Ev	rening	Leq	Night		Ldn	C	NEL
Autos:	63.	5 6	1.3		59.9		55	.9	63.5	5	64.
Medium Trucks:	50.	5 4	8.2		43.2		44	.7	51.7	7	51.
Heavy Trucks:	60.	3 5	8.4		53.2 60.8		52	.9	60.5	5	60.
Contactina Distan	N-/ 0-		0.2		50.0		57		00.	•	00.
Centerline Distan	Ce to Noise Co	mour (in reet)		70 d	IBA	65	dBA	6	0 dBA	55	dBA
		L	dn:	15	5		32	- 1	69	1	49
		CN	EL:	16	6	:	34		73	1	58

	FH	WA-RD-77-10	8 HIGH	IWAY N	OISE PI	REDICTIC	N MODE	EL			
Scenar Road Nan Road Segme	io: EAC 2020 ne: Murrieta H nt: w/o Winch	With Project lot Springs Rd. lester Rd. (SR-	79)			Project N Job Nui	lame: K1 mber: 11	TM 1624			
SITE	SPECIFIC II	NPUT DATA				NC	DISE MO	ODEL I	NPUTS	5	
Highway Data				9	Site Con	ditions (F	lard = 10	0, Soft	= 15)		
Average Daily	Traffic (Adt):	48,663 vehic	les				AL	utos:	15		
Peak Hour	Percentage:	10%			Me	dium Truc	ks (2 Ax	les):	15		
Peak H	lour Volume:	4,866 vehicle	es		He	avy Truck	s (3+ Ax	les):	15		
Ve	hicle Speed:	45 mph		1	/ohiclo	Mix					
Near/Far La	ne Distance:	12 feet		F	Veh	icleTvpe	D	av E	venina	Niaht	Dailv
Site Data						AL	itos: 71	1.5%	13.0%	15.5%	98.56%
Ba	rrier Heiaht:	0.0 feet			Me	edium Tru	cks: 70	0.4%	5.6%	24.0%	0.37%
Barrier Type (0-W	/all, 1-Berm):	0.0			ŀ	leavy Tru	cks: 71	7.8%	5.9%	16.3%	1.07%
Centerline Di	st. to Barrier:	37.0 feet		/	Voise So	ource Ele	vations	(in feet	)		
Centerline Dist.	to Observer:	37.0 feet		-		Autos:	0.00	0			
Barrier Distance	to Observer:	0.0 feet			Mediu	n Trucks:	2.29	7			
Observer Height	(Above Pad):	5.0 feet			Heav	v Trucks:	8.00	4 Gr	ade Adj	ustment.	: 0.0
P	ad Elevation:	0.0 feet									
Ro	ad Elevation:	0.0 feet		1	Lane Eq	uivalent L	Jistance	e (in tee	t)		
	Road Grade:	0.0%				Autos:	36.85	51			
	Left View:	-90.0 degre	ees		Mediui	m Trucks:	36.61	0			
	Right View:	90.0 degre	ees		Heav	y Trucks:	36.63	54			
FHWA Noise Mod	el Calculation	15									
VehicleType	REMEL	Traffic Flow	Dis	tance	Finite	Road	Fresnel	I Ba	rrier Atte	en Ber	m Atten
Autos:	68.46	4.97	7	1.88	3	-1.20	-4	1.56	0.0	00	0.000
Medium Trucks:	79.45	5 -19.26	6	1.93	3	-1.20	-4	1.87	0.0	00	0.000
Heavy Trucks:	84.25	-14.67	7	1.92	2	-1.20	-5	5.61	0.0	00	0.000
Unmitigated Nois	e Levels (with	hout Topo and	d barrie	er atten	uation)						
VehicleType	Leq Peak Ho	ur Leq Da	iy 🛛	Leq Ev	/ening	Leq N	ight	Lo	dn	CI	NEL
Autos:	74	4.1	71.9		70.5		66.5		74.1		74.6
Medium Trucks:	60	0.9	58.6		53.6		55.2		62.1		62.3
Heavy Trucks:	70	0.3	68.4		63.2		62.9		70.4		70.7
Vehicle Noise:	75	5.8	73.6		71.3		68.3		75.8		76.2
Centerline Distan	ce to Noise C	ontour (in fee	et)								
			L	70 a	1BA	65 dl	BA	60 0	1BA	55	dBA
			Ldn:	91	1	195	5	42	21	9	07
		C	INEL:	96	D	208	5	44	+7	9	64

Tuesday, August 14, 2018

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APPENDIX 9.1:

# **OPERATIONAL STATIONARY-SOURCE NOISE CALCULATIONS**



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8/13/2018

**Observer Location:** R1 Source: Roof-Top Air Conditioning Unit Condition: Operational Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

NOISE MODEL INPUTS										
Noise Distance to Observer	276.0 feet	Barrier Height:	6.0 feet							
Noise Distance to Barrier:	266.0 feet	Noise Source Height:	5.0 feet							
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet							
Observer Elevation: 0.0 fe	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0							
Noise Source Elevation:	30.0 feet	Drop Off Coefficient:	20.0							
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance of distance							

NOISE MODEL PROJECTIONS											
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax				
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2				
Distance Attenuation	276.0	-34.8	-34.8	-34.8	-34.8	-34.8	-34.8				
Shielding (Barrier Attenuation)	266.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9				
Raw (Distance + Barrier)		37.5	34.7	36.4	37.7	38.0	38.5				
39 Minute Hourly Adjustmer	nt	35.6	32.8	34.5	35.8	36.1	36.6				

STATIONARY SOURCE NOISE PREDICTION MODEL 8/13/2							
Observer Location: R1		Project Name: KTM					
Source: Pressure	Washer	Job Number: 11624					
Condition: Operation	al	Analyst: A. Wolfe					
	NC	DISE MODEL INPUTS					
Noise Distance to Observer	901.0 feet	Barrier Height:	6.0 feet				
Noise Distance to Barrier:	891.0 feet	Noise Source Height:	5.0 feet				
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet				
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0				
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0				
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	of distance g of distance				

NOISE MODEL PROJECTIONS										
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax			
Reference (Sample)	10.0	82.4	82.2	82.9	83.7	83.9	84.1			
Distance Attenuation	901.0	-39.1	-39.1	-39.1	-39.1	-39.1	-39.1			
Shielding (Barrier Attenuation)	891.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5			
Raw (Distance + Barrier)		37.8	37.6	38.3	39.1	39.3	39.5			
30 Minute Hourly Adjustmen	nt	34.8	34.6	35.3	36.1	36.3	36.5			

**Observer Location:** R1

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

NOISE MODEL INPUTS										
Noise Distance to Observer	251.0 feet	Barrier Height:	6.0 feet							
Noise Distance to Barrier:	241.0 feet	Noise Source Height:	5.0 feet							
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet							
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0							
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0							
Barrier Elevation:	0.0 feet	20 = 6  dBA per doubling c 15 = 4.5 dBA per doubling	of distance of distance							

NOISE MODEL PROJECTIONS										
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax			
Reference (Sample)	10.0	52.2	49.0	50.0	55.0	61.0	71.9			
Distance Attenuation	251.0	-21.0	-21.0	-21.0	-21.0	-21.0	-21.0			
Shielding (Barrier Attenuation)	241.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5			
Raw (Distance + Barrier)		25.7	22.5	23.5	28.5	34.5	45.4			
60 Minute Hourly Adjustme	nt	25.7	22.5	23.5	28.5	34.5	45.4			

STATIONARY SOURCE NOISE PREDICTION MODEL								
<b>Observer Location:</b> R1 Source: Motorcyle Condition: Operation	Safety Course al	Project Name: KTM Job Number: 11624 Analyst: A. Wolfe						
	NO	ISE MODEL INPUTS						
Noise Distance to Observer Noise Distance to Barrier:	550.0 feet 10.0 feet	<i>Barrier Height:</i> Noise Source Height:	<b>30.0 feet</b> 5.0 feet					
Barrier Distance to Observer:	540.0 feet	Observer Height:	5.0 feet					
Observer Elevation: Noise Source Elevation:	0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient:	0 15.0					
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doublin	of distance g of distance					

NOISE MODEL PROJECTIONS										
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax			
Reference (Sample)	140.0	49.8	48.9	49.9	52.0	54.9	59.0			
Distance Attenuation	550.0	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9			
Shielding (Barrier Attenuation)	10.0	-18.0	-18.0	-18.0	-18.0	-18.0	-18.0			
Raw (Distance + Barrier)		22.9	22.0	23.0	25.1	28.0	32.1			
60 Minute Hourly Adjustmer	nt	22.9	22.0	23.0	25.1	28.0	32.1			

**Observer Location:** R1

Source: Trailer Movement & Storage Condition: Operational

Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

NOISE MODEL INPUTS							
Noise Distance to Observer	774.0 feet	Barrier Height:	6.0 feet				
Noise Distance to Barrier:	764.0 feet	Noise Source Height:	8.0 feet				
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet				
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0				
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0				
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance J of distance				

NOISE MODEL PROJECTIONS							
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	50.0	57.0	54.9	58.4	60.7	61.7	63.1
Distance Attenuation	774.0	-23.8	-23.8	-23.8	-23.8	-23.8	-23.8
Shielding (Barrier Attenuation)	764.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		27.7	25.6	29.1	31.4	32.4	33.8
60 Minute Hourly Adjustmer	nt	27.7	25.6	29.1	31.4	32.4	33.8

STATIONARY SOURCE NOISE PREDICTION MODEL 8/13/2018						
Observer Location: R2		Project Name: KTM				
Source: Roof-Top	Air Conditioning Unit	Job Number: 11624				
Condition: Operational		Analyst: A. Wolfe				
NOISE MODEL INPUTS						
Noise Distance to Observer	274.0 feet	Barrier Height:	6.0 feet			
Noise Distance to Barrier:	264.0 feet	Noise Source Height:	5.0 feet			
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet			
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0			
Noise Source Elevation:	30.0 feet	Drop Off Coefficient:	20.0			
Barrier Elevation:	ation: $0.0$ feet $20 = 6$ dBA per doubling of dist $15 = 4.5$ dBA per doubling of d		of distance g of distance			

NOISE MODEL PROJECTIONS							
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2
Distance Attenuation	274.0	-34.8	-34.8	-34.8	-34.8	-34.8	-34.8
Shielding (Barrier Attenuation)	264.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9
Raw (Distance + Barrier)		37.5	34.7	36.4	37.7	38.0	38.5
39 Minute Hourly Adjustmen	nt	35.6	32.8	34.5	35.8	36.1	36.6

8/13/2018

Observer Location:	R2
Source:	Pressure Washer
Condition:	Operational

		NOISE
Noise Distance to Observer	736.0	feet
Noise Distance to Barrier:	726.0	feet
Barrier Distance to Observer:	10.0	feet
Observer Elevation:	0.0	feet
Noise Source Elevation:	0.0	feet
Barrier Elevation:	0.0	feet

Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

MODEL INPUTS			
Barrier Height:	6.0 feet		
Noise Source Height:	5.0 feet		
Observer Height:	5.0 feet		
Barrier Type (0-Wall, 1-Berm):	0		
Drop Off Coefficient:	20.0		
20 = 6 dBA per doubling 15 = 4.5 dBA per doublin	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance		

NOISE MODEL PROJECTIONS								
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax	
Reference (Sample)	10.0	82.4	82.2	82.9	83.7	83.9	84.1	
Distance Attenuation	736.0	-37.3	-37.3	-37.3	-37.3	-37.3	-37.3	
Shielding (Barrier Attenuation)	726.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	
Raw (Distance + Barrier)		39.6	39.4	40.1	40.9	41.1	41.3	
30 Minute Hourly Adjustmer	nt	36.6	36.4	37.1	37.9	38.1	38.3	

STATIONARY SOURCE NOISE PREDICTION MODEL 8/13/2018							
<b>Observer Location: R2</b> Source: Parking Lo Condition: Operation	ot Vehicle Movements al	Project Name: KTM Job Number: 11624 Analyst: A. Wolfe					
NOISE MODEL INPUTS							
Noise Distance to Observer	418.0 feet	Barrier Height:	30.0 feet				
Noise Distance to Barrier:	10.0 feet	Noise Source Height:	5.0 feet				
Barrier Distance to Observer:	408.0 feet	Observer Height:	5.0 feet				
Observer Elevation: Noise Source Elevation:	0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient:	0 15.0				
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doublin	of distance g of distance				

NOISE MODEL PROJECTIONS							
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	10.0	52.2	49.0	50.0	55.0	61.0	71.9
Distance Attenuation	418.0	-24.3	-24.3	-24.3	-24.3	-24.3	-24.3
Shielding (Barrier Attenuation)	10.0	-18.0	-18.0	-18.0	-18.0	-18.0	-18.0
Raw (Distance + Barrier)		9.9	6.7	7.7	12.7	18.7	29.6
60 Minute Hourly Adjustmer	nt	9.9	6.7	7.7	12.7	18.7	29.6

8/13/2018

Observer Location: R2 Source: Motorcyle Safety Course Condition: Operational Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

NOISE MODEL INPUTS							
Noise Distance to Observer	400.0 feet	Barrier Height:	30.0 feet				
Noise Distance to Barrier:	10.0 feet	Noise Source Height:	5.0 feet				
Barrier Distance to Observer:	390.0 feet	Observer Height:	5.0 feet				
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0				
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0				
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance g of distance				

NOISE MODEL PROJECTIONS							
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax
Reference (Sample)	140.0	49.8	48.9	49.9	52.0	54.9	59.0
Distance Attenuation	400.0	-6.8	-6.8	-6.8	-6.8	-6.8	-6.8
Shielding (Barrier Attenuation)	10.0	-18.0	-18.0	-18.0	-18.0	-18.0	-18.0
Raw (Distance + Barrier)		25.0	24.1	25.1	27.2	30.1	34.2
60 Minute Hourly Adjustmer	nt	25.0	24.1	25.1	27.2	30.1	34.2

STATIONARY SOURCE NOISE PREDICTION MODEL 8/13/201								
Observer Location: R2 Source: Trailer Movement & Storage Condition: Operational		Project Name: KTM Job Number: 11624 Analyst: A. Wolfe						
NOISE MODEL INPUTS								
Noise Distance to Observer Noise Distance to Barrier: Barrier Distance to Observer:	707.0 feet 697.0 feet 10.0 feet	<b>Barrier Height:</b> Noise Source Height: Observer Height:	6.0 feet 8.0 feet 5.0 feet					
<i>Observer Elevation: Noise Source Elevation: Barrier Elevation:</i>	0.0 feet 0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient: 20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	0 20.0 of distance g of distance					

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	50.0	57.0	54.9	58.4	60.7	61.7	63.1		
Distance Attenuation	707.0	-23.0	-23.0	-23.0	-23.0	-23.0	-23.0		
Shielding (Barrier Attenuation)	697.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		28.5	26.4	29.9	32.2	33.2	34.6		
60 Minute Hourly Adjustmer	nt	28.5	26.4	29.9	32.2	33.2	34.6		

**Observer Location:** R3

Source: Roof-Top Air Conditioning Unit Condition: Operational Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

NOISE MODEL INPUTS									
Noise Distance to Observer	347.0 feet	Barrier Height:	6.0 feet						
Noise Distance to Barrier:	337.0 feet	Noise Source Height:	5.0 feet						
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet						
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0						
Noise Source Elevation:	30.0 feet	Diop On Coencient.	20.0						
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance of distance						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2		
Distance Attenuation	347.0	-36.8	-36.8	-36.8	-36.8	-36.8	-36.8		
Shielding (Barrier Attenuation)	337.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9		
Raw (Distance + Barrier)		35.5	32.7	34.4	35.7	36.0	36.5		
39 Minute Hourly Adjustmer	nt	33.6	30.8	32.5	33.8	34.1	34.6		

STATIONARY SOURCE NOISE PREDICTION MODEL 8/13							
Observer Location: R3		Project Name: KTM					
Source: Pressure	Washer	Job Number: 11624					
Condition: Operational		Analyst: A. Wolfe					
NOISE MODEL INPUTS							
Noise Distance to Observer	756.0 feet	Barrier Height:	6.0 feet				
Noise Distance to Barrier:	746.0 feet	Noise Source Height:	5.0 feet				
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet				
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0				
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0				
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	of distance g of distance				

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	10.0	82.4	82.2	82.9	83.7	83.9	84.1		
Distance Attenuation	756.0	-37.6	-37.6	-37.6	-37.6	-37.6	-37.6		
Shielding (Barrier Attenuation)	746.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		39.3	39.1	39.8	40.6	40.8	41.0		
30 Minute Hourly Adjustmer	nt	36.3	36.1	36.8	37.6	37.8	38.0		

**Observer Location:** R3

Source: Parking Lot Vehicle Movements Condition: Operational Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

NOISE MODEL INPUTS									
Noise Distance to Observer	416.0 feet	Barrier Height:	6.0 feet						
Noise Distance to Barrier:	406.0 feet	Noise Source Height:	5.0 feet						
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet						
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0						
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0						
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance of distance						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	10.0	52.2	49.0	50.0	55.0	61.0	71.9		
Distance Attenuation	416.0	-24.3	-24.3	-24.3	-24.3	-24.3	-24.3		
Shielding (Barrier Attenuation)	406.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		22.4	19.2	20.2	25.2	31.2	42.1		
60 Minute Hourly Adjustmer	nt	22.4	19.2	20.2	25.2	31.2	42.1		

STATIONARY SOURCE NOISE PREDICTION MODEL 8/1							
<b>Observer Location: R3</b> Source: Motorcyle Safety Course Condition: Operational		Project Name: KTM Job Number: 11624 Analyst: A. Wolfe					
NOISE MODEL INPUTS							
Noise Distance to Observer Noise Distance to Barrier: Barrier Distance to Observer:	467.0 feet 467.0 feet 0.0 feet	<b>Barrier Height:</b> Noise Source Height: Observer Height:	<b>6.0 feet</b> 5.0 feet 5.0 feet				
<i>Observer Elevation: Noise Source Elevation: Barrier Elevation:</i>	0.0 feet 0.0 feet 0.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient: 20 = 6 dBA per doubling 15 = 4.5 dBA per doubling	0 15.0 of distance g of distance				

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	140.0	49.8	48.9	49.9	52.0	54.9	59.0		
Distance Attenuation	467.0	-7.8	-7.8	-7.8	-7.8	-7.8	-7.8		
Shielding (Barrier Attenuation)	467.0	-10.2	-10.2	-10.2	-10.2	-10.2	-10.2		
Raw (Distance + Barrier)		31.8	30.9	31.9	34.0	36.9	41.0		
60 Minute Hourly Adjustmer	nt	31.8	30.9	31.9	34.0	36.9	41.0		

**Observer Location:** R3

Source: Trailer Movement & Storage Condition: Operational

Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

NOISE MODEL INPUTS									
Noise Distance to Observer	766.0 feet	Barrier Height:	6.0 feet						
Noise Distance to Barrier:	756.0 feet	Noise Source Height:	8.0 feet						
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet						
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0						
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0						
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance of distance						

NOISE MODEL PROJECTIONS									
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax		
Reference (Sample)	50.0	57.0	54.9	58.4	60.7	61.7	63.1		
Distance Attenuation	766.0	-23.7	-23.7	-23.7	-23.7	-23.7	-23.7		
Shielding (Barrier Attenuation)	756.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5		
Raw (Distance + Barrier)		27.8	25.7	29.2	31.5	32.5	33.9		
60 Minute Hourly Adjustme	nt	27.8	25.7	29.2	31.5	32.5	33.9		

S	TATIONARY SOURCE	NOISE PREDICTION MODEL	8/13/2018
<b>Observer Location: R4</b> Source: Roof-Top Condition: Operation	Air Conditioning Unit al	Project Name: KTM Job Number: 11624 Analyst: A. Wolfe	
	NOISE M	ODEL INPUTS	
Noise Distance to Observer	803.0 feet	Barrier Height:	6.0 feet
Noise Distance to Barrier:	793.0 feet	Noise Source Height:	5.0 feet
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet
Observer Elevation: Noise Source Elevation:	0.0 feet 30.0 feet	Barrier Type (0-Wall, 1-Berm): Drop Off Coefficient:	0 20.0
Barrier Elevation: 0.0 feet		20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance g of distance

NOISE MODEL PROJECTIONS								
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax	
Reference (Sample)	5.0	77.2	74.4	76.1	77.4	77.7	78.2	
Distance Attenuation	803.0	-44.1	-44.1	-44.1	-44.1	-44.1	-44.1	
Shielding (Barrier Attenuation)	793.0	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2	
Raw (Distance + Barrier)		27.9	25.1	26.8	28.1	28.4	28.9	
39 Minute Hourly Adjustmer	nt	26.0	23.2	24.9	26.2	26.5	27.0	

Observer Location: R4 Source: Pressure Washer Condition: Operational		Project Name: KTM Job Number: 11624 Analyst: A. Wolfe	Project Name: KTM Job Number: 11624 Analyst: A. Wolfe				
	N	OISE MODEL INPUTS					
Noise Distance to Observer	1,039.0 feet	Barrier Height:	6.0 feet				
Noise Distance to Barrier:	1,029.0 feet	Noise Source Height:	5.0 feet				
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet				
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0				
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0				
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling 15 = 4.5 dBA per doublin	of distance g of distance				

NOISE MODEL PROJECTIONS								
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax	
Reference (Sample)	10.0	82.4	82.2	82.9	83.7	83.9	84.1	
Distance Attenuation	1,039.0	-40.3	-40.3	-40.3	-40.3	-40.3	-40.3	
Shielding (Barrier Attenuation)	1,029.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	
Raw (Distance + Barrier)		36.6	36.4	37.1	37.9	38.1	38.3	
30 Minute Hourly Adjustmen	t	33.6	33.4	34.1	34.9	35.1	35.3	

STATIONARY SOURCE NOISE PREDICTION MODEL 8/13/2018						
Observer Location: R4		Project Name: KTM				
Source: Parking L	ot Vehicle Movements	Job Number: 11624				
Condition: Operation	al	Analyst: A. Wolfe				
NOISE MODEL INPUTS						
Noise Distance to Observer	517.0 feet	Barrier Height:	6.0 feet			
Noise Distance to Barrier:	507.0 feet	Noise Source Height:	5.0 feet			
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet			
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0			
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0			
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance g of distance			

NOISE MODEL PROJECTIONS								
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax	
Reference (Sample)	10.0	52.2	49.0	50.0	55.0	61.0	71.9	
Distance Attenuation	517.0	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7	
Shielding (Barrier Attenuation)	507.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	
Raw (Distance + Barrier)		21.0	17.8	18.8	23.8	29.8	40.7	
60 Minute Hourly Adjustmer	nt	21.0	17.8	18.8	23.8	29.8	40.7	

**Observer Location:** R4

Source: Motorcyle Safety Course Condition: Operational Project Name: KTM Job Number: 11624 Analyst: A. Wolfe

NOISE MODEL INPUTS						
Noise Distance to Observer	856.0 feet	Barrier Height:	6.0 feet			
Noise Distance to Barrier:	846.0 feet	Noise Source Height:	5.0 feet			
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet			
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0			
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	15.0			
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling o 15 = 4.5 dBA per doubling	of distance g of distance			

NOISE MODEL PROJECTIONS								
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax	
Reference (Sample)	140.0	49.8	48.9	49.9	52.0	54.9	59.0	
Distance Attenuation	856.0	-11.8	-11.8	-11.8	-11.8	-11.8	-11.8	
Shielding (Barrier Attenuation)	846.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	
Raw (Distance + Barrier)		32.5	31.6	32.6	34.7	37.6	41.7	
60 Minute Hourly Adjustmer	nt	32.5	31.6	32.6	34.7	37.6	41.7	

STATIONARY SOURCE NOISE PREDICTION MODEL 8/13/2018						
<b>Observer Location: R4</b> Source: Trailer Mo Condition: Operation	ovement & Storage al	Project Name: KTM Job Number: 11624 Analyst: A. Wolfe				
	NOISE	MODEL INPUTS				
Noise Distance to Observer	1,090.0 feet	Barrier Height:	6.0 feet			
Noise Distance to Barrier:	1,080.0 feet	Noise Source Height:	8.0 feet			
Barrier Distance to Observer:	10.0 feet	Observer Height:	5.0 feet			
Observer Elevation:	0.0 feet	Barrier Type (0-Wall, 1-Berm):	0			
Noise Source Elevation:	0.0 feet	Drop Off Coefficient:	20.0			
Barrier Elevation:	0.0 feet	20 = 6  dBA per doubling 15 = 4.5  dBA per doubling	of distance g of distance			

NOISE MODEL PROJECTIONS								
Noise Level	Distance (feet)	Leq	L50	L25	L8	L2	Lmax	
Reference (Sample)	50.0	57.0	54.9	58.4	60.7	61.7	63.1	
Distance Attenuation	1,090.0	-26.8	-26.8	-26.8	-26.8	-26.8	-26.8	
Shielding (Barrier Attenuation)	1,080.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5	
Raw (Distance + Barrier)		24.7	22.6	26.1	28.4	29.4	30.8	
60 Minute Hourly Adjustmer	nt	24.7	22.6	26.1	28.4	29.4	30.8	